

**An Ethnographic Study using the work of Heidegger to explore Experts' use of
Information and Communication Technology (ICT) at Work**

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Abstract

The use of Information and Communication Technology (ICT) has become a familiar part of the world of work. And as technology in general becomes increasingly sophisticated, ICT is in most cases, a means by which organisations and employers attempt to get everyday workplace tasks carried out more efficiently, saving on time and resources, and very often replacing some of the tasks carried out by experts themselves. I used ethnographic research methods to explore firsthand how my respondents, from a diverse range of professional backgrounds, use ICT in the workplace, to either replace or enhance, the jobs that they do. My thesis draws upon the philosophy of Heidegger, by using his theoretical ideas to investigate how my respondents encounter ICT at work in various ways. The application of Heidegger's ideas to this modern context, has enabled me to develop two fundamental arguments in this thesis. My first argument is that experts have a practical grasp of the jobs they do at work. Following Heidegger, and others, I call this kind of practical understanding know-how. I argue that know-how demonstrates the kind of understanding that is fundamental for my respondents to carry out their jobs, and is one which cannot simply be extracted and programmed into or replaced by an ICT system. In fact, attempts to extract expertise, I argue, result in a deficient mode of understanding and can ultimately be inferior in carrying out the tasks at work. The second argument in this thesis also draws upon Heidegger's philosophy, but in this case focuses on the way in which my respondents communicate via mediating technology (various forms of ICT specifically used for communicating with others). Here, mediating technology seemingly replaces or enhances how workers are able to communicate with others in the workplace, by using for example, email, telephones and video conferencing, rather than communicating with them face-to-face, whereby they are bodily-present with others. I argue that contemporary advances in ICT have had varying effects, on work environments and experiences of work because of distancing in communicative processes. My arguments drawing on Heidegger's ideas, are supported by the primary data I gathered from a series of ethnographic interviews with my nine respondents and from participant observation with one respondent in particular (a commercial aeroplane pilot), who took me to an aviation base to fly on a small aeroplane, and also aboard a simulated aeroplane used for training pilots.

Contents of Thesis

Chapter 1: Introduction	9
1.1 The Presuppositions of the Interviews and Discussion	16
1.2 Comportment to Equipment	16
1.3 Comportment to Others.....	18
1.4 Introducing the theme of Know-how.....	19
1.4.1 Know-how and Thematisation.....	20
1.4.2 Transparency and Conspicuousness.....	23
1.5 Introducing the theme of Bodily-Presence.....	26
1.5.1 Bodily-Presence and Picture-Things: The Bridge Argument.....	26
1.6 Outline of Chapters	30
Chapter 2: Literature Review	32
2.1 Know-how and Situated Action: using ICT at Work.....	32
2.1.1 Background to Know-how: Polanyi and Dreyfus	32
2.1.2 ICT at Work: The Problems with Rationality and Calculability	37
2.1.3 Plans and Situated Action.....	39
2.1.4 Tacit Knowledge at Work: Replacing Experts with ICT?	44
2.2 Bodily-Presence and Mediating Technology	49
2.2.1 Background to Mediating Technology and Presence	49
2.2.2 The Need to be Bodily-present with others	52
2.2.3 Improving Technology to Improve the Feeling of Presence: A Futile Attempt? ..	54
2.3 Conclusion to Literature Review	57
Chapter 3: Methodology	58
3.1 Sampling Procedure: How I Selected the Respondents for my Study.....	58
3.2 Why use Ethnographic Interviewing?	60
3.2.1 Practical Aspects of the Interviews: Time, Location and Feasibility	65

3.2.2 Building Rapport and Maintaining Good Relationships with my Respondents...	68
3.2.3 Doing Fieldwork: Having Extended Access to my Respondent's Worlds.....	70
3.3 Participant Observation: Making Best Use of Welcoming Opportunities	72
3.3.1 Using Participant Observation with the Pilot: Flying a Simulated Aeroplane.....	75
3.3.2 Using Participant Observation with the Pilot: Flying a Cherokee Aeroplane	78
3.3.3 Recording My Experiences: Taking Field Notes	82
3.4 Analysing the Data: Using Thematic Analysis	82
3.4.1 Stage One of Analysis: Letting the Respondents Speak for Themselves	83
3.4.2 Stage Two of Analysis: Explicit use of Heidegger's Theory to bring out Themes	83
3.5 Conclusion to Methodology	84

Chapter 4: Data Analysis

	86
4.1 Thematic Analysis	86
4.2 The Theme of the Computer Graduate's Story	86
4.2.1 Importance of Common-Sense: "you know it's a letter"	88
4.2.2 Conclusion to the Computer Graduate's Story.....	89
4.3 The Theme of the Director's Story	90
4.3.1 Seeking to make Magic Dates: "I don't know a computer that's ever done that"	91
4.3.2 Conclusion to the Director's Story.....	95
4.4 The Theme of the Business Developer's Story	96
4.4.1 Monitoring Relationships: "the system is quite limited and is not used as much as it should be"	97
4.4.2 Conclusion to the Business Developer's Story	101
4.5 The Theme of the Project Manager's Story.....	101
4.5.1 Reluctance to use Telephones and Video-conferencing in the Banking Industry: "Because the communication is just different"	103
4.5.2 Conclusion to the Project Manager's Story.....	107
4.6 The Themes of the Commercial Aeroplane Pilot's Story.....	108
4.6.1 Using New Forms of ICT: being "in control"	108

4.6.2 Practical Ability of Flying Commercial Aeroplanes: “well this aeroplane is not doing what we’d expect it to do”.....	110
4.6.3 Conclusion to the Pilot’s Story	112
4.7 The Theme of the Insurance Consultant’s Story	113
4.7.1 Replacing Insurance Underwriters: “you don’t really need that number of people to look at the few which need special attention”.....	113
4.7.2 Conclusion to the Insurance Consultant’s Story	119
4.8 The Theme of the Systems Analyst’s Story.....	120
4.8.1 ICT and How Best to Communicate: “it’s always better to see them face-to-face”.....	121
4.8.2 Conclusion to the Systems Analyst’s Story.....	123
4.9 The Theme of the Doctor’s Story	124
4.9.1 Patients want to be face-to-face with the Doctor: “people feel face-to-face is good”	124
4.9.2 Conclusion to the Doctor’s Story.....	127
4.10 The Theme of the Teacher’s Story.....	128
4.10.1 The Silent Work Area and Problems with Managing Behaviour: “it’s no good having kids just being numbers or data”	128
4.10.2 Conclusion to the Teacher’s Story	133

Chapter 5: Know-How

	134
5.1 The Computer Graduate’s Recognition of Document Types.....	135
5.1.1 Know-how: “just the way it looks”	135
5.2 The Director’s Understanding of his Clients	138
5.2.1 Know-how: “that just doesn’t sound right”	139
5.3 The Business Developer’s Understanding of Clients in the Rail Sector	143
5.3.1 Know-how: “I know when I need to call him next”	144
5.4 The Pilot: Knowing-how to Fly Commercial Aeroplanes.....	149
5.4.1 Know-how and the Pilot’s Ability to Fly Aeroplanes: “it’s that sort of angle”	149
5.4.2 Designing Autopilot Systems and the Attempt to Thematised Flying.....	151
5.5 The Insurance Consultant’s Decisions over Insurance Quotations	154
5.5.1 Know-how: “it’s way out of line with the sort of thing we’d expect”	157

5.6 The Teacher’s Understanding of Pupils Behaviour in the School.....	160
5.6.1 Know-how: “I know the kids who are badly behaved”	162
5.7 Conclusion to Know-how	166

Chapter 6: Bodily-Presence

	169
6.1 The Project Manager: Bodily-Presence as the Superlative Mode of Being-With Others	170
6.1.1 The Problems with using Mediating Technology: “Because the communication is just different”	170
6.1.2 Telephone and Video-conferencing: The Picture-Screen of the Managing Director	174
6.2 The Systems Analyst and Bodily-Presence: “It’s always better to see them face-to-face”	175
6.2.1 The Superlative Mode of Bodily-Presence: They’re more willing to do things”	176
6.3 The Doctor’s Bodily-Presence with his Patients: “people feel face-to-face is good”	177
6.4 When Mediating Technology is the Preferred Mode of Communication.....	180
6.4.1 The Systems Analyst’s Use of Email: “Sometimes you want people to think about how they’re going to respond”	181
6.4.2 The Project Manager and the Authority of Bodily-Presence	182
6.5 Flying in a Simulated Aeroplane: Heidegger’s Picture-Postcard Revisited.....	186
6.6 Conclusion to Bodily-Presence	191

Chapter 7: Conclusion

	194
7.1 Summary of Know-how	194
7.2 Summary of Bodily-Presence	201

Bibliography

207

Appendices

	212
Appendix 1 – Interview Transcript 1: The Computer Graduate	212-223
Appendix 1b – Interview Transcript 1b: The Computer Graduate	224-242
Appendix 2 – Interview Transcript 2: The Director	243-252
Appendix 2b – Interview Transcript 2b: The Director	253-262
Appendix 3 – Interview Transcript 3: The Business Developer	263-273
Appendix 3b – Interview Transcript 3b: The Business Developer	274-286
Appendix 4 – Interview Transcript 4: The Project Manager.....	287-301
Appendix 4b – Interview Transcript 4b: The Project Manager.....	302-315
Appendix 5 – Interview Transcript 5: The Commercial Aeroplane Pilot.....	316-329
Appendix 6 – Interview Transcript 6: The Insurance Consultant	330-349
Appendix 7 – Interview Transcript 7: The Systems Analyst	350-361
Appendix 7 – Interview Transcript 7b: The Systems Analyst.....	362-369
Appendix 8 – Interview Transcript 8: The Doctor	370-381
Appendix 9 – Interview Transcript 9: The Teacher.....	382-400
Appendix 10 – Field Notes of Participant Observation: At the Airbase with the Pilot	401-427
Appendix 11 – The Research Brief	428

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Chapter 1: Introduction

This thesis is a qualitative study centring on how Information and Communication Technology (ICT) is encountered at work. It focuses on how in recent years more sophisticated forms of ICT are being used to replace or enhance the jobs, roles or tasks of experts in the workplace. Such replacement can happen in many different forms, including for example, the way in which mediating technology replaces the need for experts to be physically present with each other at work. There are many different industries where this is the case and which I shall address throughout this thesis, by drawing upon primary research I carried out with respondents from nine different areas of work and by drawing upon a set of theoretical presuppositions taken from the work of Heidegger. In this opening section, I would like to outline the rationale for my study, the reasons for choosing Heidegger's philosophy, and provide an introduction to this thesis by introducing the respondents in my study. This is an ethnographic study of the use of ICT in the workplace. It comprises ethnographic interviews, and one instance of participant observation with a total of nine people whose work varies from a commercial airline pilot to the leader of a division in an international commercial bank. The focus in this study was provided by, ultimately, Heidegger's work. But I have drawn on his work only to the extent that it aided my research and analysis, or was suggested by the outcomes of the interviews. And the interviews take the lead throughout: in places I have adapted or modified Heidegger's ideas where this was suggested by the themes brought up in the interviews (mainly in the sections we shall see on bodily-presence). Further, a number of his key ideas will not appear here. So what follows is not a comprehensive account of, let alone a philosophical engagement with Heidegger's thinking. Rather, my study draws on his ideas to illuminate the ethnographic accounts taken from my interviews.

So, what's my rationale for this study? I chose to study ICT at work to understand the varying effects that contemporary information and communication technology was having on work environments and experiences of work. I was particularly interested in how workers dealt with changes in the workplace, specifically where new technologies had replaced the tasks or jobs once carried out using human 'know-how' (a term which is a key theme of this thesis). I chose to investigate a number of different workplaces, because I was interested to see how know-how was applicable in a number of diverse work practices, and to investigate not just one form of ICT, but a variety of different types of ICT used by employees to carry out their jobs. My

thesis is different to other studies on ICT at work, because it uses an ethnographic approach drawing upon Heidegger's philosophy. This in itself was a challenge, because it involved making Heidegger's philosophy accessible to the reader by developing key Heideggarian concepts which are suitable for analysing ethnographic data used in the social sciences. My thesis is also different to other studies because it draws upon aspects of Heidegger's philosophy which have not been used before by social scientists to study the use of mediating technology at work (we shall come back to this shortly). The main argument of my thesis is that contemporary advances in ICT have had varying effects, on work environments and experiences of work because of distancing in communicative processes (i.e. lack of 'bodily presence' – another key theme of this thesis). These varying effects are facilitated by different ways in which people (and in some cases things) are encountered ontologically (I shall further explain this argument in the fourth-coming sections of this introduction).

So, what next? Given that my interviews take the lead throughout this study, I would first like to give a brief account of each of my nine respondents (we will return to them several times in the course of the thesis). These respondents are all experts¹ at doing particular roles/ jobs in the workplace, so what follows is an introduction to their jobs and to the different sorts of ICT which they encounter (in some cases do not encounter) there. Let's take a look.

My first respondent is the Computing Graduate (as I shall refer to him as throughout). He is 37 years of age, and recently graduated from university, after completing a Computer Science degree. He works in an administrative role, which largely involves data entering. This involves classifying digital documents, in other words placing them in the categories of letters, emails and reports. So all he is required to do is differentiate between the documents and insert its 'document type'. If it's an email for instance, then he has to insert it, or classify it under the

¹ Note: I define a human expert (or human expertise) as a person who is capable of performing skilled tasks using sound judgement or ability. But I use the term broadly. Cashiers working at checkouts in retail can use sound judgement or ability to deal with customers. Taxi cab drivers can use sound judgement or ability to know which route they are taking to travel, without the use of satellite navigation systems. To be clear, my use of "experts" and "expertise" does not simply refer to those in professional occupations (even though my respondents in this study are predominantly professionals).

“email” list. He does this so that lawyers have digitalised access to thousands of documents before presenting a case in court. The Computer Graduate’s job relies on his practical ability to differentiate between these document-types, since there is not as yet a system which can replace his expertise. I questioned whether or not an ICT system could replace what he did at work. I shall present the Computer Graduate’s story in section 4.2.

My second respondent I shall refer to as The Director. He is 55 years of age and has worked in his job for twenty years. His role involves running a company which creates strategic partnerships between commercial companies. His company has two sets of clients. Firstly, there are those who need or wish to buy new technology, innovation or new invention. And secondly, there are those who have the new technology to offer, but don’t quite know where or how best to sell it. The Director says his company is therefore a business of matchmaking, and he compares it quite closely to an old dating agency because he says the activities of matchmaking are very similar in many ways. The Director uses a number of information systems to do his job, and could potentially use a system to carry out some of the tasks of “matching” for him (i.e. a system could potentially replace what the people who work for his company do). The Director discusses this possibility during my interviews with him. I shall present the Director’s story in section 4.3.

The Business Developer is my third respondent. He is 29 years of age and has worked for an engineering design consultancy in the rail sector for more than five years. His job is business development, so he’s tasked with bringing in new work and trying to keep the number of projects going. His role is part relationship development with new clients, potential clients and existing clients and also putting bid documents together. He says that fifty-percent of his time is spent trying to identify new business; develop relationships with potential clients or existing clients for future work and to carry out the commercial aspects of the job which is to monitor business development spend. The interviews with the Business Developer look at how his company maintains relationships with its existing clients using what’s called a “relationship monitoring system”. The Business Developer discusses how this system attempts to replace the knowledge which employees have of clients, by getting employees to use it to record and share all past and present knowledge of their clients on the database. Using a system to monitor and store information about relationships throws up a number of issues. I shall address these issues in the Business Developer’s story in section 4.4.

The fourth respondent is the Project Manager. She is 49 years of age and has worked for an investment bank in London for more than thirty-five years. She manages projects based on developing and implementing new systems used in banking. Her group is an interface between the operations people who do the actual work and the technology people who develop the systems. The Project Manager's team looks at all the business requirements from the operations perspective and gets all that back drafted up, and then explains that to the technology people in order for them to deliver a technical solution. One of the Project Manager's main responsibilities is to provide communication between the operations people and the technology team ensuring that things like appropriate testing of the systems is carried out and that there is no misunderstanding or miscommunication. A major part of my interviews with the Project Manager look at how she runs a project that involves the development, organisation and testing of a new system used for foreign exchange banking. This project requires the Project Manager to communicate with others via the use of ICT, using telephone, email, and video-conferencing technology (i.e. various forms of mediating technology). The Project Manager discusses how telephone and video-conferencing systems are used to replace the need for colleagues to be in the same room as each other. This discussion of mediating technology becomes a central focus of my interviews with her. I shall present the Project Manager's story in section 4.5.

The Pilot is my fifth respondent. He is 58 years of age and has been a commercial aeroplane pilot for more than thirty years. About seven years ago the company decided that a paperless aeroplane was a way to go and the first stage in this process was that all the pilots were given a laptop, and old hardcopy manuals were replaced with information systems. One of the main jobs of the system is "the Performance". The Performance is used for take-off, for example deciding what the flap and throttle settings should be, given the plane's all-up weight, the length of the runway and other factors, and is therefore very important for flying an aeroplane these days. The new laptop system which does the "Performance" is just one of the many aspects of the Pilot's job which is automated by an ICT system, and no longer requires the same amount of practical readying of the plane for take off that it once did. Another example is the autopilot system, which is increasingly replacing the need for Pilots to fly their aircrafts themselves. These systems become a central focus of the discussions with the Pilot. I shall present the Pilot's story in section 4.6.

The sixth respondent is the Insurance Consultant. The Insurance Consultant is 60 years of age and has been running a training company in the Insurance sector for the last eight years. In addition to this, he is a Non-Executive Director for a particular company whose systems and office procedures he audits making sure they are doing things in a way that is self-compliant (i.e. that they comply with insurance regulations and so on). The Insurance Consultant used to work for the Chartered Insurance Institute and he still runs their examination programme. He is also involved with other institutes, notably the Irish Insurance institute and acts for them as a consultant, developing question banks, for multiple choice questions for a variety of their subjects. Previously, he had a series of jobs where he ran a college of insurance exams division with a distance learning element to it, as well as being in the insurance industry itself for twenty years as an Underwriter. He tells us that the last thirty years in the insurance sector has seen automated systems largely replace the jobs of insurance underwriters, with today the majority of insurance quotations being provided automatically online. Customers requiring insurance no longer have to speak to somebody in order to complete an application. Instead, automated software allows customers to fill out applications themselves before providing them with an instant decision or online quote. The use of an insurance quotation system, used to partly replace the job of the insurance underwriter, becomes a central discussion with my respondent. I shall present the Insurance Consultant's story in section 4.7.

My seventh respondent is a Systems Analyst. He is 56 years of age and has worked for a large car manufacturing company in Britain for more than twenty years. This particular manufacturing plant makes gear boxes for cars. The Systems Analyst is responsible for looking after the network in the plant, the PCs, the printing and to an extent, the computer applications as well. The Systems Analyst can deal with everyday problems, such as password expiry or lack of access to the email system to sometimes developing computer applications and systems for use just within the plant, such as a web based system. The Systems Analyst discusses the many different types of systems he has seen come and go in the thirty-four years he has worked there. He discusses the impact these systems have had on the work environment, as well as the relationships the employees have had with these systems themselves. As well as this, the Systems Analyst discusses how he communicates with others within his organisation, outlining some of the differences he experiences using

various forms of mediating technology when dealing with others (in particular, email and telephone technology). I shall present the System Analyst's story in section 4.8.

My eighth respondent is The Doctor. He is 56 years of age and has been a General Practitioner for over 35 years. He has been based in the same practice since qualifying as a Doctor in 1968. The Doctor is based in the east end of London. This is an area of London which has long-standing residents, as well as many young professionals attracted by its location near the city of London. The Doctor talks about using a system records, stores and retrieves information about his patients' health problems and medication. As well as this, the Doctor explains how patients are dealt with using various forms of mediating technology, including NHS telephone help lines, self-diagnosis websites, and the Doctor's own telephone services to patients at his surgery. The use of mediating technology in the healthcare sector became a central feature of the discussion I had with the Doctor. I shall present the Doctor's story in section 4.9.

Finally, my ninth respondent is The Teacher. She is 57 years of age and has worked for a Community Comprehensive School in Liverpool for over 23 years. Although originally teaching Biology and being Head of Year, the Teacher is now a key member of staff for discipline, support and pastoral care in the school. A lot of the Teacher's time is spent in a classroom called SWA (the Silent Work Area). This is where misbehaving pupils are sent if they are disruptive in class. It is here that the Teacher uses a behavioural management system to record, monitor and retrieve information about the pupils. This behavioural management system acts as a tool for knowing the behaviour of the pupils in the school. But throughout my interviews, the Teacher discusses the practical way in which she knows the pupils, in addition to knowing the pupils through the use of the system. I shall present the Teacher's story in section 4.10.

Using a set of theoretical presuppositions taken from Heidegger, the main aim of my thesis was to map out and describe how my respondents from a range of various occupational professions encounter ICT in their workplace. For this reason, I decided to adopt an ethnographic approach, because it is adapted for carrying out such mapping exercises. Like most ethnographers, I aimed at gaining access to the natural settings of my respondents in order to participate in the understanding of their everyday worlds. This involved using a

number of ethnographic interviews with each respondent, in addition to some participant observation with one of my respondents, to whom I shall refer to throughout this thesis as the Pilot. He gave me the opportunity to go flying on a small aeroplane, as well as a simulated commercial aeroplane used for training pilot cadets. I shall explain more about how I conducted my research in the Methodology chapter of this thesis (in Chapter 3, and specifically I shall discuss my participant observation with the Pilot in section 3.3). Firstly I would like to outline the theoretical presuppositions used to carry out my research.

1.1 The Presuppositions of the Interviews and Discussion

Before beginning my research I had a number of theoretical presuppositions which I had drawn from the work of Heidegger. These presuppositions gave me a set of theoretical tools I could use to understand how my respondents encountered ICT in each of their respective workplaces. I therefore adopted and adapted Heidegger's position by developing a number of themes and theoretical concepts drawn from his ideas, as well as drawing on the experiences of each of my respondents (this procedure is sometimes known as using 'sensitizing concepts'). The following sections will outline the theoretical framework used for this study, and show how Heidegger's ideas will be used, to explore the relationship between experts and the different forms of ICT they encounter. I shall now highlight the theoretical concepts I have developed from Heidegger's work.

1.2 Comportment to Equipment

What is equipment? In Heidegger's thinking, equipment is something we put to use in order to do something². For example, the Teacher uses a pen in order to mark her students' work; the Doctor uses a thermometer in order to check his patients' temperature; and the Pilot uses a yoke in order to steer his aeroplane. In each case the entities are equipment because of our particular comportment towards them. Heidegger's use of the term comportment means here 'conducting or behaving ourselves in a particular manner'. In other words, stuff is equipment because we comport ourselves towards it in a particular manner: we use that stuff in order to do something. Heidegger, or at least his translators, refers to that particular comportment as concern³.

² Heidegger calls those entities which we encounter in the mode he calls concern "equipment". (For a discussion of this see Heidegger 2003: 97).

³ In *Being and Time* (2003), 'Besorgen' is translated as 'concern'. However, the English word 'concern' is used in many expressions where 'Besorgen' would be inappropriate in German, such as "This concerns you", or "That is my concern". *Besorgen* rather stands for the kind of 'concern' in which we 'concern ourselves' with activities which we perform or things which we procure. (Again see translators footnotes to *Being and Time* 2003).

But there's a complication: there is no such thing as a single piece of equipment (Heidegger 2003: 97). With any equipment there always belongs a totality of equipment. For example, in the Teacher's world, other equipment is used along with the pen: the books to write in, the desks to sit at, the chalk board or interactive white board to write on and so on. In the Doctor's world, other equipment is used along with the thermometer: the aspirin used for reducing temperatures and helping other ailments, the database used for storing patients' information, the paper used for writing out prescriptions and so on. And in the Pilot's world, other equipment is used along with the yoke: the instruments used to control the speed of the aeroplane, the flaps which control the lift of the wings, the satellite navigation system used for guiding the aeroplane and so on. Even stuff that is not there in the same place comes into view when carrying out our activities and shows up as equipment.

We see then, that with any individual item of equipment there is a totality of equipment⁴. The Teacher can only comport herself towards the pen as equipment, as something to mark with, as long as there are paper examination scripts to mark, and as long as there is a desk to sit at whilst marking etc. The Doctor can only comport himself towards the thermometer as equipment, as something to measure a patient's temperature with, as long as there's other equipment that will allow him to respond to a high temperature, from ibuprofen to an ambulance and emergency ward. And the Pilot can only comport himself towards the yoke as something to fly the aeroplane with, as long as there is other equipment in place for the aeroplane to fly: flaps, wings, satellite navigation and so on. Thus our comportment towards equipment is always one in which we comport ourselves towards a totality of equipment, and never an isolated piece of equipment on its own. That concludes my brief introduction to comportment to equipment. Next comes comportment to others.

⁴ In Heidegger's work, this is also variously referred to as "equipmental contexture" (such as in the *History of the Concept of Time* 1992), although to some extent, this depends on Heidegger's various translators.

1.3 Comportment to Others

In Heidegger's thinking, equipment always shows up with others. There is always someone using equipment (or not, which means it is available for use, unless it is someone else's private property). There is also always someone to use the equipment with even if they are simply the suppliers of the equipment and raw material. There is also always someone for whom the equipment is used, such as customers, clients or patients. Let's develop these points by again drawing on the respondents of my study.

In Heidegger's thinking, equipment always shows up in the world with someone using it. For example, pens, books, and school desks show up in the world of education along with teachers, head teachers, dinner staff, administrative staff, parents, pupils and so on. And when equipment shows up in the world so do others (we are never using it on our own, even if the others are absent). For example, the Teacher shows up in the world with other teachers to teach alongside, such as teacher assistants, head teachers and so on. And of course, the Teacher has pupils for whom she teaches. Even parents, grandparents and whole communities show up in the world of education, as without their contribution (e.g. population of the local area) there would not be a world of education because there would simply be nobody to teach. Here I would like to emphasise that the Teacher's comportment to others in her world of education does not necessarily rely on her being bodily-present with others in order for her to be in the world with them. The bodily co-presence of others in this sense is not necessary. The Teacher is aware that others are there and carries or comports herself in the appropriate manner for that which is expected in the world of education, without having to necessarily come into direct contact with others at all.

In the world of GP surgeries, equipment such as thermometers, medicines, and prescriptions show up along with doctors, nurses, health visitors, surgeons, hospital administrators, cleaners and so on. And when equipment shows up in the world so do others with whom we use the equipment with. For example, the Doctor has other doctors and nurses whom he works alongside. And of course, he has patients for whom he does the work. Even those who are suppliers of medicines and other equipment show up in the world. Like the Teacher, the Doctor need not meet all other doctors, nurses and health visitors or suppliers in order to

know that they are there. He will not even know which new patients will join his surgery, but he still carries on comporting himself towards them and for them as a Doctor.

In the world of civil aviation, equipment such as yokes, flaps, wings and satellite navigation systems all show up along with pilots, co-pilots, cabin crew, air traffic control staff, passengers and so on. Again, the Pilot flies his aeroplane with an understanding that others are there with him, regardless of whether or not they are bodily co-present with them on their aeroplanes, on the flight deck or not. I again want to emphasise the point that, in order to comport ourselves to others, we need not have them bodily co-present and for the most part we will not even know who they are. But we must remember that this in no way means that we are not being-with them. On the contrary, being there using equipment always means being there with others.

And so, to summarise what I have said in the two preceding sections, being there as a human means being there using equipment (our comportment is concern) and being there with others (our comportment is solicitude⁵). Heidegger refers to particular combinations of both as variously, a region, or a workshop, or a world. For the sake of simplicity, we can think of combinations of these as world (a term I shall use throughout this thesis). In the following sections however, we see that there are different modes of comportment in the world (i.e. different ways of comporting ourselves towards equipment and others). Let's take a look at these different ways of comporting ourselves.

1.4 Introducing the theme of Know-how

So far in this Chapter, I have introduced Heidegger's argument that we are always comporting ourselves towards equipment, and to others within the world. Here I wish to add the idea that there are different modes of comportment. That is, there are different ways in which we carry

⁵ In *Being and Time* (2003), Heidegger's term 'Fursorge' is translated as 'solicitude'. It has a more literal meaning of caring-for, but does not necessarily mean caring-for in the sense of 'being fond of' (See translators footnotes in Heidegger 2003: 157). Rather, Heidegger has in mind 'a factual social arrangement' (again see footnotes in Heidegger 2003: 157) in which things are taken care of.

ourselves (i.e. conduct/ behave ourselves) within the world: different ways we understand the world. One mode of comporting our selves to equipment, and others, centres on using our know-how. Another mode of comportment centres on using thematisation. In this section I shall explain these theoretical ideas which I have taken from Heidegger's thinking, by drawing upon examples from my own research (specifically I will draw upon examples using my respondent, the Teacher). The theme of know-how becomes central to my thesis because it shows how, usually and for the most part, the respondents in my study carry out their everyday tasks in the workplace, as well as dealing⁶ with others in the workplace. Put simply, the Teacher does not have to "think through" how she carries out her activities at work, she simply carries out her activities in the way she knows how to. In a nutshell, the theme of know-how will be used in this thesis to argue, drawing on Heidegger's ideas, that experts have a practical and immediate grasp of what they do at work. This theme consequently reveals some of the fundamental problems organisations face, when attempting to systemise procedures using various forms of ICT.

1.4.1 Know-how and Thematisation

So, what's know-how?⁷ For the most part of their everyday lives, my respondents encounter things and know how to deal with them in the appropriate manner. For example, when getting up for work of a morning, the Teacher knows how to brush her teeth, tie her shoe laces, and comb her hair. When travelling to work, she knows how to board a train, buy a newspaper, cross a road. At school the Teacher knows how to open the classroom door, sit in the chair, and write with the pen. But know-how is not confined only to physical activities such as these. The Teacher also knows how to do basic adding up, without having to rely on a calculator

⁶ Here, and throughout the rest of this thesis I use the term "deal" and "dealing" in a Heideggerian sense: "dealings" (*Umgang*), refers to the way in which we are 'going around' or 'going about' doing our everyday activities (for a discussion of this term's translation, see the translators footnotes of *Being and Time*, in Heidegger 2003: 95).

⁷ Note: "Know-how" is used in this thesis as a Heideggerian concept, but it is not a term Heidegger uses. Rather I have developed this term as a "sensitizing concept" from my own reading of Heidegger's work, and have developed it in relation to it's usage in the work of other Heideggerians, most notably Hubert Dreyfus (1986) who has spent a significant part of his career making Heidegger more accessible to students of philosophy.

(because she knows her times table). She knows how to tell the time by glancing down at her watch. She knows how to distinguish between classical music and pop by hearing just the opening sounds of the piece of music. She can even recognise somebody she hasn't seen for a long time by using what we can call know-how. All of the Teacher's activities are for the most part carried out in the way she knows how to do. In this sense, know-how is something which enables her to gain a grasp of things in the world. It is a form of understanding. But how is know-how a kind of understanding? Well, the Teacher can understand how to open the door, for instance, by simply grabbing the handle and turning. Likewise, she can understand how to sit in the chair, simply by sitting. And, she can understand how to write in her diary, simply by writing. As we shall see, know-how is the mode of comporting oneself towards the world which is always primordial: it is the kind of understanding which is closest to us. It is the kind of understanding that comes before any other⁸.

When we think of understanding, we don't usually think of it in this way. On the contrary, we tend to think of understanding as having a thematic⁹ grasp of things, whereby we make assertions or propositions to explain the things we encounter. The Teacher says, for example, that the door is used for entering the room. The chair is used for sitting. The pen is used for writing. In particular circumstances she might point out that the door is open, the chair is broken, or the pen has run out of ink. There are always such instances like this, where the Teacher can point out or assert what's going on, in order to understand or grasp something. Often she uses this kind of understanding to explain what's going on to others, as a way of communication. She might, for example, ask a pupil to push the chair neatly underneath the desk by pointing at the chair. However, in her everyday dealings with the world, she need not point out or "think through" what a door is used for, in order to enter the classroom. And she need not "think through" what a chair is for, in order to sit down in it. Similarly, she need not point out, assert, or "think through" how to use a pen, in order to write in her diary. This is

⁸ In reference to my use of the term 'before', I wish to make clear that this is used in the ontological sense. In *Being and Time*, Heidegger says that we never perceive equipment that is ready-to-hand without *already* understanding and interpreting it (Heidegger 2003: 190, my own emphasis added).

⁹ The terms "thematic" and "thematization" are used in Heidegger's (1992) *History of the Concept of Time*. They are used extensively throughout this thesis.

because her articulation lies before her making any thematic assertion about it. She routinely walks through doors, sits in chairs and writes with pens without requiring a thematic understanding at all. In this sense we can say that a thematised understanding is a deficient mode of comportment because it always presupposes know-how (i.e. it is deficient because it is not complete or full in itself – it depends on something else). But if our thematic understanding is a deficient mode of comportment, then does this mean that is no good to us? Of course not, there is nothing wrong with “thinking through” what’s going on, if for some reason we are hesitant about what we are doing. If the door won’t open, the Teacher might “think through” what’s wrong with the doorknob, pointing out that the door is stuck for example. If the leg on the chair is broken, she might want to “think through” what she’s doing before sitting down in it. She can point out, for example, that it has a missing leg. And maybe the Teacher will “think through” how to use the pen, if for some reason the ink doesn’t run out of it the way it should. In this respect, a thematic grasp is something which makes sense for the Teacher to use in particular circumstances. But I wish to emphasise that this kind of understanding is one which is always preceded by the kind of understanding which we call know-how.

But how is our thematic grasp preceded by our know-how? Know-how is our primordial understanding because it always underpins our thematic grasp of entities within the world. By calling know-how our primordial understanding, we can say that it comes first, *before* any thematic understanding can be derived. Our primordial understanding of equipment is displayed in our practical grasp of using it. Take Heidegger’s own example of using the hammer. When we hammer, we use it in order to bang in the nail, to put up our picture frame. It is through hammering that the entity shows itself for what it is. As Heidegger says, “the less we just stare at the hammer-thing, and the more we seize hold of it and use it, the more primordial our relationship to it becomes” (Heidegger 2003: 98). The hammering in of the nail does not require us to assert what a hammer or nail are used for in order to carry out such activity. We require no such thematic grasp at all. But if we do wish to thematise our hammering activity, it is clear that our thematised account comes *after* our knowing how to do it. Thus our thematised account can only ever ride on the back of our know-how and not the reverse way around. Thematization is therefore secondary. Just to be clear here, this is an ontological claim I am making following Heidegger’s thought. There are of course instances where we learn to do stuff thematically, but this depends on a prior (ontological grasp) of a

task that's done with things, in order to accomplish things (e.g. how can someone be taught to tie up shoelaces without having some prior understanding of what laces and shoes are used for).

And so, in everyday life we use our know-how without having to “think through” what’s going on at all. That is why sometimes we know how to carry out a task, but can’t explain exactly how we did it (i.e. we have the kind of understanding we call know-how, but struggle to provide a thematic understanding alongside it). This problem is nothing new. When Socrates asked Euthyphro (the expert of pious behaviour) for the principles for recognising piety, Euthyphro, to Socrates’ anger, did what every person did when cornered by Socrates, he gave only examples of piety. This was because, although an expert of piety, Euthyphro never knew explicitly the principles for recognising it. This was because Euthyphro recognised piety using his know-how, without the need for a thematic understanding at all (Dreyfus 2001). And any attempt to provide a thematic understanding, would force Euthyphro to start “thinking through” the rules or principles for recognising piety, something which he could never do, since he had never followed any rules or set of principles to begin with (I shall revisit the story of Socrates and Euthyphro throughout this thesis¹⁰).

And so, we see that know-how is a fundamental part of dealing with equipment and others in the world. In this thesis, I shall use the theme of know-how to explore the relationship my respondents have with the systems they encounter, particularly in Chapter 5 of this thesis.

1.4.2 Transparency and Conspicuousness

In the previous section of this chapter I said that there were different modes of comportment. I said that one mode of comporting ourselves to equipment, and others, centres on our know-how, and that another mode of comportment centres on our capacity for thematisation. Here I

¹⁰ Note: In this example, Euthyphro is demonstrating the sort of know-how involved in recognising meaning. This is arguably very different to say knowing how to throw a rock and so on. I shall later apply the Euthyphro story to my various respondents, but bearing in mind that knowing how to deal with *things* is different to knowing how to deal with *others* within social communication, as I explain later in this thesis.

shall introduce two associated ideas that relate to know-how and thematisation: transparency and conspicuousness. In this thesis, I shall use these ideas to further explore the relationship my respondents have with the systems they encounter at work. More precisely I shall outline transparency as something we also encounter primordially and shall contrast this with conspicuousness, which like thematisation, is a deficient mode of comporting ourselves towards the world. To illustrate this association between transparency and know-how, and thematisation and conspicuousness, I shall continue to use examples taken from my respondent, the Teacher. (i.e. specifically her use of the classroom door, the chair, and the pen). Let's take a look.

So, what's Transparency? For the most part of our everyday dealings in the world, things show up to us as *zuhanden*, meaning to hand, or ready-to-hand (Heidegger 2003: 103). For example, the Teacher's chair is to hand when sitting down to read her morning newspaper. The doorknob is to hand when opening the classroom door. The pen is to hand when writing in her diary. When things are ready to hand in this way, they become *transparent*. The Teacher will "look through" the chair at the sitting down and reading. She will "look through" the door knob at the opening of the door. She will "look through" the pen when writing in the diary. In this sense we can say that they are transparent. Transparency occurs when entities are suitably assigned to do the job (i.e. when equipment is fit for purpose we almost do not notice it; we look through it at the job in hand). An entity such as a chair is not grasped thematically as an occurring thing, whereby one has the tendency to point out the properties of the hammer, or to elicit knowledge about this hammer thing itself. Thus the wooden legs or leather back of the chair do not necessarily need to show up to the Teacher when sitting down to assess her pupils' work. On the contrary, she need not "look at" these features of the chair at all. Instead, she understands the chair best when she is engaged with it in her concerned activity (i.e. sitting down comfortably working). And it is through such sitting that the entity shows itself for what it is. It is through sitting that the entities of which she is dealing with (i.e. the chair, desk, pen, pupils' work and so on) thus become transparent.

In some circumstances transparency starts to evaporate. Where our equipment "turns out to be damaged or the material unsuitable", it becomes according to Heidegger, "unready to hand" (Heidegger 2003: 102). For example, the damaged chair the Teacher can't sit in, the door with the broken handle, the pen with no ink to write with. Thus, when encountering such

problems the transparency of the equipment starts to evaporate. All of a sudden, the entity that was transparent to the Teacher now shows up and stands out to her as an obstacle that prevents her from carrying out the task at hand. In Heidegger's terms, the "equipment becomes conspicuous"¹¹ (Heidegger 2003: 102). She will now "look at" the broken chair before sitting down to mark her pupils work. She will "look at" the door knob that won't open the classroom door. She will "look at" the pen that has run out of ink. The unready-to-hand therefore makes 'visible' that which was so readily transparent before.

Finally, if we were to really contemplate why these things have gone from ready-to-hand to unready-to-hand by interrogating the properties of them, the equipment would, in Heidegger's thinking, stop being ready-to-hand and become what he calls present at hand (this is a translation of what Heidegger calls *vorhanden*). That is, the Teacher would merely understand the chair as this thing which presents itself before her, like a thing of nature to be studied, as a botanist might study the leaves of a plant. She will look at the chair and investigate why it is broken. She will check that the seat and back of the chair are in order. She will look at the four legs of the chair to see if one is out of kilter with the other. The Teacher can do the same with the broken doorknob, by turning it, twisting it and lifting it. She might unscrew the door knob from the door completely and lay its pieces out on the floor – in which case one would hardly recognise it as a door knob at all. Similarly, the Teacher might look at the pen to see why it isn't working, and start to tap it, shake it or unscrew it to try and make it work. In cases such as these, the things don't reveal themselves to the Teacher as transparent at all. Instead, they just occur to her as merely objects of nature.

¹¹ In this section I explain Heidegger's mode of concern called "conspicuousness" (Heidegger 2003: 102) since this term I shall use later in my thesis to analyse my ethnographic data. It's worth noting however that Heidegger refers to two other modes of concern in *Being and Time*: obtrusiveness and obstinacy (Heidegger 2003: 103-104). In a nutshell, obtrusiveness is when something is missing and thus un-ready-to-hand, and the other equipment with which we want to use the missing thing become obtrusive or even 'obnoxious' (See translators notes in Heidegger 2003: 104). Obstinacy is when obstacles stand in the way of our carrying out such and such activity. As "obstacles they are 'obstinate', 'recalcitrant', 'refractory', and we have to attend to them or dispose of them in some way before we can finish what we want to do" (again see translator footnotes of Heidegger 2003: 104). I shall not use these other concepts in this thesis because they are not required to deal with the issues that emerge from my interviews.

And so, we see that ideas of transparency and conspicuousness drawn from Heidegger's work allow us to further explore the notion of know-how and thematisation. My use of these concepts, and in particular, my use of Heidegger's distinction between ready-to-hand and present-at-hand becomes clear throughout my thesis and becomes a direct application of some of Heidegger's philosophy. Basically, we shall see that technologies often seek to replace human knowledge that exists at the ready-to-hand level, as know-how rather than knowing-that, as tacit and implicit rather than discursively explicit or algorithmic. In many cases, my thesis shows, that replacing human know-how with technologies that require explicit algorithmic type formulations results in a loss of meaning for the worker and a loss in the quality of the work. Forced discursive thematization in some of the work places I investigate in this study have many problems because the know-how that has to be replaced with technologies of some kind, cannot be made fully explicit.

1.5 Introducing the theme of Bodily-Presence

My investigation into how ICT replaces experts' jobs or tasks at work also specifically addresses the use of mediating technology (i.e. use of telephones, emails, and video-conferencing). Specifically it is concerned with how mediating technology supposedly replaces the need to be bodily-present with others at work. This theme was again developed by adopting, and to some extent adapting Heidegger's ideas as sensitising concepts, and I argue that this brought out common themes in the respondents' accounts.

1.5.1 Bodily Presence and Picture-Things: The Bridge Argument

In this thesis, I argue that there are key differences between being bodily present with others, and being-with others via the use of ICT. But what are these key differences? I shall outline what these key differences are by drawing on one of Heidegger's discussions about the bodily presence of a bridge. For the sake of simplicity, I shall refer to this discussion throughout my thesis as the "bridge argument". In what follows is my own interpretation of a discussion Heidegger presents in *The History of the Concept of Time* (1992). My adaptation may be seen by some, as controversial, because within this work, Heidegger was giving a lecture on

Husserl's phenomenology. In particular he was using Husserl's work to discuss the way in which we understand (or perceive) things (objects and so on), whereas my use of Heidegger's discussion (as we shall see throughout this thesis) predominantly applies such ideas to being-with others (people, and the social communication they are involved in). I shall elaborate more on this point towards the end of this section on bodily-presence, but let's first take a look at this argument.

So, what's Heidegger's "bridge argument"? In a section of his argument concerned with "bodily-presence", Heidegger uses the example of the Weidenhauser Bridge, which was down the hill from Marburg University. First, Heidegger lays aside the question of the essence of the bridge as an environmental or natural thing. Rather, and more to my point, he is interested in how the bridge gives itself to us, comes across to us; to use a more technical term he is interested in how it is intended. He regards that as the proper field of phenomenology: "The perceived in the strict sense for phenomenology is not the perceived *entity* in itself but the *perceived* entity insofar as it is perceived, as it shows itself in concrete perception" (Heidegger 1992: 40). And so we can make the following distinction: there is the entity itself (the environmental thing, the natural thing, the thingness) and the entity in the manner of its being intended (its being perceived, being represented, being-judged, being-loved, being-hated, being thought in the broadest sense). It turns out that the bridge can give itself to us in this way, via several modes.

There are two modes in particular that Heidegger gives which I shall use in this thesis: the mode of bodily-presence and the mode of the picture-thing. The first mode of the self-givenness of an entity is that which is bodily given. Using Heidegger's example of the Weidenhauser Bridge, Heidegger says that we can perceive the bridge if we go down to the hill and place ourselves before it (Heidegger 1992: 41). By placing ourselves before the bridge the bridge itself is bodily given. Heidegger adds that "bodily presence is a superlative mode of the self givenness of an entity" (See Heidegger 1992: 41, note his use of the term 'superlative'). There are other modes in which the bridge gives itself but, as I indicated above, I want to move straight to the bridge giving itself as a picture postcard. Heidegger calls this the mode of a picture-thing (However, I don't think we should take the word "picture-thing" too literally. A picture-thing may also include any kind of encounter with something whereby there's a representation *through* something). Heidegger says that, in the postcard of the

Weidenhauser Bridge, the Bridge itself is not bodily given: rather the picture-thing (the post card) is bodily given. The postcard is of course an object, like the bridge or a tree and so on. But it is not a simple thing. I see through it to the bridge, and so there is a layered structure to picture-things. Thus the bridge itself is “now the represented in the sense of being represented by way of being depicted through something” (Heidegger 1992: 42). This apprehension of a picture-thing has a structure totally different from that of the direct perception found in bodily presence. Heidegger again argues that this is a deficient mode of being-with, but this time he calls it inauthentic (Heidegger uses the term deficient to mean something which is not full or complete in itself). Here, Heidegger is making an ontological distinction between the mode of bodily-presence and the mode of the picture-thing. It is not the same to view the postcard of the bridge as it is to stand before the bridge itself, whereby it is bodily given¹². In the same respect, for my respondent, the Teacher, it is not the same to view the picture-screen of her pupils (on her behavioural management system) as it is to stand before the pupils whereby they are bodily-present. Similarly for the Doctor’s patients, it is not the same to communicate with him via mediating technology, as it is to communicate with him face-to-face, whereby he is bodily-present. And for the Pilot, it is not the same to fly a simulated aeroplane, whereby the sea and sky are depicted through a picture-screen, as it is to fly a real aeroplane, whereby both the actual sea and sky (among other things) are bodily present (I shall present this particular argument using the Pilot in section 6.5).

In the Chapter of my thesis on Bodily-Presence (Chapter 6), I shall show that Heidegger’s argument about the postcard of the bridge can be adapted to illuminate the way in which ICT is encountered by my respondents at work. However, whereas my use of Heidegger’s distinction between ready-to-hand and present-at-hand is a fairly direct application of Heidegger to my data (in relation to my theme of know-how), my use here of Heidegger’s (1992) discussion of “bodily presence” in *History of the Concept of Time* is not direct. The discussion of bodily presence that Heidegger gives in *History of the Concept of Time* has

¹² There are some exceptions to consider here. For the postman delivering the picture postcard of the bridge, the postcard is encountered as something he delivers in the everyday carrying out of his job. It does not appear to the postman as something necessarily deficient, simply because it does not matter: it is a thing to be delivered and is not a depiction of a bridge at all.

been used as a “sensitizing concept” in my data analysis. Many of my respondents have important things to say about communications with other people mediated by technologies, things that involve the lack of bodily presence between communicators. Whilst reading through my interview transcripts, the issue of bodily-presence brought to mind the bridge example given in *History of the Concept of Time*. But the bridge example and its emphasis on bodily-presence, as laid out by Heidegger is not identical to the issue of bodily-presence brought up by my respondents in this thesis. However, it definitely has strong resonance with many things that my respondents say. To elaborate, Heidegger's discussion of intentional fulfillments in *History of the Concept of Time* concerns the meaning of signs; a sign represents a potential state of fulfillment that only the bodily-presence of what is represented by the sign can satisfy or “ground.” Two or more human beings communicating with each other has a different structure, because it is not the bodily-presence of the other human being that is intended, rather it is a mutual understanding that is intended. Bodily-presence of human communicators does not fulfill anything, it is not a necessary nor a sufficient condition for reaching mutual understanding. Bodily presence as part of a communicative setting is rather one of several contexts within which a special type of intention is pursued: mutual understanding. Technologies change the conditions within which communicative goals are pursued by taking away the bodily-presence of the communicators. And this is not the same sort of situation as that described in *History of the Concept of Time*. However, we shall see that there is nevertheless some resonance between these two forms of bodily-presence and this is what inspired the sensitizing concept in my data analysis. Respondents noted the distinction between communications in contexts of bodily-presence and communications mediated by technologies. In most, but not all cases my respondents express a preference for bodily-presence when communicating with others. In a few cases, my respondents express a clear awareness of the difference between telepresence and bodily-presence but either regard the difference unimportant or express a preference for technologically mediated communication. My use of Heidegger's discussion of bodily-presence is therefore not a direct application of Heideggerian philosophy but rather an appropriation used to illuminate themes in my qualitative data. It is very possible that good philosophical arguments could be developed to show that bodily-presence as the fulfillment of the meaning of a sign involves principles constitutive of bodily-presence as communicative context. For example, the ways in which people reach understandings through technologically mediated interactions could be argued to be based on more primordial forms of human communication in face-to-face

contexts and in this sense they make reference to and are parasitic upon face-to-face communication. But that possibility is not an issue for this thesis.

In summary I have given an introduction to this thesis by giving a rationale for my study, and by briefly discussing some of the cases drawn from my primary research. I have also outlined some of the major theoretical concepts I have developed and adapted from Heidegger's work. I shall use these theoretical concepts in the following chapters to explore how my respondents encounter the use of Information and Communication Technology in the workplace. I shall complete the introduction by giving an outline of the rest of my thesis.

1.6 Outline of Chapters

In Chapter 2 I shall present a review of the literature. This review will have two main focuses. The first focus will look at the work of scholars who have discussed the practical ability of workers and others in relation to ICT. This focus will situate my theme of know-how within the literature (note: this theme has been discussed by other academics using other terms such as practical ability, situated action, tacit knowledge and so on). The second focus of my literature review will look at the work of scholars who have discussed the issue of bodily-presence in relation to ICT and work. This focus will situate my theme of bodily-presence within the literature.

In Chapter 3 I shall discuss the methodology of this thesis. This methodology is outlined in five main sections: my sampling procedure; my ethnographic method of interviewing; my ethnographic method of participant observation; my method for data analysis, and finally a conclusion to this chapter.

In Chapter 4 I shall present the data analysis of my thesis. In particular I show the thematic analysis used in my research. I show this by presenting the themes developed from the stories of each of my nine respondents. This section aims at providing some of the raw data I gathered from my interviews. It also aims to show that my data comes directly from the stories my respondents tell.

In Chapter 5 I shall present the first of my two themes in this thesis: know-how. This chapter draws upon Heidegger's ideas to show that experts primarily use know-how when carrying out their jobs or tasks in the workplace. Among other things, it shows the problems with creating ICT to replace the roles of experts at work, by drawing upon examples from my respondents.

In Chapter 6 I shall present the second of my two themes in this thesis: bodily-presence. This chapter draws upon, and adapts Heidegger's ideas to show the different ontological modes of being-with others in the workplace, and draws upon a range of examples from my respondents to show the evidence for this argument.

In Chapter 7 I shall provide a conclusion to this thesis by, in particular, summarising the two key arguments I have outlined from conducting my research.

Chapter 2: Literature Review

This chapter presents my literature review. I shall present the literature review in two main parts, each dedicated to the two specific themes I have set out in this thesis. The first part presents the literature concerned with my theme of know-how. The second part presents the literature concerned with my theme of bodily-presence. My thesis is multidisciplinary, because it addresses issues relevant to a variety of disciplines/ academic areas, including the Sociology of work, 'Workplace studies', Philosophy of technology, Human-Computer Interaction (HCI), Artificial Intelligence (AI), and Cognitive science. Given the enormous amount of literature in these various areas, I shall present a selection of literature most relevant and specific to my two themes.

2.1 Know-how and Situated Action: using ICT at Work

This chapter asks some key questions. How does my thesis relate to other studies which focus upon the use of ICT at work? What makes my approach any different, or original? One of the key arguments I make in this thesis is that experts at work use what I call know-how, following the work of Heidegger. But who else draws upon Heidegger's thinking to address technology at work? And is know-how a concept specifically related to Heidegger, or has it been associated with other theoretical ideas too? This section of the literature review deals with these questions, by taking a look at studies which are either directly related to the topic of my thesis (ICT and work), or are directly related to the theoretical approach I have adopted (for example, the use of know-how as a key theoretical concept). Let's start with some background to know-how, and a discussion of the work of others who have already used this term in their work.

2.1.1 Background to Know-how: Polanyi and Dreyfus

The idea of know-how has not only been used in relation to Heidegger, but has also been used in the work of many others, although different terminology (such as tacit knowledge) has been developed. I chose Heidegger, partly because I was interested in him, and partly because he is used much less than others in studies of this kind, so I wished to explore the possibilities of using Heidegger in this thesis. But Heidegger is not the only thinker whose

work allows us to develop the idea of know-how. In his work *Personal Knowledge*, Polanyi (1973) like Heidegger, claims that the theoretical, disinterested knowledge that is correctly described in subject/ object terms presupposes a “practical and involved “know-how” that cannot be accounted for in terms of theoretical knowledge” (Dreyfus 1995: 46). According to both of these thinkers, theoretical knowledge depends on practical skills. Polanyi calls the area where articulation is virtually impossible the “ineffable domain” (Polanyi 1973: 87). For Polanyi, ‘ineffable’ means something that one knows and can describe only very vaguely (Polanyi 1973: 88). As he explains using the following example:

“I may ride a bicycle and say nothing, or pick out my Macintosh among twenty others and say nothing. Though I cannot say clearly how I ride a bicycle nor how I recognise my Macintosh (for I don’t know it clearly), yet this will not prevent me from saying that I know how to ride a bicycle and how to recognise my Macintosh. For I know perfectly well how to do such things, though I know the particulars of what I know only in an instrumental manner and am focally quite ignorant of them; so that I may say that I know these matters even though I cannot tell clearly, or hardly at all, what it is that I know.”

(Polanyi 1973: 88)

Polanyi argues that subsidiary or instrumental knowledge, as he defines these terms, can only be known as something focally known. Like the argument presented in my thesis, Polanyi says that we know many more things than we can tell, “knowing them only in practice, as instrumental particulars, and not explicitly, as objects” (Polanyi 1973: 88). Again we see a similarity with Polanyi’s work, to that of the argument I present following Heidegger. Being able to thematise what we do (if it is possible), is very different to knowing how to do things in practice. Polanyi makes this argument by using the example of a swimmer: “the decisive factor by which the swimmer keeps himself afloat is the manner by which he regulates his respiration; he keeps his buoyancy at an increased level by refraining from emptying his lungs when breathing out and by inflating them more than usual when breathing in: yet this is not generally known to swimmers” (Polanyi 1973: 88).

Dreyfus and Dreyfus (1986) specifically use the concept of know-how in their work *Mind Over Machine*. Here, and in his more recent work *On the Internet*, Hubert Dreyfus (2001) develops a skill acquisition model to, among other things, show the limitations current rule-based

systems have in decision making processes. Let's briefly look at Dreyfus' model, because his argument is similar to, and therefore useful for, the arguments I make throughout this thesis.

In his skill acquisition model, Dreyfus (1984) develops five stages a beginner must pass through in order to become expert at what she/he does. The first stage is that of the *Novice*. Here, the instruction process usually starts with the instructor "decomposing the task environment into context-free features that the beginner can recognise without the desired skill" (Dreyfus 2001: 33). The beginner is then given [explicit] rules or a collection of facts which help determine what actions should be taken, like a computer following a program. Dreyfus (2001) gives several examples (using bodily and intellectual skills). Let's take a look at one of his examples, of learning how to drive a car. The student driver learns to recognize such interpretation-free features as speed (indicated by the speedometer) and is given rules such as shift to second gear when the speedometer needle points to ten miles an hour.

The second stage the novice arrives at is that of the *Advanced Beginner*. As the "novice gains experience actually coping with real situations and begins to develop an understanding of the relevant context, he or she begins to note, or an instructor points out, perspicuous examples of meaningful additional aspects of the situation or domain" (Dreyfus 2001: 34). The advanced beginner driver, using (situational) engine sounds as well as (non-situational) speed in his gear-shifting rules, learns the maxim: Shift up when the motor sounds like it is racing and down when it sounds like it's straining. He learns to "observe the demeanour as well as position and velocity of pedestrians or other drivers" (Dreyfus 2001: 34). He can, for example, distinguish the behaviour of a distracted or drunken driver from that of an impatient but alert one. Engine sounds and behaviour styles cannot be adequately captured by words, so words cannot take the place of a few choice examples in learning such distinctions.

The third stage is that of *Competence*. To avoid mistakes, the competent performer can seek rules and reasoning procedures to make a decision. But in any skill domain the performer encounters a vast number of situations differing from each other in subtle ways (Dreyfus 2001). There are more situations than can be named or precisely defined, so "no one can prepare for the learner a list of types of possible situations and what to do or look for in each case" (Dreyfus 2001: 36). A competent driver leaving the freeway on an off-ramp curve, after taking into account speed, surface condition, criticality of time, etc., may decide he is going

too fast. He then has to decide whether to let up on the accelerator, remove his foot altogether, or step on the brake and precisely when to do so. He is relieved if he gets through the curve without being honked at and shaken if he begins to go into a skid (Dreyfus 2001).

As the competent performer becomes more and more emotionally involved in his tasks, it becomes increasingly difficult to draw back and to adopt the *detached* rule-following stance of the beginner. While it might seem that this involvement would interfere with detached rule-testing and so would inhibit further skill development, in fact just the opposite seems to be the case. As we shall soon see, if the detached rule-following stance of the novice and advanced beginner is replaced by involvement, one is set for further advancement, while resistance to the acceptance of risk and responsibility can lead to stagnation and ultimately to boredom and regression (Dreyfus 2001). The competent performer can refer to a set of rules when making decisions, but as we can see, a rule of how to act, will always involve another rule with every new situation. And this rule will consequently involve another rule, and so on.

The only way in which the competent performer can improve is by advancing to the stage of *Proficiency*, where rule-following¹³ (as in “thinking through” the rules) is for the most part left behind. The proficient performer is one who becomes immersed in a world of his skilful activity. At this stage, the performer simply sees what needs to be done, but still has to decide, or take considerations on how to do it. Action becomes easier, and less stressful as the learner simply sees what needs to be done rather than using a calculative procedure to select one of several possible alternatives (Dreyfus 2001). The proficient driver, approaching a curve on a rainy day, may feel in the seat of his pants that he is going dangerously fast. He must then decide whether to apply the brakes or merely to reduce pressure on the accelerator by some selected amount. Valuable time may be lost while he is working out a decision, but the proficient driver is certainly more likely to negotiate the curve safely than the competent

¹³ It's worth noting here that Dreyfus (2001) is referring to the *explicit* sort of rule-following which computer systems are programmed with. Not the kind of rule-following Wittgenstein (1967) discussed in his influential work *Philosophical Investigations*, specifically when discussing how one blindly follows a rule.

driver who spends additional time considering the speed, angle of bank, and felt gravitational forces, in order to decide whether the car's speed is excessive (Dreyfus 2001).

The proficient performer, immersed in the world of his skilful activity, sees what needs to be done, but must decide how to do it. But the proficient performer progresses to the level of *Expert*. At this level, the expert not only sees what needs to be achieved but thanks to a vast repertoire of situational discriminations he sees how to achieve his goal. The ability to make more subtle and refined discriminations is what distinguishes the expert from the proficient performer (Dreyfus 2001). The expert has learned to distinguish among many situations, all seen as similar by the proficient performer, those situations requiring one action from those demanding another. That is, with enough experience in a variety of situations, all seen from the same perspective but requiring different tactical decisions, the brain of the expert performer gradually decomposes this class of situations into subclasses, each of which shares the same action. This allows the immediate intuitive situational response that is characteristic of expertise. Driving probably involves the ability to discriminate a similar number of typical situations. The expert driver not only feels when slowing down on an off ramp is required; he simply performs the appropriate action. What must be done simply is done. Dreyfus (2001) argues that a beginner calculates using rules and facts just like a heuristically programmed computer, but that with talent and a great deal of involved experience, the beginner develops into an expert who intuitively sees what to do without recourse to rules. The tradition has given an accurate description of the beginner and of the expert facing an unfamiliar situation, but normally an expert does not calculate. He does not solve problems. He does not even think. He just does what normally works and, of course, it normally works (Dreyfus 2001).

The description of skill acquisition Dreyfus presents enables us to understand why the “knowledge engineers” dating right back to Socrates, had such trouble getting the expert to articulate the explicit rules he is using (refer back to section 1.4.1 for a discussion of the story of Socrates and Euthyphro). The expert is simply not following any rules. He is doing just what Socrates and current knowledge engineers (computer programmers and so on) feared he might be doing, discriminating thousands of special cases. Dreyfus (2001) argues that this explains why ‘expert systems’ are never as good as experts. If one asks an expert for the explicit rules he is using one will, in effect, force the expert to regress to the level of a

beginner and state the rules he learned as a novice performer. Thus, instead of using a set of explicit rules he no longer remembers, as the knowledge engineers suppose, the expert is forced to remember rules he no longer uses. If one programs these rules into a computer, one can use the speed and accuracy of the computer and its ability to store and access millions of facts to outdo a human beginner using the same rules. But such systems are at best competent. No amount of rules and facts can capture the knowledge an expert has when he has stored his experience of the actual outcomes of tens of thousands of situations. Dreyfus (2001) argues that this explains the common sense knowledge problem. The basis of common sense is our skill for coping with everyday materials. It is a knowing-how, not a knowing-that (Dreyfus 2001).

Dreyfus (2001) argues that the Socratic picture of reason underlies a general movement towards calculative rationality in our culture, and that movement brings with it great dangers. The increasingly bureaucratic nature of society is heightening the danger that in the future skill and expertise will be lost through over reliance on calculative rationality. Today, as always, individual decision-makers understand and respond to their situation intuitively as described in the highest levels of the Dreyfus skill acquisition model. But when more than one person is involved in a decision, the success of science and the availability of computers tend to favour the detached mode of problem description characteristic of calculative rationality.

2.1.2 ICT at Work: The Problems with Rationality and Calculability

In the last section, I argued that more so than anything, human activity essentially involves a tacit and practical knowing how to get on with doing things. In my thesis I have specifically drawn on Heidegger, to use and develop the term know-how. Unfortunately however, because of the relative absence of sociological research in the area of ICT, the development and research into the use of technology at work has been largely dominated by cognitive science and in particular arguments about artificial intelligence, and human-computer interaction (Heath et al 2000). Much of this work led by human-computer interaction specialists has largely been experimental and driven by a concern for developing cognitive models of the users' activities. Underlying this analysis is the idea that human activity is governed by rules, plans and procedures and that by following and processing such rules or plans, individuals

are able to execute intelligent action¹⁴ (Heath et al 2000). Unfortunately, the operation of the computer (and various other forms of ICT) has served both “as a metaphor to characterise human reasoning and conduct, as well as a substantive domain, in which to discover cognitive processes” (Heath et al 2000: 302). Like the work of Heath et al (2000), and Dreyfus (2001) and others, my thesis challenges the idea that intelligent action can be carried out by simply processing a set of rules and plans used for example, for the calculation and control of work tasks.

A key part of my thesis questions the assumption that intelligent action requires experts to calculate (or “think through”) what they do at work. Here I wish to turn to the work of Hughes (2011), who highlights as does my research, the problems with relying on calculability at work. Hughes says that it is hard to dismiss calculation from our everyday worlds because it can be seen in almost every aspect of our lives: “from purchasing of an innumerable variety of goods and services, filling in tax forms, working out the best investments to make for a pension, planning a train journey, meeting targets set by higher management, playing monopoly, betting on a horse race, playing darts, determining whether one can make a profit on this deal, and so and so on” (Hughes 2011: 57). Even work involving our dealings with others can involve calculations, even though for the most part this is taken on trust. Hughes explains how calculation has been embedded in our social lives in various ways, stating that “our ordinary experience is infused with a myriad of forms of calculation” (Hughes 2011: 57).

Hughes (2011) draws upon Weber’s contribution to sociology which showed how rational thinking would permeate the domains of social life. One of the key features of the rationality of Western thought is calculability: “the measurement or assessment of properties by the application of some mathematical procedure” (Hughes 2011: 58). Calculability becomes a major means of exhibiting, of displaying, the objective rationality of courses of action. Hughes (2011) gives the example of secondary school education, whereby pupils’ achievement is subjected to objective forms of calculation enabling, for the relevant authorities, the ability to

¹⁴ Here, the reference to rules, plans and procedures, are in relation to explicit rules, and explicit, pre-thought plans. I am not referring to the Wittgensteinian sort of rules (discussed in Wittgenstein 1967).

quantitatively express the quality of schools in an area, and so inform parental choices of schools for their children. Such calculations here, serve the rational decision making of parents. But since such decision making is calculable, and therefore more objective, it becomes a process, as Weber warned of “turning the politics of choice into administration” (cited in Hughes 2011: 58). But how does Hughes argument, following the work of Weber, add to our understanding of the use of ICT at work? And how does it relate to my study?

Hughes (2011) draws upon a case study of a company called Leisure Time Catering, which at the time, had more than 50 outlets of catering services all over Great Britain in leisure centres, airports, safari parks, theatres, city centre restaurants and so on. The Directors of the company met to discuss whether or not to terminate a contract for a site because it was unprofitable. But after talking for hours on end, they failed to arrive at a decision using a straight-forward economic model. Hughes (2011) argues that the lengthy discussion by the Directors over sales strategy reflected the difficulty of finding simple solutions to complex problems at work (see Hughes 2011 for a full discussion of this study). Like the findings in my thesis, Hughes found that economic calculation is “never a matter of running through the calculations but is permeated through and through by qualitative judgements which have their logic not in a mathematical model of profitability but in experience and judgement” (Hughes 2011: 68). Hughes (2011) says: “it is more a matter of feeling things out than it is of working them out” (Anderson et al 1989: 117, cited in Hughes 2011: 68). Put into practice, calculation can very often fail to provide a satisfactory outcome or solution to a given problem. It is unfortunate then, that calculation, as a key feature of rationality, is predominantly used in work environments, particularly for replacing or assisting the jobs experts carry out at work, quite often in the form of ICT. This study by Hughes (2011) is yet another case like those cases in my thesis, which shows that everyday work tasks, for experts especially, predominantly involves a practical knowing how, rather than a thematic knowing that.

2.1.3 Plans and Situated Actions

In her book *Human-Machine Reconfiguration: Plans and Situated Actions*, Lucy Suchman (2007) aims to clarify existing troubles in the project of constructing intelligent, interactive machines, as a way to our understanding of human intelligence and interaction. For Suchman, every account of communication involves assumptions about action and in particular the

bases for actions coherence and intelligibility. Two alternative views of action are discussed within her work. The first, adopted by most researchers in artificial intelligence, locates the organisation and significance of human action in underlying plans¹⁵. This view of purposeful action is the basis for traditional philosophies of rational action and for many of the behavioural sciences (Suchman 2007). From this position plans are prerequisite to and prescribe action, at every level of detail. The alternative view is that the “coherence of situated action is tied in essential ways not to individual predispositions or conventional rules but to local interactions contingent on the actors particular circumstances” (Suchman 2007: 52). Suchman raises problems with the planning model, which is a model in cognitive science that treats a plan as a sequence of actions designed to accomplish some preconceived end. This planning model sees action as a form of problem solving, where the actor’s problem is to find a path from some initial state to a desired goal state, given certain conditions along the way (Suchman 2007). Using this model, actions are described, at whatever level of detail, by their preconditions and their consequences:

“In problem solving systems, actions are described by prerequisites (i.e. what must be true to enable the action), effects (what must be true after the action has occurred), and decomposition (how the action is performed, which is typically a sequence of sub-actions).”

(Allen 1984: 126 cited in Suchman 2007: 53)

Here, goals define the actors’ relationship to the situation of action, because the situation is just those conditions that obstruct or advance the actors’ progress toward his or her goals. Advance planning is “inversely related to prior knowledge of the environment of action and of the conditions that the environment is likely to present” (Suchman 2007: 53). Consequently, any unanticipated conditions will require re-planning. In every case however, Suchman notes

¹⁵ Here and throughout the rest of this section, I refer to Suchman’s use of “plans” as the explicit, pre-thought kind of plans. Not the implicit sort of plans which are often in play when we act.

that whether constructed entirely in advance or completed and modified during the action's course, the plan is prerequisite to the action.

Suchman (2007) argues that adherents of the planning model in artificial intelligence research have tried to understand human interaction as one which sees the actions of others as the expression of their underlying plans. With this view, the starting premise is that an observer takes some sequence of actions as evidence and then forms hypotheses about the plans that could motivate and explain those actions. Schmidt, Shridharan, and Goodson (1978) argue that "action understanding is simply a process of plan recognition" (Schmidt, Shridharan, and Goodson 1978, cited in Suchman 2007: 58). Others such as Miller, Galanter, and Pribram (1960) argue that purposeful action can be planned and put forth as a psychological "process theory" compatible with the interest in a mechanistic, computationally tractable account of intelligent action. By improving on or completing our commonsense descriptions of the structure of action, the structure is now represented not only as a plausible sequence but also as a hierarchical plan. The plan is the detailed set of instructions that actually serves as the program that controls the action (Suchman 2007: 59). Suchman says that it is at this point which the plan becomes substitutable for the action, insofar as the "action is viewed as derivative from the plan" (Suchman 2007: 59). Once this substitution is done, the theory is self-sustaining: the problem of action is assumed to be solved by the planning model and the task that remains is the model's refinement. Boden (1973) takes some of these ideas even further. She argues action can be reduced to basic units for which "no further procedural analysis could conceivably be given". Those units compose "complex procedural schemata or action-plans" which in turn produce "complex intentional effects" (Boden, 1973: 36, cited in Suchman 2007: 60). If we turn to the respondents in my thesis for a moment, we can see just why these ideas are so appealing. The Business Developer tells us that his company in the design rail sector has tried to produce a relationship monitoring system (based on a set of preconceived plans) to replicate the knowledge which employees have of their own relationships with clients (as we shall see in section 4.4.1). The Insurance Consultant tells us about companies in the insurance sector who have tried to create systems designed to replicate the course of action for deciding whether or not an insurance claim is fraudulent or not (as we shall see in section 4.7.1). In the healthcare sector where the Doctor works, self-diagnosis websites use plans or a course of action to diagnose and potentially treat patients with illnesses (as we shall see in section 4.9.1). We even see in the aviation sector, that

computer programmers are employed to sit down with the Pilot and ask him to explicitly describe the course of action he takes when flying his aeroplane in order to replicate his actions into autopilot software (as discussed later in discussion section 5.4.2). These examples I present in this thesis, offer further insight into how “underlying plans”, as discussed by Suchman, feature in the design and use of ICT at work.

And so for cognitive science the background of action is not the world as such, but knowledge about the world. Researchers agree that representation of knowledge about the world is a principle limiting factor on progress in machine intelligence. The claim is that our knowledge of the everyday world is organised by a “predetermined, stereotyped sequence of actions that define a well-known situation” or script (Suchman 2007: 64). Suchman says that we can assume the intelligibility of our actions, and as long as the others with whom we interact present no evidence of failing to understand us we do not need to explain ourselves, yet the grounds and significance of our actions can be explicated endlessly (Suchman 2007: 67). Like my thesis, Suchman shows that endlessly explaining our actions or thematising what we do (as I call it, following Heidegger) does not equate to being able to articulately do what we do, in given situations. Similar to Suchman’s approach, I argue that knowing how to carry out an action precedes the explicit need to thematically discuss it (or “think through” it – see my introduction, section 1.4.1). To think that rules, plans, procedures or calculation precede human activity at work misguides us in understanding how action is “situated” (as Suchman 2007 refers to it). Suchman says that the situation of action is an inexhaustibly rich resource, and that “the enormous problems of specification that arise in cognitive sciences theorising about intelligible action have less to do with action than with the project of substituting definite procedures for vague plans, and representations of the situation of action, for action’s actual circumstances” (Suchman 2007: 67). This substitution and representation is part of the problem. The idea that we can copy or mimic human activity at work using a ‘handbook’ of knowledge, leads us to believing that any task at work can be emulated if we so wish. But even if “implicit knowledge” could be enumerated indefinitely, deciding in practice about the enumeration of background knowledge remains a stubbornly ad hoc procedure, for which researchers have not succeeded in constructing rules that do not depend, in their turn, on some deeper ad hoc procedures (Suchman 2007: 64). Suchman says that Garfinkel’s work in ethnomethodology, as well as the phenomenology of experience, suggests that there is reason to question the view that background assumptions are part of the actors mental state

prior to action (Suchman 2007: 67). She illustrates this point by drawing upon an example from Dreyfus:

“As I dash out of the door of my office, for example, I do not consciously entertain the belief that the floor continues on the other side, but if you stop me and ask me whether, when I charged confidently through the door, I believed that the floor continued on the other side, I would have to respond that indeed, I did.”

(Dreyfus 1982: 25, cited in Suchman 2007: 67).

Suchman says that there is no particular reason to believe that the background assumption characterises the actor’s mental state prior to the act (Suchman 2007). To deal with these problems Suchman uses the term situated action. The term she argues, underscores the view that every course of action depends in essential ways on its material and social circumstances. Rather than attempt to abstract action away from its circumstances and represent it as a rational plan, the approach is to study how people use their circumstances to achieve intelligent action. Rather than build a theory of action out of a theory of plans, the aim is to investigate how people produce and find evidence for plans in the course of situated action (Suchman 2007: 70). Suchman’s approach, like mine, shows that plans and sets of rules for action cannot predetermine action. It is more accurate to say that the action precedes the plan. Suchman adds: “rather than subsume the details of action under the study of plans, plans are subsumed by the larger problem of situated action” (2007: 70).

Suchman says that the alternative view is that plans are resources for situated action but do not in any strong sense determine its course. Although plans presuppose the embodied practices and changing circumstances of situated action, the efficiency of plans as representations comes precisely from the fact that they do not represent those practices and circumstances in all of their concrete detail. Suchman gives the example of planning to run a series of rapids in a canoe, whereby one is very likely to sit for a while above the falls and plan one’s descent. The plan might go something like this:

“I’ll get as far over to the left as possible, try to make it between those two large rocks, then backferry hard to the right to make it around that next bunch”

(Suchman 2007: 72)

A great deal of deliberation, discussion, simulation and reconstruction may go into such a plan. But however detailed, the plan stops short of the actual business of getting your canoe through the falls. As Suchman points out: "When it comes down to the details of responding to currents and handling a canoe, you effectively abandon the plan and fall back on whatever embodied skills are available to you" (Suchman 2007: 72). Garfinkel points out that in many cases it is only after we encounter some state of affairs that we find to be desirable that we identify that state as the goal toward which our previous actions, in retrospect, were directed all along or after all (1967: 98, cited in Suchman 2007: 72). Suchman says that "the fact we can always perform a post hoc analysis of situated action that will make it appear to have followed a rational plan says more about the nature of our analyses than it does about our situated actions" (Suchman 2007: 73). Many have recognised Suchman's (2007) work as having a significant impact upon studies of Sociology at work, 'Workplace studies and Human-Computer Interaction (Heath et al 2000; Rouncefield and Tolmie 2011; Woolgar 2002). In the next section we shall take a look at some particular studies which have specifically discussed tacit knowledge at work, and experts' use of ICT.

2.1.4 Tacit Knowledge at Work: Replacing Experts with ICT?

In recent decades, the enthusiasm which greeted the emergence of new forms of ICT in the digital age has been increasingly replaced by a growing scepticism amongst the general public as well as computer programmers, systems designers and engineers in technology (May 2002; Preston 2001; Robins 2007). It is increasingly recognised that the financial and organisational benefits of new information technologies have been widely exaggerated and many tools and information technologies have failed to enhance the activities for which they are designed to do (Cockburn and Ormrod 1993; Grint and Woolgar 1997; Heath et al 2000; Randall and Hughes 1995; Rochlin 1998). In this section I shall take a look at several studies which have investigated the use of ICT at work. These include studies of control rooms on rapid urban transport networks such as London Underground, where personnel rely on a tacit set of resources for accomplishing various work activities; the introduction of a new ICT

system used to standardise decision making in a retail bank, and studies of expert commercial aeroplane pilots whose ability is required to fly aeroplanes in emergency situations. Let's take a look.

In their work *Technology and social interaction: the emergence of 'workplace studies'* (2000) Heath, Knoblauch and Luff, bring together a collection of studies, many of which are ethnographic, and show the implications they have for our "understanding of organisational conduct, social interaction and new technology" (Heath et al 2000: 299). Their research particularly highlights the growing need for sociology to address how ICT is used within the workplace. These studies emerge in the light of debates within disciplines such as Human Computer Interaction (HCI) and Artificial Intelligence (AI) that have involved close collaboration between social and computer scientists, and between academia and industry (Heath et al 2000).

In their study of Line Control Rooms on London Underground, Heath et al (2000) investigate the use of various communication devices such as telephones, train radio and public address systems. Like my thesis, their research emphasises the "tacit, 'seen but unnoticed', social and interactional resources on which participants rely in the practical accomplishment of organisational activities" (Heath et al 2000: 316). They find that there is a strict division of labour, with a clear cut allocation of tasks, skills and responsibilities between the various personnel, namely line controllers, information assistants, and signal assistants. These personnel are responsible for overseeing the day to day operation of the service and dealing with problems and emergencies if and when they arise. So for example, if there is a 'suspect package' discovered at a particular station, it may be necessary to evacuate passengers, de-train vehicles, cut off a section of the line, and reschedule traffic and crews. Each member of the control room will be engaged in distinct activities, using (and providing) different forms of information, and communicating with particular personnel, such as station supervisors, drivers, crew managers, and passengers. Heath et al (2000) point out that "in such circumstances, personnel have neither the time nor the resources to explicitly inform each other of what they are doing, when they are doing it and with whom, and yet it is critical that they preserve a mutually compatible version of the developing events, and co-ordinate their activities with each other" (Heath et al 2000: 313). Similar to arguments made in my thesis, Heath et al (2000) argue that workers "rely upon a tacit and indigenous body of practices and

procedures through which they produce tasks or activities whilst simultaneously participating in the actions and activities of others" (Heath et al 2000: 313). For example, in making requests to drivers over the train radio, they will articulate particular words or sentences to enable others within the local milieu to overhear potentially relevant information. Heath et al (2000) argue that these activities are dependent upon an array of practice and practical reasoning, which is "largely unexplicated, even unacknowledged" within certain forms of organisational analysis (Heath et al 2000: 313).

The study conducted by Hughes et al (2002) explain some of the ways in which standardisation has been pursued as part of major changes in the organisation and working culture of a retail bank. New ICT systems were introduced in an attempt to routine and standardise decision making. But Hughes et al (2002) argue that decision making depends upon "local knowledge, local loyalties, and constellations of assistance, not to mention the ordinary affordances provided by the co-presence of the organisation's staff" (Hughes et al 2002: 261). The retail bank had a new system implemented to deal with customer queries. But whilst many customer queries and requests were very often routine they are unpredictable both in terms of the nature of the request and how it is delivered to the bank official. Customers would deliver their requests in a variety of ways, sometimes making a series of requests at one time, and sometimes making additional requests later on. There were attempts to standardise interactions between bank staff and customers through the provision of 'scripts' for use on the telephone. However, rarely could these be literally followed as the script dictated, but were instead used as a resource for framing appropriate questions as and when the interaction allowed. It became evident from their fieldwork, that although standardisation was in place to deal with customer queries, the reliance on local knowledge and "gut feeling" was as prominent as ever (Hughes et al 2002). Like Hughes et al (2002) study of the retail bank, I shall argue that my respondents also use their "gut feeling" when making decisions at work. My research shows that these "feelings" are not arbitrary or unexplained reactions to how one does ones job, but clear indications that experts articulately know how to carry out their tasks at work.

In aviation, a wide array of software based 'expert systems' have been developed to deal with the riskiness and contingency of air travel (Urry 2007). These have "remarkably transformed the hazards and physicality of taking off, cruising and landing" (Urry 2007: 139). The Boeing

777 contains some 79 different computer systems requiring four million lines of code (Dodge, Kitchin 2004: 201, cited in Urry 2007: 201). Airline operators have sought “greater speed, reduced manning levels, higher altitude flying, reduced fuel use, greater traffic density, reduced separation between planes, and more operations to take place in all weathers” (Urry 2007: 141). Despite the benefits of what ICT systems (‘expert’ and otherwise) offer, there is still much debate over whether or not an automated pilot could effectively deal with emergency situations in the same way a real pilot can. Take for example the work on aviation by Rochlin (1998). In his work *Trapped in the Net: the Unanticipated Consequences of Computerisation*, Rochlin (1998) explores pilot skill and expertise. Like my thesis, Rochlin’s (1998) work questions whether aeroplane systems (such as autopilot systems) are capable of coping with the same sorts of emergency situations pilots deal with. To illustrate this point, Rochlin (1998) gives several examples of aeroplane flights in which real pilot expertise was crucial in saving lives. One example is United Airlines Flight 811 from Hawaii to New Zealand, on February 24th 1989. The aeroplane suffered major damage when a door blew off in a thunderstorm, taking with it a large chunk of fuselage. In addition to severe structural and control damage, nine people were sucked out, and twenty-seven injured. Fortunately for those aboard the 747, Captain David Cronin was one of the more experienced pilots in the fleet. Relying primarily on his judgement he managed to retain control of the aircraft by “feel” and bring it safely back for a gentle landing, a “feat that was regarded as near-miraculous by those who examined the airframe afterwards” (Rochlin 1998:). A few months later, United Airlines Flight 232 had a disk come apart in one of the engines; the fragments of the disintegrating engine severed all hydraulic lines and disabled all three of the hydraulic control systems. For the next forty minutes, it is said that Captain Alfred C. Haynes, a thirty-year old veteran pilot, and his flight crew “rewrote the book” on flying a DC-10, improvising ways to control it, and coming close to making a nearly impossible landing at the Sioux City, Iowa airport. According to investigators and other expert pilots, the ability of the pilot to keep his aircraft under control, at all, let alone try to land it, was almost beyond belief; nor could any flight computer system, however complicated, have taken over from him (Rochlin 1998). More recently on 16th January 2009, US Airways flight 1549 was forced to crash-land in New York’s Hudson River after a flock of geese struck the passenger jet, taking out both of its engines. Captain Chelsey “Sully” Sullenberger immediately took over flying from his co-pilot and made a series of command decisions: returning to La Guardia was out, as was aiming for the nearby Teterboro airport, as it would mean taking the jet over densely populated northern New Jersey. “We

can't do it", the pilot told air traffic controllers. "We're gonna be in the Hudson".¹⁶ The Captain said he made a split-second decision to attempt a water landing to avoid a possibly "catastrophic" crash landing in Manhattan. These examples ask us to consider what expertise really involves. My thesis attempts to answer this question by arguing that human expertise involves know-how. I address this later in Chapter 5 of this thesis (specifically addressing how pilots fly aeroplanes).

And so, in this section I have discussed some of the theoretical influences associated with the idea of know-how, and affiliated perspectives/ concepts (such as Polanyi's "tacit knowledge", Dreyfus' skill acquisition model and Suchman's "situated action"). I have also discussed many other qualitative studies which have already investigated the use of ICT at work (such as Heath et al (2000) study of the London Underground, Hughes et al (2000) study of a retail bank and Rochlin's (1998) study of commercial aeroplane pilots).

The literature review I have presented so far shows the practical, immediate and often intuitive grasp, workers have of the tasks they carry out at work. In many examples, ICT fails to replicate the way in which experts carry out their jobs at work. But my literature review has another main focus that centres on the issue of bodily-presence. This was because, during my interviews, my respondents reported situations in which they would prefer to be bodily-present with others at work. And in some cases other respondents reported quite the opposite: they preferred to use mediating technology to communicate with others, rather than be with them bodily-present. For example, patients' who visit the Doctor's surgery want to deal with a real human expert, and not a self-diagnosis website, even though the questions asked, and answers given, could be exactly the same. The Teacher in the secondary school would rather deal with pupils face-to-face (bodily-present) than deal with a representation of her pupils online, regardless of whether or not the online information is accurate, richer in information, or not. Whilst the Systems Analyst, on the other hand, sometimes much prefers to deal with his colleagues work problems via email, depending on what it is he is trying to achieve.

¹⁶ These quotes were taken from press interviews with the Pilot and crew of US Airways flight 1549, reported in the Guardian Newspaper on 17th January 2009.

And so how can we better understand each of these cases? And how might changes to technology impact on the way my respondents communicate with others? I shall attempt to address these issues later in my thesis, but first let's take a look at the existing literature that surrounds this topic.

2.2 Bodily-Presence and Mediating Technology

The interviews with my respondents focused on the way in which various forms of ICT replaced their jobs or tasks in the workplace. Often mediating technology such as mobile phones, email systems, telephone and video-conferencing was said to substitute the need to be bodily-present with others. For some of my respondents this substitution was unsatisfactory, but for others it was preferred (I come back to the latter cases in section 6.4). Much has already been said about bodily-presence and mediating technology in recent years and this section will outline some of the key issues and discussions that surround this topic. I shall show however, that unlike the work of others who deal with mediating technology at work, my thesis addresses the underlying ontological differences between social communication which is bodily-present, and social communication via the use of mediating technologies. I'll say much more about this in Chapter 6, on bodily-presence, but let's first take a look at some of the literature which already addresses this topic.

2.2.1 Background to Mediating Technology and Presence

In recent years we have seen a proliferation of interpersonal communication technologies at work and elsewhere (Bell 2001; Castells 2001; Preston 2001; Woolgar 2002; Webster 2007; Miller 2011). These new technologies seem to change perceptions of time and space, because they enable people to participate in different interactions at one time, and to take part in interactions at distant places (Cairncross 1997; Cooper et al 2002; Rettie 2005). Before electronic communication the geographical distance between places was proportional to the time taken to move from one to another but this is undermined to some extent by modern communications (Elliot and Urry 2010). People can be bodily-present in a given location and yet they can communicate for example to someone in another country. Some have argued

that telecommunications have altered the relationship between time and space contributing to what Cairncross (1997) calls “death of distance” whereby distance, “for the first time in history, imposes no barrier to communication” (Cairncross 1997: 27). Giddens says that modernity “tears space from place” because it enables interaction without localised presence (Giddens 1990: 18, cited in Rettie 2005: 18). The mobile phone for example, like other mediating forms of technology challenges the linear concept of time, because it acts as a Lazarus device “resurrecting dead or unproductive time” (Rettie 2005: 18). Take for example the time travelling on a train, when calls can be a secondary, supplementary activity, allowing mobile phone users to fill their time with more activities. Modern mediating communication technology such as mobile phones can be said to both conserve and consume time. They can improve time management but also increase “presence-availability” (Giddens 1984).

One of the things that communication technologies have the potential to do is alter our feelings of presence (Miller 2011). The term “presence” itself has been considered as “the experience of ones physical environment” or more generally, “the sense of being in an environment” (Steuer 1992: 75, cited in Miller 2011: 31). In his book, entitled *Understanding Digital Culture*, Miller (2011) says that “presence is relatively unproblematic in unmediating situations, we *are* where we ‘are’, and that seems quite obvious and simple” (Miller 2011: 31, his own emphasis). However, when mediating technology is involved (i.e. using telephones, emails and video-conferencing) things begin to change. We seemingly have the ability to “simultaneously exist in two different environments at the same time: the physical environment in which are body is located and the conceptual or interactional ‘space’ we are presented with through the use of the medium” (cited in Miller 2011: 31). Miller gives the example of getting a letter from someone far away, which if descriptive enough, transports our imaginations to a particular place or event being described. This different sort of presence also becomes apparent when using the telephone, which allows us, in real time, to be in two ‘places’ at once: the space our body is, and the other conceptual kind of space where we are communicating with the other person (Miller 2011). This is what Miller calls telepresence: “the experience of presence in an environment by means of a communication medium” (2011: 31). Miller says that there is an “increasing blending of presence and telepresence” which for instance is evident when using a mobile phone to text in the company of others, “at the dinner table” for example (Miller 2011: 31). But other forms of mediating technology can lead to all sorts of different kinds of experiences. Video-conferencing, via the internet for example, can

give a visual real time experience with others as well as just being able to hear what they say (an example I shall address in the forthcoming chapters of this thesis, specifically in sections 4.5.1 and 6.2.2).

Many argue that presence is encapsulated by the use of technology. For example, Argyle and Shields (1996) say that “presence doesn’t just vanish” but that “technology mediates presence” (Argyle and Shields 1996: 58). Rettie’s (2005) work attempts to address the way we feel presence when using mediating technology. She does this by drawing upon the work of Goffman. Rettie (2005) uses Goffman’s concept of frames to clarify the concept of presence. Goffman introduces the concept of frames as follows: “When an individual in our Western society recognises a particular event, he tends, whatever else he does, to imply in this response (and in effect employ) one or more frameworks or schemata of interpretation... [which] is seen as rendering what would otherwise be a meaningless aspect of the scene into something that is meaningful” (Goffman 1974: 21, cited in Rettie 2005: 21). In other words, frames are used to interpret our experience. Frames are social, and usually shared by the participants of a situation (Rettie 2005). Rettie (2005) argues that presence can be analysed as “engrossing involvement in a frame” (2005: 22). Using this analysis, she argues that as we become engrossed for example in a phone call, we experience presence. Rettie (2005) argues that frame analysis helps to explain presence in mediating environments because it provides the context and “both constructs and makes sense of the experience” (2005: 23). Whilst Rettie’s (2005) work is useful for understanding the feeling of presence using mediating technology, my thesis points out the fact that no matter how “engrossed” we become on the telephone or on the internet for example, the fact that we are not bodily-present means that there is a totally different ontological structure to that of being bodily-present with others and using mediating technology. Furthermore, I shall argue following the work of Heidegger, that no matter how much we improve mediating technology to “feel presence”, the fact remains we are not bodily-present, and no amount of improvements made to technology can change these underlying structures (see my introduction to this Heideggerian argument laid out in section 1.5).

2.2.2 The Need to be Bodily-present with others

Over recent years we have seen a proliferation in the use of mediating technology for substituting the need to be bodily-present with others at work and elsewhere (Dertouzos 1998; van Dijk 1999; Hills 2009; Preston 2001; Woolgar 2002). For example, mediating technology such as internet communication is playing an increasing role in our lives at work where it is augmenting or replacing many of the interpersonal and group interactions normally conducted face-to-face (Castells 1996; Preston 2001; Turkle 1998; Watt et al 2002). Many surveys have often shown that e-mail benefits business by substituting for meetings (Watt et al 2002), and some even predicted that there would be a rapid decline in people having to physically go to work, and that business meetings would no longer require workers travelling to distant places (Borsook 2000; Robins 2007). However, this has not been the case. Despite the constant development of new mediating technology (mobile phones, video-conferencing, internet facilities such as Skype), people still feel the need to be bodily-present with others. But why is this?

In Hughes et al (2002) study of “virtual teamwork” at a retail bank, fundamental differences were noted with regards to the way in which workers communicated and worked with one another using mediated information and communication technology. They note the way co-presence is a routine resource for the achievement of certain kinds of working practice and add that “there is often some measure of neglect in considering how to support distributed work in the absence of such a resource” (Hughes 2002: 262). In their study of a retail bank, Hughes et al (2002) found that whilst non co-located teams may be desirable, and often necessary, “there is a clear efficacy to co-present teamwork when it comes to the realisation of certain kinds of activity, such as the negotiation of the significance of account entries” (Hughes et al 2002: 262). They argue that team members tacitly orientate to common understandings and yet it is exactly this kind of orientation that remains unexplicated by formal accounts of the work process. Whilst there are new work practices necessitated by distributed working and an operation of virtual teams, the daily orientation to the notion of ‘the team’ is still local and built upon affordances of co-presence. The very notion of “virtual teamwork” becomes therefore questionable (Hughes et al 2002).

Some argue that mediating technology does not necessarily substitute being bodily-present with others. For example, Woolgar (2002) argues that virtual technologies supplement rather than substitute real activities. An example he gives is the so called “paperless office”. Against expectation, “the computerisation and automation of office practices did not make obsolete the use of paper communication” (Woolgar 2002: 16). Rather, new forms of electronically mediated communication sit alongside the continued use of memos, notes, and so on. He adds that the increasing use of ‘the virtual’ can consequently increase ‘the real’, showing how ‘virtual’ technologies can actually stimulate more of the corresponding ‘real’ activity. For example, it was found that one unanticipated outcome of teleworking is that teleworkers end up travelling more than they had done previously, because electronic communication enabled the teleworkers to make many more contacts with prospective clients, who they would then meet and deal with face-to-face. Woolgar (2002) gives other examples too. For instance, he suggests that the increase in the numbers of museums online has led to an increase in the number of people (physically) visiting museums. And virtual or e-banking, has far from made visiting the bank redundant, but instead has in some cases led to new branches being opened due to popular demand evident from online activity. Likewise, televising football leads to an increase, not a decline, in the numbers actually attending football games (Woolgar 2002). Similar examples can be seen with very large increases in intercontinental business air travel over recent years. Increased use of email and internet communication between businesses overseas has resulted in more dealings with others face-to-face (Woolgar 2002). Woolgar’s (2002) research shows us that virtual technologies can actually stimulate ‘real’ activities, rather than make them obsolete. But still there remain some important questions to consider: Why is bodily presence so important? And what makes bodily-presence different to the use of mediating technology? (For example, what is it that is significantly different about being bodily-present at the football match, and watching the football match on television?) The need to be bodily-present with others is so compelling, that organisations have spent millions trying to improve technology so that they can improve the *feeling* of bodily-presence. But is this a futile attempt? Let’s take a look by turning to the next section.

2.2.3 Improving Technology to Improve the Feeling of Bodily-Presence: a Futile Attempt?

An absolutely central and generally uncontested theme in most accounts of contemporary technological transformation concerns the elimination of distance and the belief that mediating technology will overcome what is thought to be the constraints of real geographical distance (Preston 2001; Woolgar 2002). Some question why we are concerned about eliminating real geographical distance in order to achieve 'close encounters' in virtual space. For example Robins (2007) says: In overcoming the "tyranny of distance" it is claimed, the new virtual technologies permit us to communicate with others wherever they might be (Robins 2007: 227). In the new virtual networks, there appears to be the prospect of greater closeness to others (to others with whom we interact via the virtual network, that is to say) and this brings with it a supposedly great achievement of "technological proximity" and "being in touch" (Robins 2007: 227). However, despite constant developments in the design of new technology, "generations of confident video-phones, conferencing tools, and technologies for telepresence are still far from capturing the essence of a firm handshake or a straight look in the eye" (Brown and Duguid 2000: 4). For example, the preference for face-to-face communication for business clients is evident in the fact that business workers feel utterly obliged to travel across the globe to meet face-to-face with new clients despite having the video-conferencing technology that allows 'virtual meetings' to take place at distance (Urry 2011).

One question which has been raised is this: To what extent can mediating technology improve so that we can feel like we are bodily-present with others? Some have tried to tackle this question by asking what presence involves, and by trying to replicate the feeling of bodily-presence. But there is an assumption that bodily-presence is somehow measurable, and that there is an "extent" to which you can be bodily-present with others. For example, there are concerns over how constructs such as 'information richness' have been used to supposedly evaluate the social aspects of computer mediated communication. According to the social presence model of communication, media can be distinguished according to "the degree of interpersonal contact (intimacy and immediacy) that they provide" (Watt et al 2002: 65). For example, studies have shown that media ranging from letters and telephone through to face-to-face interaction can be rank ordered for social presence by users, and some studies have

shown computer mediated communication as being ranked very low (Watt et al 2002). A similar construct, media richness, has also been influential in establishing the impression that computer mediated technology is less socially rich in comparison to face-to-face communication (Watt et al 2002). Media richness is defined in terms of how well a medium can communicate equivocal or ambiguous information (Watt et al 2002). However, there is little evidence to suggest that the social efficiency of computer mediated communication can be determined from its technical efficiency (Watt et al 2002). There have been debates ever since the creation of the telegraph and telephone, about what constituted sufficient presence for a medium to be judged as “equivalent to face-to-face communication” (Watt et al 2002: 66). For example, in many studies within this literature, it is implied that the relationship between workers and the technology they use can be improved by advances made to the design, development and implementation of the new technology being used. Specifically, it is thought that by improving mediating technology we can improve the feeling of being bodily-present with others. For example, Steuer (1992, cited in Miller 2011:32) points out two things which he says determine the extent that telepresence is experienced: vividness and interactivity. Vividness is the ability of a technology to produce a rich environment for the senses in terms of sensory breadth and depth. Sensory breadth refers simply to the number of senses engaged in the communication, such as sight, smell, sound, touch, taste. Whilst depth refers to the quality of each sense, such as the quality of the picture or sound being used, thus creating a much more “immersive experience” (Miller 2011: 32). The other aspect, interactivity, refers to the extent to which the user can alter or influence the form and content of the [online] environment (i.e. the extent to which they can interact with it). These ways of evaluating the extent that telepresence is experienced, is seemingly used to show the extent to which telepresence substitutes being with others bodily-present. Ijsselstein (2002: 245) claims that “in a sense, all reality is virtual”. It is constructed through our sense organs and cognitive apparatus. He says that “reality is not ‘out there’, it is what we take to be ‘out there’” (cited in Rettie 2005: 23). Following the arguments I present in this thesis I disagree with Ijsselstein’s claim, not least because his statement fails to recognise the different underlying ontological structures with bodily-presence and picture-things (refer back to section 1.5.1 for a discussion of these terms). In attempting to improve mediating technology so that we can feel like we are bodily-present with others, business organisations, computer developers, and social researchers have overlooked the fact that being bodily-present with others has a completely different ontological structure than being-with others via mediating technology. It is

simply not the same to be in a meeting via video-conferencing, as it is to be in a meeting with someone face-to-face, whereby they are bodily-present (again, I shall come back to this argument in chapter 6).

Many are optimistic of what mediating technology can do for us at work and elsewhere. For example, in William Mitchell's (1995) *City of Bits*, Mitchell attempts to convince us of the utopian possibilities in the technological creation of a virtual world: an "incorporeal world in which we shall exist as disembodied and fragmented subjects" (cited in Robins 2007: 227-228). What is meant to be good is that we will finally be "freed from the constraints of physical space" (cited in Robins 2007: 228). Mitchell claims that there are new possibilities for also enhancing our tactile engagement with the world, through distance-shrinking technologies:

"intelligent exoskeletal devices (data gloves, data suits, robotic prostheses, intelligent second skins, and the like) will both sense gestures and serve as touch output devices by exerting controlled forces and pressures; you will be able to initiate a business conversation by shaking hands at a distance or say goodnight to a child by transmitting a kiss across continents"

(Mitchell p19, cited in Robins 2007: 228)

Mitchell believes that "cyber space places will present themselves in increasingly multisensory and engaging ways". Mitchell argues that we "will not just look at them, we will feel present in them" (Mitchell 114-115) arguing it will be possible to become immersed in simulated environments instead of just looking at them through computer screens. However, I argue in this thesis, following the work of Heidegger, that no matter how good the technology is in making us feel like we are bodily-present with others, the fact remains that we are not bodily-present with others, and no amount of resources spent on improving the technology can ever change this.

And so, whilst we can constantly update and improve mediating technology to make us *feel* as if we are bodily-present with others, the fact that we are not bodily-present with others matters, and consequently shows through. Using examples taken from primary research I have conducted in this thesis I will show, following Heidegger's thinking that it is not the same

to talk to your Managing Director on a video-screen as it is to talk to him whereby he is bodily present (I shall return to this in section 4.5.1). It's not the same for pilots' to view sky and earth on a simulated aeroplane as it is to view them on a real aeroplane whereby they are bodily-present (I shall come back to this in section 4.6.1). And it's not the same to talk to the Doctor on the telephone as it is to be bodily-present with him (I shall come back to this in section 4.9.1).

2.3 Conclusion to Literature Review Chapter

In this Chapter I presented the literature review in two parts. The first part focussed on the theme of know-how. The second part focussed on the theme of bodily-presence. In the first part on know-how, I specifically addressed the work of those who have already used know-how (and affiliated concepts/ ideas) in their work. Here I acknowledged the important work of Polanyi, Dreyfus (see section 2.1.1) and Suchman (see section 2.1.3), as well as some of the studies which have specifically addressed the use of ICT in the workplace (see for example my discussion of studies by Heath et al 2000, Hughes 2002 and Rochlin 1998 in section 2.1.4). Similar to arguments presented in many of these studies, I argue in this thesis that experts use know-how when carrying out their everyday tasks and jobs in the workplace. I present this argument specifically in Chapter 5.

In the second part of this chapter, I presented some of the literature that addresses bodily-presence and mediating technology. Some explained the way in which we can *feel* presence through the use of mediating technology (Argyle and Shields 1996; Rettie 2005) and others even gave suggestions on how we could make presence via mediating technology *just like* or *similar to* that of bodily-presence itself (Steuer 1992; Mitchell 1995). Unlike these studies, my thesis argues that no matter how much we improve mediating technology to overcome the fact we are not bodily-present with others, the fact remains that we are *not* bodily-present with them, and this is fundamental for understanding the way in which my respondents encounter mediating technology in their workplace. In Chapter 6, I argue following the work of Heidegger, that this is because there are different underlying structures to using mediating technology and being bodily-present with others.

Let's now look at how I carried out my research by turning to the methodology chapter.

Chapter 3: Methodology

In this Chapter I shall describe the methodology used to carry out my research. I shall present this Chapter in four main sections. In the first section, I shall introduce how the respondents of my study were selected. This section focuses specifically on how I gained access to my respondents, and for some, their respective workplaces. The second section will discuss why I have chosen to adopt ethnographic interviewing as the main method for gathering my data. In this section I shall also discuss the practical issues of time, location and feasibility of the interviews I carried out with my respondents. In the third section, I shall discuss the method of participant observation, first in a simulated aircraft, and secondly, inside a small Cherokee aeroplane. This method was not used to understand all of my respondents, but became a key feature of understanding the work of the Pilot in particular. It is also one of the primary methods for any ethnographer to adopt. In the fourth and final section of this chapter I will discuss how I analysed my data. Here I shall address the thematic style of analysis I used based upon the theoretical presuppositions that I took from Heidegger's thinking. Let's take a look.

3.1 Sampling Procedure: How I Selected the Respondents for my Study

Before I started carrying out my research, I devised a very basic selection procedure, (that I cannot claim is a sampling procedure in the quantitative research methods sense), that meant I would have respondents who used systems in a broad range of professions (see the opening section of Chapter 1 for a brief overview of each of my respondents). Getting hold of my respondents was by no means an easy task. On the contrary, gaining access to my respondents involved a serious amount of time networking, usually making contact with respondents through people I knew, such as speaking with friends of friends, colleagues of colleagues and so on. And even when I thought I had found people who seemed like potentially good respondents, I still had to approach them and hope they would give up their time to be interviewed.

Initially I had specific criteria in mind, for choosing the ideal respondents for my study. First, I wanted respondents who were experts in their field. They did not necessarily have to be experts from professional backgrounds as such (even though most I ended up interviewing

actually were), but they just had to be good at their jobs, and familiar with their world of work. Second, I wanted a range of respondents who used ICT in their workplace. A varied range of respondents would offer fresh and interesting examples which I hoped that readers of my thesis could relate to. I also wanted to show that my arguments were applicable to more than just one profession or industry. Third, I wanted respondents who had something to say about the ICT they used at work. In other words, I needed my respondents to be keen on talking about their work, who would tell me stories and tales about their everyday life, and who were just good at talking in general. There's not much point in interviewing somebody who has very little to say on the topic you are interested in, since very little data will be produced (Bryman 2004; Crang and Cook 2007). I also wanted respondents who were more than willing to give up their time for me, since I thought it ethically inappropriate to push or coerce respondents into speaking about their work if they were not really keen on doing so.

In all, 'purposive sampling' probably best describes my choice of sampling method because I *purposively* chose respondents who fitted my criteria (i.e. they were respondents who were considered experts in their field, and who had encountered ICT in their workplace). Hence the respondents were specifically chosen because they fitted the purpose of my investigation. On reflection however, my sampling method can in some instances be referred to as 'snowball sampling' or 'chain sampling' (as it is also known), as many of my later respondents I met as a consequence of interviewing my earlier ones or as a consequence of speaking to new people about my research (hence creating a snowball or chain effect). The Pilot for instance, was a good friend of the Director and had agreed to be interviewed following some discussions they both had about my research. The Project Manager was the sister of the Insurance Consultant and they were both siblings of a friend whom I worked with at the university. The support my respondents have given, in finding other suitable interviewees can be seen as a major advantage of using the snowball sampling method. In helping my project in this way, they not only show added interest, but they are also much more likely to continue to participate in the research themselves knowing that other colleagues, family members, or friends are also taking part in the research. Needless to say, this qualitative sampling procedure means that I cannot claim that my results can be mathematically demonstrated to apply to a wider population.

And so in this section I have outlined the reasons for my choice of respondents for this ethnographic study. But why adopt ethnographic interviewing to investigate the relationship my respondents have with the various forms of ICT they encounter? Why not use other types of methods? I shall argue why I have adopted ethnographic interviewing in the next section of this chapter. Let's now turn to this.

3.2. Why Use Ethnographic Interviewing?

My general intention was to map how experts from a variety of fields experience the use of ICT in their everyday lives, by drawing upon my theoretical presuppositions taken from Heidegger's thinking. In this sense it could be said to be directed or guided mapping, because it is guided by theory, as opposed to simple inductive empiricism (which has been heavily criticised by a number of researchers, most notably Silverman 2005). For this reason, I decided to adopt an ethnographic approach, because it is suitably adapted for carrying out such guided mapping exercises. Like most ethnographers, I aimed at gaining access to the natural settings of my respondents in order to participate in the understanding of their everyday worlds. I adopted this approach in particular to provide an account of the relationship my respondents have with the various types of ICT they encounter in their worlds of work, by drawing upon their detailed descriptions of their everyday experiences. I used this approach because I did not want to seek causal explanations, as is often the case with survey-style research, but rather wanted to "tell it as it is" (McNeil and Chapman 2006: 89). I wanted my study to describe the experiences of ICT users from a variety of backgrounds and so it was evident that ethnography (with its literal meaning of "writing about people") seemed methodologically suitable for carrying out my research. I also chose ethnography because it offered a versatile approach to getting "in close" with a range of different people from diverse professions. All of the respondents had occupations that I had very little knowledge of, and although this was beneficial in providing a degree of anthropological strangeness, it meant learning about cultural environments that were very different to my own. For example, prior to the research, I had very little knowledge, if any, of the insurance industry, foreign exchange banking, and the aviation sector. But the ethnographic accounts of the Insurance Consultant, Project Manager, and Pilot taught me a vast amount about each of these industries respectively. For example, the Insurance Consultant told me how systems in his industry were used to provide insurance quotations. The Project Manager told me how she was developing

a system for foreign exchange banking, and how video-conferencing systems worked.

Likewise, the Pilot told about his use of autopilot systems on the aeroplanes he flew. Thus my aim was to focus on understanding how each of my respondents experienced the use of ICT in the workplace, rather than just a general account of what their work was like overall.

There are a number of ways I could have carried out my research to provide “ethnographic accounts”. Some of these include using participant and non-participant observation, and/or ethnographic interviewing (see especially Spradley 1978). However, some researchers have generally recommended “reserving the term ‘ethnographic’ for approaches that use observational methods as a ‘central plank’” although many are also agreed that the term can be useful to convey that interviews have been carried out in a setting to which the “researcher has had extended access” (Barbour 2008: 92). And so by conducting my research within the workplaces and/or homes of my respondents, I felt I was more able to contextualise what happened in their everyday lives. Participant observation would have been an ideal method for understanding all of my respondents’ practical engagement with the tasks they do at work, and with the various forms of ICT they encounter there. This is because participant observation offered a means by which I would have not only listened to the accounts of what my respondents did, but it would have also given me the opportunity to watch what they did and participate with them in what they did too. But how would I gain access to all these different organisations? And would my respondents want a researcher sitting alongside them whilst carrying out their job at work? (Especially if their work routinely involves flying an aeroplane from Luton to Barcelona, as was the case with my respondent, the Pilot). Such a task was just too difficult, since it would have been impractical for the following reasons. Firstly, gaining access to “experts” is a difficult task, because I assumed that many of them would have seen their time as being too valuable to give to a researcher (see for example Hertz and Imber’s 1995 anthology on elite interviews, discussed briefly in Kvale 2007: 70). Secondly, gaining access to a variety of professions is difficult to accomplish, because whilst talking to them is one thing, gaining access to their work setting as a co-worker, for example, is quite another. Thirdly, not only would participant observation involve gaining access to a variety of workplaces, but it would also involve access to a variety of workplaces of experts, many of whom have professional occupations. Given that it is rare for researchers to be given enough time or money to develop a professional skill in preparation for their study, some labour processes are difficult topics for participant observational research (Crang and Cook

2007). Unless one has spent some years qualifying and working as Insurance Consultants, Systems Analysts, or Aeroplane Pilots, for instance, although observing such work in certain circumstances is possible, it is extremely unlikely that one would be able to participate in it without anyone noticing an inability to make financial insurance decisions, solve software problems, or land a Boeing 757.

Initially I had even thought that non-participant observation would be ruled out, because access would in most cases be denied, and there was just not the time available to carry out my research in so many different organisations. However, some of my earlier presumptions were turned on their head. My respondents were more willing to accept to me into their working lives than I had initially thought. In all, I actually managed to gain access to the workplaces of four of my nine respondents, and these were very welcome invitations. On no occasion did I request to see the workplaces of any of my respondents, because I simply didn't want to be putting them in a situation where they felt they were pressurised to say "yes". In researching everyday life, there is a fine line between requesting, persuading and actually coercing somebody into doing something they may not actually want to do (Hammersley and Atkinson 2007).

My precise intention of using ethnographic interviews was to try to get at my respondents taken-for-granted worlds of work by getting to know them well, and also to understand how they encountered ICT in the workplace. As a result of implementing an ethnographic style, the formality of my interviews dissolved and the interaction became much more akin to informal conversations. As an ethnographic interviewer, my job was to listen to what my respondents were saying, whilst at the same time ensuring that the conversation was still focussed on the issue of ICT and how it was used in their place of work (note that it was also primarily guided by my theoretical presuppositions taken from Heidegger). I also had to "think on my feet" during the interviews, as I realised that an "interesting question may occur" whilst my respondents were still talking (Liamputtong and Ezzy 2006: 59). This happened on several occasions, most notably with the Pilot, who talked about his everyday world of flying aeroplanes in great detail and at length, without requiring any prompts whatsoever. Although this was in many ways ideal, it was also very tempting to interrupt the Pilot with a new question whilst he was still answering the last, and so it was important at times to practice keeping quiet whilst he was providing me with such rich data. Listening to what was said

throughout the interview required focus and a lot of concentration and like many researchers I found it helpful to keep a research diary that I used to write in sometimes during, and always immediately after the interviews (note: my “research diary” was generally made up of scraps of paper I had written on, and shoved into my back pocket whilst ‘out in the field’). This had added importance since I found that my own experience of the respondents’ worlds was often just as interesting as some of the ethnographic accounts the respondents provided me with (the fieldnotes I had written in my “research diary” were fully transcribed - my experience at the airbase with the Pilot can be seen in Appendix 10).

Like a good conversation, my ethnographic interviews involved my respondents talking, whilst I was listening, responding, and encouraging. Although throughout the interviews I asked questions and occasionally talked about myself, most of the time was spent just listening, as it is the experience of the respondents that was the focus of my interviews. Good interviewing involves having an active ear. But this was hard work, as it involved my complete concentration and careful listening to what my respondents were saying. In doing so however, I was able to ask good questions (i.e. the open-ended type) that prompted my respondents to discuss their experiences of using ICT at work. Unlike everyday conversations however, the ethnographic interviews were conversations that had their own structure and purpose – they were conducted to serve as a way to understand user’s experience of ICT at work by drawing upon what they said. Each interview was indeed a professional interaction, which goes beyond the spontaneous exchange of views as in everyday conversation (Kvale 2007).

Although I prepared some initial questions to ask my respondents prior to interviewing them, I found that many of the specific questions I asked my respondents were unknown prior to the interviews actually being carried out, because I knew very little about them and the jobs they did. I usually started my interviews with a general question of “how’s it going?” to help establish good rapport, and to also give my respondent’s the opportunity to talk about any recent work activities or work issues they themselves wanted to speak about. However, given that I wanted to find out how my respondents were engaged with the ICT they used, I also required questions that would take me through the kind of everyday things that they do. For this, I adopted types of questions used in Spradley’s (1979) *The Ethnographic Interview*. One type of question I made particular use of was that called the “grand tour question”. For instance, when visiting a place for the first time, the visitor is often given a grand tour of the

place in order for them to get a better understanding of it. Spradley (1979) expands the term grand tour to include questions that can assist the ethnographer in discovering aspects of experience that he wishes the respondent to convey. I used questions that typically involved my respondent's providing me with grand tour style answers. For example, in an opening interview I asked the Computer Graduate: "What's your kind of routine for the week?" (Computer Graduate Interview Transcript A line: 9) in order for him to take me on a grand tour of his week, explaining the kind of things he did, the people he generally met with, and so on. Asking the respondent to describe a typical week, gave a descriptive overview of the types of things the respondent does routinely in his weekly activities, and it opened up an opportunity to then ask further questions that may be of value to my specific focus of using ICT at work. However, the experience of a typical week was also made narrower to understand my respondents' experience of a typical day. This I used frequently in my interviews with my respondents, such as with the Business Developer for example, whom I asked: "Can you describe a typical day, what are the kind of things you'd do?" (Business Developer Interview A, lines: 20-21). Here I was able to find out what the respondent typically does in a day. The responses to grand tour questions nearly always offer an almost unlimited opportunity for asking questions about smaller aspects of experience (Spradley 1979). Spradley (1979) calls experiences smaller than a day "mini tour questions". Here I implemented a mini tour question in an interview with the Director by asking: "Describe a typical day and a typical job" (Director Interview A, line 8). Here the respondent was asked to describe a typical day *and* a typical job. The three examples above show how questions could focus in and narrow down on particular aspects of the respondents' lives, whether it be a particular week, day, or job. These types of questions can't always be prepared in advance. It was therefore essential that I was able to recall 'Spradley type' questions whenever I thought they were required during the interviews, a skill always required by the ethnographic interviewer him/herself when using such an approach.

In the first part of this section I have argued why I adopted ethnographic interviewing as the main method for gathering my data, outlining some of the practical advantages it has compared with some of the other methods I may have chosen to use. I have also discussed some of the ethnographic style questions I used in my interviews that allowed my respondents to describe their use of ICT in everyday situations at work. There are still however, some practical aspects of interviewing I have not yet discussed. First, how would I decide on how

many times I should interview my respondents? And second, how much time should I spend with my respondents? How long should the interviews last? I shall answer these questions in the next part of this section. Let's take a look.

3.2.1 Practical Aspects of the Interviews: Time, Location and Feasibility

I wanted to carry out a series of interviews with my respondents because I needed the time to gather enough data on how they encountered ICT at work. Ethnography is after all, "more than a one-day hike through the woods" (Fetterman 1998: ix), so it was inevitable that I would have to carry out follow up interviews. But would it be feasible to interview my respondents more than once? Would they give up more of their time for me? The main disadvantage of initial or one-off meetings is that they can only "scratch the surface of an interviewee's life" (Crang and Cook 2007: 73). For example, Rosenwald and Wiersma (1983) found that the initial interview was like a "press release" and that quite different stories were told in the second and third interviews (Liamputtong and Ezzy 2006: 58), whilst Gobo (2008) suggests that interviews conducted at the beginning of the research process usually serve just to "break the ice" and establish trust (Gobo 2008: 191). My initial interviews however were not required to merely "break the ice" since I had already had [in most cases] substantial communication with each of my respondents, either via email or via telephone exchanges. The Computer Graduate for example, I had already known for some years prior to my research (he had once rented a bed sit in the same accommodation I had lived at). As a consequence, we knew each other very well, and had spoken about the use of ICT on previous occasions (though never for my research purposes). The need to "break the ice" with the Computer Graduate was therefore totally unnecessary. However, this did raise the problems that come with interviewing someone you already know, such as, for example, losing the quality of newness which can be helpful for interpreting data. With other respondents however, it was different. The Pilot for instance, I had never met before, so it was important to build rapport in the initial interview. I did however speak with the Pilot on the telephone on a couple of occasions, as well as emailing him to make arrangements for the interviews. Because of this, I felt that some initial rapport had at least already been built up. Some research based on sensitive topics, is more likely to require initial interviews, just to build up trust with the respondents (Gilbert 2008). But given that my topic concerns the experience of using ICT, there was less sensitivity required than if one were for example investigating topics such as prostitution or violence (for

example, see Kelly's interviews and ethical considerations in her work *Surviving Sexual Violence* 1988).

Carrying out a number of interviews with the same respondent is desirable for many professional social researchers. For example, Cook (2007) carried out research with visually impaired people which involved interviewing three people on ten occasions. Whilst Piles (1991) research with dairy farmers involved interviewing six respondents on twelve occasions, and Rowles (1978) research with elderly people also involved interviewing a handful of respondents a number of times. What is "usually sacrificed in terms of a breadth of experiences is more than made up for in terms of a depth of understanding" (Crang and Cook 2007: 75). I felt that the breadth of interviewing nine very different respondents would therefore be complemented with the depth acquired from interviewing my respondents on usually more than one occasion.

And so initially I made the decision to carry out at least two interviews with each of my nine respondents, in the hope that I would have follow-up questions in the second and third round of interviewing. On average, my interviews lasted anywhere between 40 minutes to 1 hour 30mins (all recorded and transcribed) and I relied on my own judgement to know when to stop the interview, whether it was because the respondent looked tired, or because I felt the conversation was simply running dry. I had to also bear in mind my own concentration levels, since it is very much the researchers own engagement in the discussions within the interviews which makes ethnographic research so successful (Blaxter et al 2001; Fielding 2008; May 2001; Silverman 2007), and many argue that rather than ignoring our own feelings, responses and experience, we should focus on these human responses, as they are precisely what enables us to understand the social world (Gadamer 2006).

By using a series of interviews, both my respondents and I were able to think about the stories they told about their lives. Given that some of what they told was contradictory and sometimes inconsistent, serial interviews allowed the time for us to flesh out the concepts and arguments, and make them more understandable for both myself and my respondents. And because the stories people tell about their lives are usually "pieced together, put forward, argued with, transformed and retold in different versions in the multiple contexts of their biographies and everyday lives" (Crang and Cook 2007: 76), thorough explanations could sometimes only be

arrived at by creating a dialogue with my respondents over a number of visits. Moving from quick explanations to thoughtful introspections and explorations of my respondents' lives is one strength of using serial interviews in this way. Contrary to this however, I found that some of the most relevant data came from the initial interviews with my respondents. Also, given that I had a strong focus (both theoretical and substantive), there was often no need to keep re-interviewing my respondents on the same issues, since the first interviews already gave me what I needed for the purposes of my investigation.

Although serial interviewing was planned for this study, each respondent was only initially asked for a one-off interview. This is because it was felt that most respondents would not want to commit to a series of interviews to a stranger they had never met. Getting respondents to take part in a series of interviews is much more than gaining consent for that first meeting, and many researchers have been found guilty of not telling respondents exactly how much of their time is required prior to their agreement to becoming involved (Gray 2009). Although I did not express to my respondents the possibility of follow-up interviews, I did not think of this as deceiving my respondents, as I didn't insist that any of them should feel obliged to be interviewed on another occasion. I simply treated my research as ongoing and exploratory. I myself hadn't known precisely how many interviews I would carry out with each person since I could never know for sure how worthwhile the initial interviews were going to be.

In all, six of my nine respondents were interviewed more than once, in order to follow up questions I had in mind when analysing the initial interview. This would help further in understanding their experiences of using the various forms of ICT and would also ensure I adhered to some of the principles of ethnographic research (i.e. ensuring I had spent enough time in the field). The other three respondents I had interviewed on only one occasion weren't followed up with further interviews, because I felt I had enough data gathered from the initial interviews, or I felt that my respondent wasn't comfortable giving up more of their time for my research. For example, the interview with the Insurance Consultant lasted for 1 hour 30 minutes and had given me enormous insight into his work inside the insurance industry. I had spoken to him on the telephone prior to our interview and had met him once afterwards, speaking briefly about his work life. For this reason, I felt there was no need to go back and gather more information, even though the Insurance Consultant was happy for me to interview and record him again should I need to. The Teacher also fitted into this category. The interview with her lasted

for 1 hour and 20 minutes, and having interviewed her at the school itself, I felt I had gathered large amounts of useful data, just from my initial visit. The case with the Doctor however was different. He was only interviewed once because in my initial interview, he had given me the impression that further interviews may impact upon his valuable time. For this reason I did not request another interview with him. I did not want to put him in a situation whereby he felt pressurised into taking part in my research, and given that he was my own GP, I did not want to jeopardise the relationship I had with him (this is one of the problems that come with interviewing someone you know in another capacity). Consequently, I have since visited my Doctor's surgery with general health concerns, prescriptions and so on. I felt that my relationship as a patient to the Doctor has not been damaged as a result of him taking part in my research. On the contrary, I feel I have a better relationship with him than I did prior to the interview.

Most interviews were carried out in the respondent's workplace or home, and many involved travelling to locations outside of London. There are of course other ways in which one might carry out an interview, such as via telephone for instance. However, face-to-face contact with the researcher offers the respondent the possibility of an initial assessment of the researcher's trustworthiness, and again encourages intimate and detailed responses. I also felt that face-to-face contact was crucial for understanding my respondents' worlds.

And so, in the first part of this section I have focussed on the core method of ethnographic interviewing which I used to collect the majority of my data, and in the second part detailing some of the practical issues related to my interviewing. However, my methodology changed throughout the course of my interviewing. As a consequence of the good rapport I built up and maintained with each of my respondents, some of them gave me more access to their worlds of work than I had even requested. I will show the importance of this in the next section.

3.2.2 Building Rapport and Maintaining Good Relationships with my Respondents

As with other ethnographic approaches, the ethnographic interviews I conducted were in most cases a privilege for both me and my respondents alike. There is something "deeply rewarding and satisfying about talking to another person for an hour or more in such a way that you come to understand a particular part of their life in-depth" (Liamputtong and Ezzy 2006: 55). The ethnographic interviews I conducted provided a rare and enriching experience

for many of my respondents. In addition to this, many of the respondents already had invested interest in the research itself. The Business Developer for example, thought of it as an opportunity to lay out the problematic issues with the monitoring system he uses. Like other respondents, he asked for a copy of the finished thesis. He wanted to use the research to advise his line manager how to recreate the system, or simply how to make best use of it. Other respondents took great interest in the research for other reasons. The Computer Graduate had spent years studying computer science, and felt his 'expertise' was contributing to the discussion of ICT in academia. The Project Manager, Director and Pilot all used the interviews as a chance to discuss aspects of work for a lengthy period of time that they rarely were able to do with anyone else. For some of them the interviews acted as a kind of therapeutic aid enabling them to "get it off their chest" so to speak. The Pilot in particular showed his frustration with the ICT he used at work, and seemed enthusiastic about the opportunity to vent this frustration to someone who wanted to listen to him. During one of my visits to the Pilot's home, even his wife had commented on how "good it was to have somebody willing to listen to his stories of his life at work". In the interviews with the Computer Graduate and Systems Analyst, there were defensive barriers put up when discussing the "problems" with the various forms of ICT that they encountered. In contrast to other respondents, they used the interviews not only as an opportunity to show their passion about their jobs and their lives, but also the passion for the systems they maintained, made or used.

I sent all of my respondents a research brief (see Appendix 3) prior to being interviewed and this informed each respondent of the aims of the project, how the data would be gathered (i.e. recorded and transcribed etc), and the names of the people who would have access to reading the transcripts produced. I informed my respondents that each interview was to be fully transcribed word-for-word, so I would not lose the richness of any text. Even bodily movement and other gestures, such as pointing at a computer or laptop (as with the interview with the Pilot) or the raising of a voice, were also noted on the transcript. Some of these I noted during the interviews and others I recalled from memory by simply listening back over the recording immediately after interviews had taken place.

Most participants in any research project don't like to feel as if they are "guinea pig subjects" part of some kind of research experiment (Woods 1986: 22), and so making my respondents feel they were doing a worthwhile job in participating in the research was all part of

maintaining a good relationship with them. Having a good relationship also allowed my respondents to feel more at ease when talking about their everyday tasks at work, and also the relationships they have with others within and sometimes outside the workplace. On a personal note however, genuine friendships have emerged with many of the respondents in this study, and are likely to outlive the requirements for this current research project.

3.2.3 Doing Fieldwork: Having Extended Access to my Respondents' Worlds

I did not set out to do anything more than interview my respondents, since I thought that anything beyond this was simply impractical (as discussed in the previous section, 3.2.1). Observational fieldwork for example, was a method that I could only carry out if I were given the opportunity, and I had no idea that any of my respondents would allow me to do more than just talk with them. Participant observation in particular was an ethical concern. I did not want to put myself in a position where I would have a negative impact upon the jobs and lives of my respondents. I also didn't want my respondents to feel obliged to have me walk in on their lives in a way that was threatening. However, many of my respondents welcomed my "intrusion" into their lives. For example, the Computer Graduate and Project Manager had both welcomed me into their homes, providing me with the opportunity to find out more about things such as their hobbies and interests, simply by "having a look around". The Computer Graduate had bought a bottle of red wine, which he had opened during one of our interviews. This gesture not only indicates how welcoming the Computer Graduate was, but also shows how informal the interviews seemed whilst they were taking place (notably however, it was also a consequence of knowing the Computer Graduate already). But this offering wasn't necessarily a good thing all round. Whilst listening over the recording and transcribing the interview, I noticed that some of my questioning had gone off focus and after 1 hour and 30mins or more of drinking wine I had even started to slur some of my words a little. The Project Manager was just as hospitable, and invited me to her local pub after one of the interviews where I found out even more about her work in the banking industry. This gave me the opportunity to simply "hang out" with her and get a feel for what it was like in her general everyday life.

Other respondents had gone even further in welcoming me into their worlds, by making me feel at home and making lunch for me. Take for example the Insurance Consultant. Whilst at

his house, he had invited me into his kitchen where he pulled out a cheeseboard, loaf of bread and packet of crackers. He then prepared a selection of cheeses for us, whilst I sat at the kitchen table continuing the discussion we had been having about his work in the insurance industry. This gave me an added opportunity to talk with him for longer and to try and establish a closer inspection of his day-to-day activities. The Systems' Analyst made similar efforts to welcome me into his world. The Systems' Analyst I knew through a family connection, and although not blood related, I was in fact a distant cousin to his son. And so on the first occasion I interviewed him, his son had prepared a Sunday evening roast for the three of us. On the second occasion that I interviewed him, his son prepared tuna sandwiches. After eating, the Systems Analyst invited me to watch a local football team play (the team was Northwich Victoria Football Club). This I thought was a good measure of just how well our rapport has been established. This not only enhanced my understanding of the System's Analysts world but also continued to maintain the good relationship I had with him.

In general, all of this participation in my respondents' personal worlds was important for establishing rapport, and maintaining good relations, but ideally I wanted to get a grasp of their work worlds, and what it was like to use ICT there. With some of my respondents this became possible, with five of my nine respondents giving me the opportunity to understand their world of work by allowing me to be in there with them. For example, the Doctor allowed the interview to take place in his own surgery where he worked, which gave me added opportunity to point and ask about things inside the room, such as the Doctor's medical equipment. I also found it much easier to encourage the Doctor to talk about his patients' database system, when it was actually there in front of us both. On the other hand, being in the surgery as a researcher was a strange experience, rather than a natural one. It was unusual for somebody to be sat in the patient's seat questioning the Doctor. It was usually the Doctor who asked the questions of his patients. Nevertheless, being there at the surgery could only add to my understanding of the Doctor's world. The Teacher also invited me to her place of work to carry out the interview. She had arranged the interview to take place in an empty classroom where she had sometimes taught. Being there at the school not only allowed me to look around at the classroom, but I also got the opportunity to understand the types of pupils the Teacher had to deal with, and see and speak to other staff in the school as well. However, whilst being there at the Doctor's surgery or Teacher's school was extremely beneficial, it did not mean I had an instant understanding of their worlds of work. An

understanding of another's world is much more than merely being in a physical environment. This is a point recognised in other qualitative studies within Sociology. For example, in the sociological classic, *Street Corner Society*, Whyte (1993) comments that Cornerville (the Italian American slum district where his study was based) was right before him and yet so far away. As he says: "I could walk freely up and down its streets, and I had even made my way into some of the flats, and yet I was still a stranger in a world completely unknown to me" (Whyte 1993: 289). My understanding of my respondents' jobs was therefore much more than merely turning up to their workplace.

Out of all my respondents, the Pilot was the one who had welcomed me into his world the most. Not only did he allow me to interview him at his home, but he had arranged for a small aircraft to be available so I could participate in flying an aeroplane with him. He also managed to gain access for us to a simulated aeroplane, which represented how one would fly a real commercial aeroplane carrying two hundred or more passengers. I was no longer just having a look around at my respondents' lives by merely talking to them inside their homes or seeing what they do at work, but I was about to take part in their world as well. I shall discuss how I carried out these participatory observations in the following section. Let's take a look.

3.3 Participant observation: Making Best Use of Welcoming Opportunities

Participant observation is a key method for any ethnographic study. How better to understand the work worlds of my respondents but to work alongside them myself. But as I pointed out in previous sections throughout this chapter, participant observation just seemed impractical for my investigation. Speaking with my respondents is one thing, but doing their jobs is quite another. Apart from the exceptionally difficult task of gaining access to a variety of work settings (i.e. schools, GP surgeries, airports), there was also the impossible task of gaining the qualifications and experience needed to work in all these professions in order to be able to "walk in their shoes" so to speak (Hence why I argued against using participant observation in the previous section, 3.2.1). There are of course the added ethical constraints which are most important. How would parents feel if their child was being taught at school by somebody with no teacher training qualification? How would patients feel about being diagnosed by somebody with no medical expertise? And how would passengers feel about a researcher being in charge of flying an aeroplane they are about to board? Furthermore, how would my

respondents react if I asked them for access to their work places? Whether they would agree or not was not the only issue. The fact that I would have to ask them seemed to be an ethical concern itself. My respondents were motivated to take part in my study, partly because they knew they were helping me, and offered their time for my research. But asking them for further access to their workplaces to participate with them at work would have put them in an “awkward situation” and some of my respondents may have felt uncomfortable about having to say “no”. Such a request may have also been construed as pressing them for further help that they had not consented to giving. It was just not feasible that I could work within these occupations for the ethical constraints alone. And so participant observation was initially ruled out. However, what became apparent during my interviewing was that access to workplaces was becoming more and more accessible (as illustrated in my previous two sections of this chapter, 3.2.3 and 3.2.4). My respondents wanted to involve me in their day-to-day activities in order for them to explain to me what they were “going on about” in the interviews. The Pilot is a good example. During the interviews at his home he insisted on showing me the laptop he used to calculate “the performance” of the aeroplanes he flew (“the performance”, as pilot’s call it, refers to the set of calculations used to work out things like the power, speed, distance and fuel required for the flight). It seemed that as an ethnographer, I had even negotiated myself into a position where I was able to get hands on experience of using the laptop itself (and the Performance system the Pilot used). It was not merely sheer luck that the Pilot would sit the laptop in front of me, and explain how to use the system itself. Rather, I argue that this opportunity to explore the various forms of ICT which the Pilot used at work was a result of the sincerely genuine inter-personal relationship we had developed from my use of ethnographic research methods.

It became apparent that the ethnographic approach I had employed had opened up new opportunities for my research. What came next however was by way of surprise. After one of the interviews during lunch together, the Pilot asked me did I want to “come up” flying with him sometime. Without hesitation I agreed, and asked the Pilot to let me know when this could be arranged. On reflection I can see that my approach to using ethnographic methods was central to this arrangement. Had the Pilot been merely a respondent of a ten-minute interview or short questionnaire (using for example a quantitative approach), then he would have never asked that I go flying with him, on the basis that I would still practically be a stranger. In

contrast, using an ethnographic approach initiated a genuine rapport with the Pilot, which itself created further research opportunities to learn from him.

Several months had passed and I had heard very little from the Pilot. He was very busy both with work and with his personal life, so I did not want to keep emailing him about my research as I did not want to seem as a bother or disturbance to him or his life. After six months or so had past, the Pilot had contacted me again to ask how my research was going, and asked again about “going flying” with him in a small aeroplane. I again accepted the offer, and again left the onus with the Pilot to decide upon dates that were convenient for him. He came back to me with firm dates, and we arranged a set day for going to a British airbase whereby we would go flying in a small Cherokee aeroplane. We see here that my conduct as a researcher was professional and adhered to ethical considerations expected of a researcher. I was polite, respectful and courteous to the Pilot. I was very grateful for the Pilot’s offer but by no means did I put the Pilot under any pressure to take me flying, or give up more of his time for me. On the contrary, the Pilot had given me a welcome invitation to go flying with him, and so it was his decision, and on his terms only that I would have this experience. And so I want to emphasise the point that the decision to do participant observation was not one I pushed upon the Pilot but had come about from the Pilot’s own suggestion, and it was clear that my opportunity to do participant observation was at the same time a consequence of building good rapport with him (see again the previous sections on building rapport, section 3.2.3).

The following two sections outline how participant observation was used in two particular settings at an airbase the Pilot had taken me to on one of the occasions we had met. The airbase itself was not one where the Pilot regularly worked, and so although not an ideal setting for an ethnographic study, it was somewhere the Pilot went to do some of his annual tests and training and so in this respect it was still very much a naturalistic setting. The airbase itself provides the overall context, but within the airbase there were various settings which provided different contexts involving very different kinds of people, such as the briefing room where there were two pilot cadets who were both studying, and the outside area where mechanics were working on aeroplane maintenance (for a detailed account of the various settings and various interactions with others at the airbase, see my transcribed field notes in Appendix 2).

There are two important settings where I was able to actually take part in flying an aeroplane. The first setting was my participant observation on a simulated aeroplane. The second was my participant observation on a small Cherokee aeroplane. But my method of participant observation raises some questions. Why take up the opportunity of using participant observation with the Pilot? Why was this method appropriate? How was it used to gain a better understanding of the Pilot's world of work? How was it used to get a better grasp of how the Pilot uses ICT? Let's take a look.

3.3.1 Using Participant Observation with the Pilot: Flying a Simulated Aeroplane

Why use the method of participant observation for flying a simulated aeroplane with the Pilot? A fundamental reason for using participant observation in any research project is that it gives researchers a chance to immerse themselves in the day-to-day activities of the people whom they are attempting to understand (Bryman 2008; May 1997; Silverman 2005). And how better could I understand the Pilot's job of flying aeroplanes than to actually fly one myself. The aeroplane was of course a simulated aeroplane, a representation of flying rather than flying for real. But this was still an enormous opportunity for me to gain real insight into what flying a commercial aeroplane was like. The simulator was designed to teach real pilots, so I had no doubt that the experience was like the real thing. The Pilot, who incidentally, had never used this kind of simulator before, was also taken back by how similar it was to a real aeroplane.

Participant observation lent itself particularly to my study in general, because like most ethnographers, I realised how important it was to become close to the everyday experience and activities of respondents one wishes to learn from (Fetterman 1998; Liamputtong and Ezzy 2006). Being able to observe the Pilot gave me firsthand accounts of how the Pilot operated a commercial aeroplane and how in particular he was able to use ICT (such as the performance system, and the autopilot system that he spoke about during the interviews) and the other various instruments he used onboard (such as the "altimeter" which informed him of the altitude of the aeroplane, and the "yoke" which he used to steer the plane).

Because it was a simulated commercial airliner, I had the added advantage of being able to participate in the actual flying, something I could not otherwise have done aboard a real

commercial aeroplane as a social researcher. But why was flying the simulated aeroplane myself any different or better from simply observing the Pilot? Participating in the flying of the aeroplane did not only allow me to see what flying was like, but enabled me to experience what it was like. And I could finally bring together what the Pilot had been saying about flying during the interviews with what flying, or at least operating an aeroplane was for itself, in my actual experience of doing it. This was particularly useful because I was able to make better sense of the things I had not properly understood during my interviews with the Pilot. For example, he had previously spoken about how subtle the movement was for flying an aeroplane, but I didn't understand quite what he meant until I flew in the simulated aircraft. Another thing I had not understood from the interviews is what the Pilot had meant when he talked about "flying visual" in an aeroplane, and the difficulties this involved. "Flying visual" means to just look out of the window in front of you whilst paying less attention to the satellite navigational systems and other feeders of information that are in the cockpit with you. I had always thought that this would be a basic task for aeroplane pilots. But my experience showed me that flying an aeroplane involves both looking out the window as well as looking at the navigation systems and other information such as the altitude meter, at the very same time. Only from my experience of this did I realise just how difficult it was. To put it bluntly, I could not have acquired these insights had I not participated aboard the simulated aeroplane itself. Another important aspect of this was that the Pilot himself also seemed satisfied from the point of view that I had finally understood him. I was not just listening to him, and talking to him, but I was now also experiencing what he too was experiencing.

My participation was fundamental to my ethnographic approach, because it allowed me to have what Fielding (2008) calls "appreciation", enabling me to see things from the perspective of the Pilot, before stepping back to make a more detached assessment. By attempting to immerse myself in the world of a commercial aeroplane pilot, I was able to learn more about the specifics of flying an aeroplane, and really appreciate how to do such things as preparing an aeroplane for take-off, steering the aeroplane in particular directions, and understanding how various parts of ICT operated on the aeroplane. This appreciation was founded on getting a feel for what it was like to do the Pilot's job, initially by having a little play with the controls, as we can see in the following extract:

P: Take your hands on the controls, and have a little play.

B: (Laughter).

P: If you turn to the right.

B: (pointing to the instrument screen). So is that purple bit the bit where I am flying?

P: That's where you're flying into but I wouldn't worry about it for the moment because it's not flashing. We are just flying visual.

P: *So you are just having a play, so do a right hand turn, about fifteen degrees (inaudible). Pull back on the control column to stop the nose going down. Pull back a little bit, and that's absolutely great. Now you are going nose up. See how little it is?*

B: Yeah.

P: That's good, now you can take a left turn if you want.

(I turn the aeroplane to the left by turning the yoke to the left)

P: We'll stop it at eight thousand feet so just bring the nose down. Now we are just coming down a little bit, not very much. (Points to the screen). So you want it just a little bit above the zero. Push the nose forward.

(Fieldnotes 5b, lines: 269-292, my own emphasis added)

In the extract above, the Pilot tells me to take my "hands on the controls, and have a little play" (lines 269). The Pilot intended for me to learn about flying, by having me practice using the controls on the simulator. This kind of insight was extremely useful for getting to grips with what flying a commercial airliner involved. By being in the simulator and actually taking part in flying the aeroplane, I was able to learn for myself how to push and pull on the yoke in order for the aeroplane to change its altitude. No set of instructions or 'how to fly' manuals could provide the kind of understanding I was receiving from having hands on experience aboard the aeroplane. I was learning how to fly, and in doing so was learning more about the Pilot's everyday job of flying commercial aeroplanes. We see in the extract above, just how the Pilot (as my tutor) advises me to bring the nose of the aeroplane back down: "Now you are going nose up. See how little it is?" he says (see my emphasis added in extract above). As the nose pointed upwards I reacted by appropriately pulling back on the yoke to maintain the right altitude. My learning experience was therefore a mixture of reflection (i.e. I was reflecting upon what the Pilot had told me to do – following his instructions and so on) and reaction (I

was manoeuvring the controls in the way I felt was most appropriate, by simply reacting to the way the aeroplane itself seemed to be moving).

And so what was most significant about the method I used was this: participant observation with the Pilot is not used to merely talk about flying, or just observe flying, but as well as these things it is a practical engagement with flying where my understanding becomes articulated in the actual flying of the aeroplane itself. In other words I was beginning to know how to fly, as opposed to having only a thematic grasp of flying (I shall not elaborate any further on this point, other than to remind the reader that know-how is a key theme to my thesis - refer back to section 1.4.1 for a discussion on know-how and thematisation).

3.3.2 Using Participant Observation with the Pilot: Flying Inside a Real Cherokee Aeroplane

In the first part of this section, I outlined how my ethnographic approach using interviews had enabled me to gain further access by which participant observation could be carried out (see section 3.3). The Pilot and I had established trust, and after some telephone conversations, email exchanges and ethnographic interviewing at his home, the Pilot gave me the opportunity to fly a small Cherokee aeroplane, and I snatched it with both hands, literally. By using the method of participant observation, I was finally able to find out what flying a real aeroplane was really like, something which I had never done before. This allowed me to experience for myself how to fly a real aeroplane, and see the Pilot in action (whilst actually in the air). In what follows, I shall argue that participating onboard a real aeroplane allowed me to understand what flying a real aeroplane was really like, by having “hands on” experience of flying. And although I participated as only a beginner (i.e. a novice pilot, rather than an expert pilot), I shall argue that this research role was most beneficial in understanding the Pilot for the purposes of my thesis. Let’s take a look.

Like most ethnographic fieldwork, my participation with the Pilot on the aeroplane involved the development of a close connection between myself, him and others at the airbase. My participation with the Pilot at the airbase was an attempt to live with or live like my respondents being studied in order to understand things from the “natives point of view” (as the anthropologist Malinowski first called it). In order to understand “what goes without saying”

(Bloch, 1997: 22ff., cited in Ybema and Kamsteeg: 101), I required intimate knowledge of the Pilot's world. This for me was indispensable. I wanted to understand the Pilot's point of view, how he felt about flying aeroplanes and how he felt about using autopilot systems for flying his aeroplane.

By participating aboard the Cherokee aeroplane, I was able to experience for myself some of the things the Pilot had spoken about during the interviews. Some researchers have referred to this as "cross-checking" (Liamputtong and Ezzy 2006: 197), where additional methods such as observation verify what was said during interviews. However, whilst using participant observation did 'iron out' (make clearer) some of the things the Pilot had said about flying, my main concern was to experience flying alongside the Pilot, so I could simply understand him and his work much better. The following is an extract taken from my fieldnotes made whilst inside the Cherokee aeroplane, and shows the extent to which I participated in flying the aeroplane, and was thus able to start seeing things from the Pilot's perspective:

The aeroplane was very noisy, but we had radio head phones which meant we could talk to each other fairly clearly. *The Pilot tells me to "grab hold of the controls". As I do so he lets go of his. I realised I was actually flying the aircraft myself.* I was a little nervous at first, and concentrated on keeping the aeroplane level. "I'm going to have a little sleep" says the Pilot. "What was that?" I said. "I'm having a little nap and will leave it to you" replies the Pilot. I laughed as I realised the Pilot was joking. But nevertheless I was in control of directing the plane, and I felt I had enormous responsibility.

The weather was dull and we saw bits of terrain heading towards us. The Pilot told me to turn: "Swing it to the right" he said. "That's it, and as you turn, pull it up a little bit" the Pilot said. I turned the plane to the right, by turning the yoke to the right side. It did seem similar to a car (even though I've never driven one of them either!). A major difference I suppose is that you can go up and down as well, by pulling or pushing the yoke in front of you. As I turned the yoke to the right, I pulled it back as well. I could see the ground through my left window as the whole aeroplane turned. The Pilot told me he "felt sick", but I knew he was only joking because I was in control of the aircraft. I just laughed and carried on flying. After a short time the Pilot pointed out to my right. "That's Milton Keynes down there" said the Pilot. "Oh I have a friend from Milton Keynes" I said. I kept on flying the aircraft.

(Fieldnotes 5b, 841-860, my own emphasis added)

How better to understand being a real pilot, than to be a real pilot myself. And this is exactly what I was able to do, because the Pilot had given me full control of the aeroplane by encouraging me to hold the yoke (the instrument that steers the aeroplane) whilst he let go of his: “grab hold of the controls” he said (see line: 842, in extract above). This opportunity to take control of the aeroplane was extremely valuable to my research. It had finally brought the flying we had spoken so much about into the real world. The Pilot joked about falling to sleep, but the underlying connotations of what he said was that he was no longer flying the aeroplane, I was. This gave me a further insight into just how responsible flying an aeroplane actually is. We didn’t have other passengers on board, but I still feared for my own life should anything go wrong.

My method of participant observation on the aeroplane was enhanced by the fact that the Cherokee (like most aeroplanes), had two connected yokes for both the pilot and co-pilot to use together. This meant I was able to get a feel for how to fly the aeroplane by both seeing and feeling how the Pilot operated the aeroplane. In the extract of my fieldnotes below, we see how I gain an understanding of how to fly the aeroplane by experiencing what the Pilot himself was experiencing:

The Pilot told me to *hold the yoke to feel how he lands the aeroplane*. At first I held it tightly, but then I eased off the yoke so the Pilot knew he was in total control. By holding onto the yoke whilst the Pilot was flying, *I could experience what the Pilot was experiencing*. There were tiny subtle movements of the yoke which were mainly forward and backward, pulling and pushing the plane so it was tilting up and down. The movements were constant. The yoke never seemed to stop moving around until we actually hit the runway.

(Fieldnotes 5b, lines 904-910)

We see here that the Pilot tells me to “hold the yoke to feel how he lands the aeroplane”. By holding the co-pilot’s yoke (which is attached to the Pilot’s yoke) I was able to really “experience what the Pilot was experiencing”. I felt at last that I had experienced what flying a real aeroplane was really like. And, although this wasn’t a Boeing 757, the Cherokee aeroplane taught me that a pilot had to *know how* to fly his own aircraft, if he himself wished to reach the ground safely, a theme specific to my argument, following Heidegger (the discussion section of this argument is addressed in Chapter 5).

And so my method of participant observation aboard the Cherokee aeroplane was extremely beneficial for my thesis, but it also raised some problems. As a mere novice at flying aeroplanes, had I really understood how to fly an aeroplane, in the same way the Pilot did? And was I really able to appreciate the Pilot's world of flying, over such a short period of time? My research role as an ethnographer was arguably a difficult one. I was neither fully immersed in the Pilot's world of work, nor was I an expert pilot (far from it!). But I was after all getting a real grasp of what flying was like, and the fact that I was not "fully immersed" was advantageous too. It is recognised by many researchers that whilst "immersing" oneself into the world of another is generally acknowledged as a central feature of good ethnographic field research, its logical counterpart "distancing" has often been a neglected topic in methodological textbooks (Ybema and Kamsteeg, 2009: 101). I argue that such "distance" is equally as important as "closeness" for an adequate understanding of the Pilot's world. The Pilot was an expert at flying aeroplanes, whilst I was only a mere novice. And so whilst I had some first hand grasp of what flying aeroplanes was all about, my understanding was generally inferior to the Pilot's. But this again raises an important question. Would I have gained anything more should I have spent hours becoming expert in the organisational setting of the Pilot? Without doubt I am sure I would have enriched my understanding of the Pilot's world had I spent longer in the field. But I also argue that too much time spent in the field reduces the value of participant observation itself. In deciding how close to get, ethnographers must choose a role somewhere between the 'Martian' and the 'convert' (Loftland and Loftland, cited in Fielding 2008: 271). The anthropological strangeness I acquired from being the stranger at the airbase helped me to see things in a way that I would never have been able to had I for example been a co-worker in the Pilot's organisation. Thus being immersed in a world too familiar to me would have been disadvantageous for my research - my presence would be rather like that of a fish trying to discover the water that surrounds it.. It was therefore advantageous that I knew very little about the aviation sector, and flying aeroplanes, before carrying out my research. This allowed me to be engaged in the setting (i.e. the airbase) with an intrigue and quality of newness, so I could to some extent, see the Pilot's world with fresh eyes, and remain able to maintain a certain level of objectivity.

And so, this section has outlined some of the key benefits and problems with my use of participant observation aboard a Cherokee aeroplane. But there is one issue about my flying experiences which I have not yet discussed in this thesis, which is this: How does a simulated

experience compare to an experience of the real thing? And what are the differences between a simulated experience of flying an aeroplane, to flying a real aeroplane, if any? I shall come back to these questions in Chapter 6 of this thesis (specifically section 6.5).

3.3.3 Recording my Experiences: Taking Field Notes

Overall my experience seemed so very valuable and worthwhile to my investigation. But how would I remember all of these experiences so I could later write about them? I decided that I would try to record as much as possible on my Dictaphone, as if I was recording one of my interviews. Like any good ethnographer, I did not just record the time spent up in the aeroplane, but I recorded the things that went on before, during and after the flight, including my journey to meet the pilot at Cranfield airbase, and the conversations I had with the Pilot inside his car (the fieldnotes transcript can be read in Appendix 10). I also made fieldnotes of the time we spent inside the briefing room, before actually boarding the aeroplane. This was extremely beneficial, as I made notes of conversations which the Pilot had with two young pilot cadets. In addition to this, I made fieldnotes about being on board the aeroplane (because my Dictaphone couldn't pick up our conversation above the noise of the aeroplane) and I recorded a conversation (technically an ethnographic interview) which I carried out in the Pilot's car at the airbase, after we'd just come down from being up in the aircraft. Because the central intent of participant observation is to generate data through observing and listening to people in their natural setting (Bryman 2008; Gray; 2009), an important part of this process is the "reporting of the researcher's own experiences, feelings, fears, anxieties and social meanings when engaged with people in the field" (Gray 2009: 399-400). This is why the transcript I provided shows as much of my own thoughts and feelings, as it does any of the respondents or others I engaged with whilst out in the field (again, a full version of this transcript is provided in Appendix 10).

3.4 Analysing the Data: Using Thematic Analysis

This final section of this chapter deals with how I analysed my data. My ethnographic interviews and observational field notes provided me with large amounts of data which I had to transcribe in order to begin my analysis. During the process of transcription, I had listened to the tapes of the interviews several times, and later read through each of the transcripts over

and over, which I had line numbered in order to record and locate more easily the important things my respondents had said (the original transcripts I produced and analysed can be seen in appendices 1-10). My analysis involved two important stages. I began by letting my respondents speak for themselves and listening to the stories they told. I then explicitly drew upon Heidegger's philosophy to bring out the common themes that cut right across each of their stories. I shall discuss these two stages of analysis in the following two parts of this section.

3.4.1 Stage One of Analysis: Letting the Respondents Speak for Themselves

Most of my respondents gave a clear account of the jobs they did, and the systems they encountered at work. This made it easy for me to understand, because they effectively told their own story about their lives in the workplace, using various forms of ICT. And so instead of segmenting the text, or coding it, as is often the case using various forms of content analysis, I began presenting my data using a narrative style approach in order to maintain the richness of my data, and to allow my respondents to 'speak for themselves' to the reader. I thought this was important, because in order to show my arguments were valid, I wanted the reader to see that the data itself was coming out of my respondents' experiences, and not wholly made up or created by my own interpretation. I also did not want to 'force' my theory onto the data, but show that my theoretical arguments were important issues for my respondents too.

3.4.2 Stage Two of Analysis: Explicit Use of Heidegger's Theory to Bring out the Themes

Technically my analysis was of a thematic style, using the themes to cut through my data to what was most important. This was the second stage of my analysis. The themes had been developed from the theoretical presuppositions I had taken from Heidegger (in other words, I had a set of hypotheses in mind prior to carrying out my investigation which were based on Heidegger's ideas). Like other qualitative researchers, I dealt with the influence of pre-existing theory by embracing it, rather than trying to avoid it (because avoiding presuppositions altogether is simply impossible). In other words, I was "being explicit about the influence, right from the beginning of the project" (Liamputtong and Ezzy 2006: 283). Although Heidegger's

thinking was fundamental to the development of my arguments, the data my respondents provided was also important to developing and supporting the arguments I present. As Riessman suggests, the “sociologist brings prior theory to bear to interpret the case” and each case a researcher presents serves to ‘thicken’ their theoretical argument (Riessman 2008: 57). Riessman (2008) argues that readers must assume that themes have similar meanings across narratives and narrators and that they can “transcend the subjective and the particular” (Ewick and Silbey 2003 cited in Riessman 2008: 62).

Analysing my data using a thematic style analysis was by no means an easy task, as there were far more preliminary themes developed than I could adequately deal with in a thesis of this size, and I was forced to make painstaking decisions about which themes to move forward with and which I would have to drop. For example, the theme of know-how had dominated many of the discussions I had with my respondents, partly because it was one of the strongest set of presuppositions I had walked into the interviews with and so it consequently became one of my two key themes. However, my other theme of bodily-presence had not been a strong focus of my questioning during the initial interviews, but from reading over my transcripts, it was apparent that this was a key issue for my respondents, who had brought this preliminary theme to the forefront of my thesis. I again used the philosophy of Heidegger, who had something quite significant to say on the issue of bodily-presence, to better understand what was happening in my respondents’ worlds. From this perspective, the second theme had been developed by allowing my respondents to speak for themselves, as well as guiding what they said through the presuppositions laid out by Heidegger. Thus both stages of analysis were crucial in developing my arguments overall.

3.5 Conclusion to Methodology Chapter

In this Chapter I have discussed the methodology used to carry out my research. I have presented this Chapter in four main sections. In the first section, I introduced how the respondents of my study were selected. This section focused specifically on how I gained access to my respondents using snowball sampling techniques and how these techniques assisted in building good rapport with my respondents. The second section discussed my reasons for adopting ethnographic interviewing as the main method for gathering my data. In this section I discussed the practical issues of time, location and feasibility of the interviews I

carried out with my respondents. In the third section, I discussed the method of participant observation with the Pilot, first in a simulated aircraft, and secondly, inside a small Cherokee aeroplane. I argued that I could better understand the Pilot by immersing myself in some of the day-to-day activities of which he was involved in. In the fourth and final section of this chapter I discussed how I analysed my data. Here I addressed the thematic style of analysis I used based upon the theoretical presuppositions that I took and in some cases adapted from Heidegger's thinking. Finally, I wish to emphasise the point that this thesis has drawn upon ethnographic research methods, from finding and contacting my respondents, to interviewing and participating with them, to analysing my data. I would like to point out that even in the writing up of this thesis I have adopted wherever possible, an exploratory (and to some extent narrative) style often used in ethnographies. Now let's turn to the data analysis chapter of this thesis to see the themes developed from the stories of each of my respondents.

Chapter 4: Data Analysis

4.1 Thematic Analysis

In this chapter I shall present the data gathered and used for writing this thesis. As I explained in the last section of the preceding chapter, I analysed my data by using the theoretical presuppositions developed and adapted from Heidegger's thinking. By drawing upon Heidegger's thinking, I was able to interpret my data by drawing upon the two key themes of know-how and bodily-presence. Here, I shall provide the analysis by addressing each of my respondents and the stories they tell about the systems they use within their workplace, by focussing on know-how and bodily-presence. However, in order to let my respondent's speak for themselves, I shall not make explicit reference to my themes until the discussion chapters of this thesis. This is because I think it is appropriate, for the validity of my research that my respondents are able to "speak for themselves" in this chapter. Let's start with my first respondent, the Computer Graduate.

4.2 The Theme of the Computer Graduate's Story

So what does the Computer Graduate do at work? The Computing Graduate describes his administrative role at work as a "very simple" job in which he inserts data into a database (see the opening section of my introduction in Chapter 1 for a brief overview of his job). He says "it's sort of repetitive and manual-work really" (lines: 81-87) which involves taking digitalised copies of "letters, emails, reports, publications' on various subjects" and inserting them into the correct "grouping or classification" (line 39-40). So all he is required to do, is "differentiate between the documents" (lines: 80-81) and insert its "document type". For instance, if it's an email, then he has to insert it, or classify it under the "email" list. He does this so that lawyers have digitalised access to thousands of documents before presenting a case in court. The Computer Graduate says it "basically makes the lawyers life easier, much easier" (line: 90) because the digitalised information is all prepared for them on screen. The Computer Graduate himself sums up what he does in the following extract:

B: Right, so you get given data. Is it numerical data or is it...?

CG: Well, as I say it's a report, or could be anything, a publication or report or anything like that. And it's printed, it's a hard copy on paper, or it could be digitalised [which is just the image on the screen]. If the image appears on the screen, you view that image, and you can take the data that you want, what you need, and you insert that data into the database so you have got basically two screens - sorry, two windows on the screen. So you are looking at one, the image, so you're looking at one image, you find what you need for example, if it's a publication, you will look for a title of the publication, the date, and the author and you will put that into the database.

(Computer Graduate lines: 42-51)

The Computer Graduate's main responsibility is therefore to ensure that data is inserted in the correct category. In one of my initial interviews with the Computer Graduate, I asked him to describe a typical example of data he would have to insert into the database. The extract that follows shows our discussion. It appears that the Computer Graduate need not look at document in much detail, because his job is very straightforward, as we see:

B: Right. So, can you think of any examples, recent examples where you've taken a particular publication, or an article or an email? Can you think of an example of say, you did last week?

CG: Well last week I was working with [.....] company. We got it back, sometimes we have documents or publications, as just mentioned, printed or published in 1960s for example or 70s. So it could be back to the 60s, or even 40s and 50s I've found. So, most of the publications are at least one page long. It could be even over fifty or sixty pages. *So, obviously, I don't need... My job doesn't require me to read those publications.* What I need is *just* the author of the publication, the date of the publication and the title of the publication. So I don't really read the publication itself.

(Computer Graduate lines 53-62, my own emphasis added)

The Computer Graduate emphasises how straightforward his data entering role can be. He says that he "obviously" doesn't need to read the documents, he "just" looks for the information he's required to in order to insert the data (see my emphasis added in extract above). But this raised a number of important questions. If the Computer Graduate's job was so simple, then why couldn't a computer system carryout the job he was doing? Surely a software program which uses a set of algorithms with explicit criteria could differentiate between the different document types? I raised these questions with the Computer Graduate. And from this, his story emerged. In particular, the Computer Graduate will tell us that

“common-sense” (as he refers to it, I would call it know-how) is an important part of carrying out his job, and that a system cannot do his job (or at least, large aspects of his job) because it lacks common-sense. Let’s take a particular look at this theme.

4.2.1 Importance of common-sense: “you know it’s a letter”

A key aspect of the Computer Graduate’s story focuses on the importance of everyday common-sense. This was raised by asking him why his “very simple” job could not be carried out by a computer system:

B: Why not? Why not? Do you know why that’s the case? How do you detect if this is an email? Why is there not a computer that can do this job?

CG: Well, it’s just commonsense really. If you ask a computer what do you think about the day? whether it thinks it’s a nice day, do you think it’s a lovely day the computer won’t be able to tell you really. They can’t tell you. You can ask any human being, what they think of the weather, *he’ll tell you straight what he thinks about it.*

B: So you think what you’re doing... So you detect an email by its format, the way it’s laid out?

CG: *Just the way it looks yes. Well most of the time if it says it’s an ‘email’, it has the word ‘email’. And if it’s a letter, it doesn’t say the word ‘letter’ on the document, but you know it’s a letter. So you have to put that into characteristics. Sometimes there are letters that have been faxed, although it is a letter, but it’s been faxed. So I don’t know if a computer can do that but I don’t really think that they can.*

(Computer Graduate lines 132-147, my own emphasis added)

The Computer Graduate argues that a system cannot presently do his job because it lacks the kind of common-sense that he uses to differentiate between the documents. This is best highlighted with his example of asking a computer “whether it thinks it’s a nice day?” He says that they “can’t tell you”. But you can “ask any human being, what they think of the weather, he’ll tell you straight what he thinks about it” (see my emphasis added in extract above). But this raises the question about what is common-sense? What kind of understanding does the Computer Graduate have, that the computer system lacks? When the Computer Graduate was asked how he detects what type of document it is, he responded by simply saying it’s

“just the way it looks”. A letter for instance, doesn’t have the word ‘letter’ written on it, but most people would recognise that it was a letter: “you know it’s a letter” says the Computer Graduate (line: 144 see my emphasis in extract above). Sometimes there are particular circumstances where there are “letters that have been faxed” which may add further complications to his job. But the Computer Graduate indicates that his common-sense is something so very obvious to him. Later, he says:

I don’t need to read the whole document in order to find if it’s a letter or a publication. *I can just tell, we can just tell.*

(Computer Graduate lines 176-177 emphasis added)

Using what he calls common-sense, and thus being able to “just tell” seems to be a key part of the Computer Graduate’s role for inserting data. He says it is very easy for a computer to read all the words of a document, but he says that reading all the words doesn’t necessarily mean that the computer will know what the contents are.

4.2.2 Conclusion to the Computer Graduate’s Story

The Computer Graduate’s job involves viewing digitalised copies of documents and placing them into the correct file on the database. He says his job is very straightforward. He just looks at the document, decides if it is an email, letter or fax, and inserts it into the correct file. But the Computer Graduate says that it is very difficult for a computer system to do his job accurately. This is because the Computer Graduate recognises document types using his “common-sense”, by knowing what document type it is by “just the way it looks”. He says for example, that it might not have the word ‘letter’ written on it, but most people would recognise that it was a letter: “you know it’s a letter” he says (line: 144). What is this kind of common-sense which the Computer Graduate uses to do his job? And why is it not possible for a

system to recognise document types, in the same way he recognises them?¹⁷ I shall revisit these questions in Chapter 5 (on Know-how) of this thesis. For now, let's turn to the theme developed from the story of my next respondent, the Director. Here we shall take a look at a respondent who uses know-how in a different way: know-how involving social communication.

4.3 The Theme of the Director's story

So what does the Director do at work? The Director runs an organisation which he describes as essentially one which "is here to create partnerships between commercial companies" (lines 12-13). The company basically runs a service that involves having two sets of clients. Firstly, there are those who "need new technology or innovation; maybe invention..." (line 17). And secondly, there is those who "have new technology to offer, but don't know quite where to place it" (line 17 –18). So basically, there are those who want, and those who provide, and his company is "bringing the two together" (line 18-19). The Director says his company is "a business of matchmaking and you can relate it quite closely to an old dating agency because the activities are very similar in many ways" (lines 19-20). As he explains:

D: ...We have a range of clients: the blondes and brunettes, and we have a range of potential suitors. We can only work for one side at a time, and most of our work, is based on working for the seeking side. Those companies looking for something new, rather than those who have got it. So we're working for one side, but we're *seeking to make magic dates*.

(Director lines 20-24)

So the Director's company is basically "matchmaking" those with new technology on offer, to those who seek or require technology. He says that they are "seeking to make magic dates". But this in itself raised an important question. If the Director's work simply involves matching one client to another, then surely there are systems which can replace what his company

¹⁷ This point is arguable. Perhaps there are already software programs available that can already do such recognition (although in a *different* way, to human recognition). But despite whether there are such software programs or not, the case of the Computer Graduate explores the issues involved, as shall be seen in Chapter 5 (section 5.1).

does?¹⁸ This question underpinned the interviews I carried out with the Director, from which the following theme emerges from his story.

4.3.1 Seeking to Make Magic Dates: “I don’t know a computer that’s ever done that”

The Director says that his company must “understand the client in great depth” (line: 57) so that he can present them as “an attractive profile of somebody to work with” (line: 58). He says this also means he must “stimulate the other people to come forward with things which they might not think of first off” (line 59-60). He must “talk to the client in great detail” (line 65-66) and “go through their thought processes” (line 70, see my emphasis above). The Director says that he requires a “very deep understanding” of his clients (line: 91). He refers to the dating agency analogy as a metaphor for describing what his matching job requires. But we see here that ‘matching’ or building relationships between clients is not as straightforward as it first seems:

D: So going back to the dating agency, the matching bit, is that we can sit down with our client. *So if it’s a guy saying that he wants a five foot six blond with blue eyes, we know jolly well that the brunette with brown eyes is going to be worth looking at, as well. So there’s split specification.*

B: So, are you just following rules?

D: This is the interesting bit, *this is where the temptation comes*. Even thirty years ago, when computers were first invented they were just big main frames in a few large lucky companies. The dating agency scenario was of course one of the first things they realised a computer could do. You could feed it with a whole host of information about potential, shall we say back to that crude example of the dating agency. You’ve got hundreds of girls with all their hobbies and interests put in, and the temptation is that you come along and you interview the guy and you get his wishes and desires and you plug it into the computer and out comes six prospects. Does it work? It works to a point, but the only thing it will produce at that stage is a

¹⁸ Note: I’m playing devils advocate here. Of course dealing with people (matching clients with other clients) is not all that straight-forward/ “simple”. But I’m trying to figure out why? As we shall see later, the Director’s job becomes almost impossible to replicate using a system. Unlike the Computer Graduate’s job (discussed in section 4.2) which can perhaps in part be replaced, the Director uses the kind of know-how that is difficult to make explicit altogether (perhaps even impossible to make explicit) because it involves implicit, and tacit social communication.

contact. At that point people have got to meet, they've got to get round a table and they've got to have dinner and you've got to start talking to each other and they've got to start building human chemistry. *I don't know a computer that's ever done that.*

(Director, lines 122-140, my own emphasis added)

The Director says that there is a "temptation" to use a system, because on paper, things can often look straightforward (line: 129 see my emphasis in extract above). This is where he believes the problems may lie. The facts may all fit together, but this doesn't mean that you've got a result. The Director is very sceptical about the possibility of using a system to carry out his work. Especially since his work is largely relationship based, a process which involves "building human chemistry" (line: 139). As he says himself: "I don't know a computer that's ever done that" (see emphasis from extract above). In the following extract, the Director describes how this whole process of "matchmaking" begins:

D: It starts of course, it starts probably with us. In our business it starts with us. We talk to both sides and we start to understand where there's excitement and where there might be disappointment. *So we can warm the situation up. We can prepare the couple for their dinner date.* By saying look there's one downside to this guy, or this girls got...

B: You used the words interestingly enough warming them up, so are you stimulating both?

D: We're starting to play an active role in building the relationship. The relationship, given that that's our end result. We need to make a relationship between a client and somebody else; that's a human relationship. *Despite the logic, the financial logic, the technological logic, and all the ingredients we would seek for a successful commercial deal can be there, but if people can't hit it off, then it's a waste of time. And people don't hit it off all the time.*

B: Why?

D: There's no difference in commerce. Just because something looks financially correct, looks technologically correct, it doesn't make it work.

(Director lines: 180-200, my own emphasis added)

Going back to using the analogy of the dating agency scenario, the Director describes his role as one that "warm[s] the situation up", by preparing "the couple for their dinner date" (see my emphasis added in extract above). He says that this is a necessary part of his job. As he says: "all the ingredients we would seek for a successful commercial deal can be there, but if people

can't hit it off, then it's a waste of time". The Director gives an example of two clients who should have been matched:

D: There's an example in the paper client where we found an interesting product for them. *And we did all the comparative work and we stuck the two people together and said get on with it, this is a match made in heaven.* You've got a new product and you're looking for someone to launch it commercially. Here's the guys who can do it. But it wouldn't happen.

(Director lines: 204-208)

The Director gives an example of a client where he found an interesting product for them. The Director's company "did all the comparative work" and "stuck the two people together and said get on with it, this is a match made in heaven" (line 205-206, see my emphasis added). And so the "theory said a match-made in heaven" (line 225) but in practice it was not working out. One question I asked was whether or not his job could be carried out using all of the supposed rules of the people involved:

B: You can't, your job, what you do... You use the analogy of a dating agency. You say it can't be done on purely just using facts, even if you had all the rules/characteristics of the people, you still wouldn't be able to...?

D: My guess is you'll *always miss some characteristic which you never thought of.* And I think it would be a super human that could *impassionedly* categorise individuals and their characteristics and come up with any sort of predictive analysis of an IF/THEN situation, and then you've got to do the same thing for the other guy and you've got to play the two together and see what the interaction is. It's going to go wrong too often (interruption). I don't think expert systems are going to help our business... having seen many try, over the years.

(The Director, lines: 258-268 my own emphasis added)

The Director believes that systems will "always miss some characteristic which you never thought of" (line: 263, see my added emphasis above). He doubts anyone could "impassionedly categorise individuals and their characteristics" in order to provide some sort of predictive analysis. The Director was then asked whether or not there were instances where a system had taken away part of his job:

D: Yes, I think there's a place for information. Of course in our business we need lots of information. But we need that information and we need to understand and draw our own conclusions from that information and not take it all entirely at face value. We would get, without going into enormous detail, but we would get people presenting projects to us and part of our assessment would be to verify the information that they give us and you find that much of the information given us *don't quite hang together*. So, the next stage is to test why these two bits of information don't quite match. *And there's always, not always but very often something that just doesn't sound right*.

(Director, lines: 289-296, my emphasis added)

Here we see that the Director describes an aspect of his job as noticing when things aren't quite right, or they just "don't quite hang together" (line: 296 see my emphasis added). The only way he gives for explaining this is by saying that there's "very often something that just doesn't sound right" (line: 296). The Director talks about having qualities which are very difficult to measure or quantify, as he himself says:

D: I think you've got to have a deeper understanding if something's going to work out. The rules, yes - Of course there's a place for the rules. *But we're also talking about new ventures, that needs qualities that are very difficult to measure or quantify: commercial courage, bloody-mindedness, pioneering spirit*.

(Director, lines: 310-314, my own emphasis added)

The Director says that new ventures need "qualities that are very difficult to measure or quantify: commercial courage, bloody-mindedness, pioneering spirit." (lines: 312-314, see my emphasis in extract above). He seems to indicate that human qualities cannot be measured or quantified in any way which could be encapsulated inside a matchmaking system. In fact, the Director tells us that his ability of matchmaking requires him to be open to new possibilities, and to reinvent himself in such a way, that the questions he asks are never ever the same at any one time:

When we conduct an interview over the phone for example, for the very first time with the bit of cold information we see. We will talk to the guy. And we will say how did it all start? Why did you do this? Why did you do that? Why this? How come that? And that's jolly interesting and each answer will lend to another question and the sequence of questions is never, ever the same. Never. And suddenly you find something really interesting and I can't tell you what it might be because it will be different on every occasion. If you find nothing of interest then there will be a bit of a downer on the whole thing. That's like talking to a girl who behaves like a pound of lard.

(Director lines 424-431, my own emphasis added)

The extract above shows us the unpredictable nature of the Director's job. It becomes apparent that his seemingly straightforward job of matchmaking is not as simple as first thought, and cannot be easily replicated by modern ICT.

4.3.2 Conclusion to the Director's story

The Director tells the story of the work his company is involved in, creating commercial partnerships between different organisations. Throughout, the Director's story focuses upon the example of the dating agency scenario, a metaphor used for describing the matching process he is involved with at work. The Director tells us that on paper, companies can easily be paired together as having the perfect match, in the same way that couples are paired up at the dating agency. But the Director tells us that matching is not that simple: "So if it's a guy saying that he wants a five foot six blond with blue eyes, we know jolly well that the brunette with brown eyes is going to be worth looking at, as well", he says (line: 123-124). He says that his job involves qualities which are, very difficult to measure or quantify: "commercial courage, bloody-mindedness, pioneering spirit". And he discusses things like "building human chemistry" (line: 139) and "hitting it off" as being vital to the success of those commercial partnerships (as indeed are of equal importance in relationships). But where do these qualities come from? How can we explain what "hitting it off" really means? How can we understand when things "don't quite hang together" or "something that just doesn't sound right"? I shall revisit these questions in the discussion chapter (Chapter 5: Know-how) of this thesis.

4.4 The Theme of the Business Developer's story

So what's the Business Developer's job? The Business Developer works for an engineering design consultancy in the rail sector. His job is business development, so he's "tasked with bringing in new work and trying to keep the number of projects going" (line: 15-16). His role is "part relationship development with new clients, potential clients and existing clients and also putting bid documents together" (lines: 16-17). He tells us that his time at work is split into two. Fifty-percent of his time is spent "trying to identify new business; develop relationships with potential clients or existing clients for future work and do the commercial aspects of the job which is to monitor our business development spend" (lines: 30-33). The way this can be done is by "monitoring how much is getting spent against each individual prospect and then over a longer term monitoring how much is getting spent on each client, potential client, and the actual return" they are getting from that client (lines: 35-38). The other fifty-percent of his time is spent "preparing bid documents for opportunities that have already been identified" (line: 23-24). A "client may be considering designing a new rail line" for example (lines: 26-27). So they would put in a non-requested bid to that client, saying "this is what we can do for you – are you interested?" (line: 28). The Business Developer's company has a number of clients – so for example in the UK, their biggest clients in rail are "Network Rail and Transport for London, and through Transport for London, London Underground" (lines: 43-44). Other clients include clients of Network Rail, or clients of London Underground, such as Metronet. These clients would appoint the Business Developer's company to design work for them. The Business Developer gives an example:

BD: ...if there's a new railway to be built, then that will go through a number of stages. It will go through feasibility studies to see if it's feasible for the railway to actually go through the area they want. Then there would be a forecast of demand to see what the demand was for that railway. Our company can do all them from different departments. When it gets to our stage its usually that they've decided they want a railway, they've decided roughly where they want it to go and then they would appoint us to do a number of stages of design which could be from, initial concept design saying we want the railway to go from Liverpool to Manchester for example. Then we would give them a number of options - quite high level designs, then as they go through and say 'yes, this is what we want' or 'No, we want to do something different' the design gets more and more refined and a lot more detailed.

(Business Developer, lines 52-62)

The Business Developer is there to provide business for his company, as well as to maintain good business relations with his existing set of clients. A major part of maintaining a good relationship is monitoring the relationship. To assist in doing this, the Business Developer's organisation use a relationship monitoring system which the Business Developer and other employees use to keep track of the relationships with clients. Unlike the first two respondents discussed so far (the Computer Graduate in 4.2 and the Director in 4.3) the Business Developer *already* has a computer system at work, which attempts, in part, to replace aspects of the jobs of employees in his organisation. The Business Developer's story centres on the use of this relationship monitoring system, and the reasons why people do not want to use the system. Let's take a look at this theme next.

4.4.1 Employees won't use the system: "they just don't give it a second thought"

The Business Developer tells us his story about the use of a relationship monitoring system, used to keep track of relationships with clients. In the following extract, I discuss with the Business Developer how he monitors the relationships with his clients:

B: In what ways do you monitor your clients?

BD: Our major clients such as Network Rail or Transport for London would have a client account team allocated to them. That would be a number of senior people from our company who would oversee the overall relationship with that client. But that could be at quite a high level and normally either quite senior management or at director level. On a day-to-day level we have a limited client contact database, where when any of our engineers or business development people make contact with the clients on a business development matter or a general relationship matter, then that contact should be recorded. So the day of the contact, the general subject of it, and who they actually make contact with.

B: Right, so where would you keep note of these contacts?

BD: That system is on our internal network. *The system is quite limited and it is not used as much as it should be.* In fact it's only used by a limited number of people. So we're not getting the value out of it that we could do.

(Business Developer, lines: 69-85, my own emphasis added)

The Business Developer tells us that his organisation has a number of relationships with different clients, and on a day-to-day level the contacts made with clients are expected to be

recorded onto the system. But he tells us that “the system is quite limited and it is not used as much as it should be” (line: 83 see emphasis added in extract above). In the extract that follows, the Business Developer explains why the system is limited and why it is underused:

B: Yes, so let’s say they phone up someone from Metronet and they have a conversation. Are you saying that that conversation should be noted on your internal system?

BD: Yes, it’s not a hard and fast rule that all the conversations are noted. But the inference is that, if it’s a business development call, or it’s something that is furthering or repairing a relationship with a client, then that should be noted because it could be of use to other people in the future.

B: Ok, so is that what it’s there for – to refer back to in the future?

BD: Yes, because *the system is limited and it’s not used to even its limited capacity at the moment*, then yeah the process seems to be, someone will review the contacts made to that client. Someone out of the clients account team will review the contacts made to that client at set intervals, possibly every quarter or biannually.

B: Ok, so say quarterly, say every few months someone will look at the contacts made and sort of monitor how often you’ve been in contact, and what kinds of things that go on, what kind of things that have been said or what kind of things have been done.

BD: *Yeah, that’s the way the system should be used – yes.*

(Business Developer lines: 98-118, my own emphasis added)

The Business Developer tells us that the “system is limited and it’s not used to even its limited capacity” (line: 109-110, see emphasis in extract above). He says that the system “should be used” to record contacts but that the calls aren’t getting recorded (lines: 118, see emphasis again above). But recording this information is very important for the Business Developer’s organisation. He says that the “client can look favourably on you” depending on how “you keep in contact with your client and you manage your relationship” (lines: 241-242). And so the Business Developer suggests that “building relationships” is one of the most basic ingredients of a successful business. He says that it’s “more to do with the soft relationship rather than the hard engineering side of it” (line: 185). In the next extract, he gives the example of the type of information which engineers have that he believes should be shared across his company by recording it on the system:

BD: ...Even a real superficial example. Why did that person join that company, or when was their birthday, for a really superficial example. *When was that person's birthday?* Because if you have that information then the next person that comes along and speaks to that person, *if it's round their birthday, then they can mention it in passing. It's a throw away comment but its really good for building relationships.*

(Business Developer lines: 189-194, my own emphasis added)

Saying happy birthday, or to even just “mention it in passing” is a good move for establishing good relations with their clients. But the Business Developer would ideally like this kind of information available to everyone, so if employees should leave his organisation and go elsewhere, the information about the relationship is held centrally, and so the relationships are supposedly undamaged. But when the Business Developer was asked to what extent a system could really replace the person doing the job, he responded by saying:

BD: Am not sure it could replace the engineer completely because it's a very relationship-based industry and you need to have the personal relationship. I think you can replace, the fact that its one engineer holding the knowledge with the knowledge being held centrally and then anyone can access that. It's never going to be everything that everyone knows about every client, and every contact there on the system and available, because it's unlikely that we could record that, and it's unlikely that we'd have the time to actually get everything down. You could ask people questions about who they know – the different clients. *But they'll never be able to give you everything because it might not occur to them.* But you could centralise a lot of that knowledge. And it's not just about centralising the knowledge he has now. It's about recording everything that he can get in the future.

(Business Developer lines: 296-306, my own emphasis added)

Here the Business Developer says that you might be able to record and centralise the “knowledge he has now”, but “it's about recording “everything that he can get in the future”. Only the person knows what he can potentially get out of the client. This kind of knowledge cannot be fed into the system. This is because the person [engineer] does not think to make such knowledge explicit. As the Business Developer says, “they'll never be able to give you everything because it might not occur to them” (see emphasis above). Similarly, at another point during one of the interviews the Business Developer said that engineers might not record their contact with their clients because “they just don't give it a second thought” (line: 159). The Business Developer says that you cannot do this because it would involve having “quite a clear criteria on what was required from the relationship” but “the nature of a personal relationship – it's very intangible” (lines: 313-314). This intangible ‘knowledge’ about the

relationship (which I shall later refer to as know-how) is described as soft data (as opposed to hard data – facts, statistics and so on). As the Business Developer explains:

BD: It's very difficult to say what is important on the soft side of it. Ok, we can record who the contact is – their position in the company, hopefully their length of service there. Maybe a bit of information about what they did in the past. But, it's harder to record the more interpersonal level that would be built up from the relationship. That would be the aim for anyone from our company to be able to phone anyone from our clients company, and be able to speak to them, quite openly. And have the knowledge there to discuss what they needed to do with them. But the nature of human relationships, mean that a lot of people are guarded with newcomers. If they don't recognise the name, the face, the voice, then they are a lot more reluctant to give out information than they would to a friend or a colleague.

(Business Developer lines: 314-324, my own emphasis added)

Here the Business Developer raises another important point when he says: "It's very difficult to say what is important", because without knowing what is important, it is impossible to implement any system to do the job. The Business Developer says that a system would not be the same as having the person, but he is optimistic that "the more information that that new contact can have and the more background they know, then the more quicker it will be to reach a good level in the relationship where the ideas can be exchanged freely" (lines: 336-339). As the Business Developer says:

BD: If they phone up and the conversation goes along the lines of: 'Hello my names Joe Bloggs, I've been asked to call you'. And their response is: 'Why'. 'Erm I'm not sure, hang on a minute'. And then they're trying to, like stumble through it... Then the people they're speaking to - the clients - will have less confidence in them. If you've got a way of giving that person the information they need before they make the call, then it's going to be a lot easier.

(Business Developer lines: 339-348, my own emphasis added)

The Business Developer wants to be in a position where the relationship monitoring system can provide enough information for employees to contact clients with enough knowledge to know what to say, without having to "stumble" through a conversation they know nothing about.

4.4.2 Conclusion to the Business Developer's Story

The Business Developer's organisation has a relationship monitoring system that is used to store information about the relationships they have with their existing clients. The system should be used by employees, to store information about the relationships they have with clients. But the Business Developer tells us that the system is not being used as it should. Employees are not recording the information about their relationship onto the system. This poses a problem, because if those employees are out of office or should they leave the company, then the information they hold regarding the relationships with clients is lost. The Business Developer's story raises some questions. Can the knowledge employees have of the relationships with clients be replicated by a system? (Surely intangible aspects of a social relationship like this are impossible to recognise by a software program?) And even if it was, would employees and clients be happy with having a relationship that was based upon information derived from a system? I shall come back to these questions in Chapters 5 of this thesis.

4.5 The Theme of the Project Manager's Story

So, what does the Project Manager do at work? The Project Manager works in London for a large investment bank in the foreign exchange business. Her bank can have "anywhere between twenty five thousand and forty-thousand transactions on a daily basis", involving "billions and billions of dollars of turnover everyday". The Project Manager manages a team of people, who work on projects to ensure that the technology used for delivering the transactions works appropriately and most cost effectively. The Project Manager says that the transactions are "really high volume and they're high value as well, so if anything goes wrong, it can cost a fortune cos' they've got like, you know they'll do like deals of half a billion dollars size sort of thing"[sic] (lines: 6-7). The Project Manager says "it's important to get the technology right and that you haven't missed anything in terms of how you test it and that kind of thing" (lines: 38-40). The Project Manager herself explains to us what her job involves, in the following extract:

B: Ok, excellent, rightSo yeah just a brief... How do you want to do it... Basically just tell me bit about what you do.

PM: Ok, well I work in the investment bank and I'm a project manager there, and I've been doing that for about nine years. So basically what my group does is we're a sort of a interface between the operations people who do the actual work and the technology people who develop the systems, and so what we have to do is kind of look at the business requirements from the operations perspective and get all that back drafted up, and then explain that to the technology people in order for them to deliver a technical solution. And then organise all of the testing and all that kind of thing. Most of the system development is to improve things like straight-through processing. So it's to eventually, virtually all of them, the main aim will be, or one of the main aims will be to get rid of people in the operations department [laughter]. Because what they are always trying to do is automate processes that were manual. So as technology moves on or things become, you know, your able to become more kind of creative with what you can develop, you can do things that were beforehand, it would have gone into a kind of an exception kind of processing thing, whereas now you kind of develop those things with the right kind of rules and things in technology systems. You can develop those things and say well, if a transaction's got all these different types of conditions then it will go straight through and it won't need anyone to touch it.

(Project Manager lines: 8-28)

Basically, the Project Manager leads a group who act as a sort of "interface between the operations people who do the actual work and the technology people who develop the systems" (lines: 11-14). And so the Project Manager's team, looks at all the "business requirements from the operations perspective and gets all that back drafted up, and then explains that to the technology people in order for them to deliver a technical solution" (lines 15-17). The development of the systems therefore aims to make processes more efficient as well as making it more profitable. The Project Manager tells us that "the idea of this is that it gets rid of all the kind of mundane jobs in those kinds of organisations" (lines: 28-29). A major part of my interviews with the Project Manager discussed a project she was running that involved the development, organisation and testing of a new system used for foreign exchange banking. As we shall see, the Project Manager's job mainly involves communication with others within her organisation to ensure that the projects were running smoothly. The Project Manager's story centres on the kinds of communication she uses to do her job effectively. Unlike the other respondents I have discussed so far in this chapter, the technology used by the Project Manager does not serve to substitute human expertise, but enables real-time communication to take place across distances and time zones. Let's take a look at this theme in further detail.

4.5.1 Reluctance to use Telephones and Video-conferencing in the Banking Industry: “Because the communication is just different”

The Project Manager tells us that communication is an important part of her job. As we see in the following extract:

B: So, I don't know... on a kind of typical day, what do you do... I know this might be...

PM: Well, *on a typical day I'll probably have five or six meetings*. So that's what... Because I'm project manager, *a major part of my job is communication and making sure that everyone understands exactly where the project is*. That if we find any issues, to get the group together to work through what the issues are, and why it's happened and what we can do to fix it, that kind of thing. So a lot of my job is in managing the communication aspect of it I suppose. And making sure there's no ambiguity and that everything's clear and escalating problems if we find things that come up as kind of road blocks that might delay us.

(Project Manager, lines: 61-71, my own emphasis added)

The Project Manager highlights the importance of communication in her role. On a typical day, the Project Manager says she would “probably have five or six meetings” (line: 64, see emphasis above). Being the project manager, a major part of her job is “communication and making sure that everyone understands exactly where the project is” (line: 66, again, see emphasis above). And so as we can see, communication is an important part of the Project Manager's job. However, a major problem with this communicating with others is that members of the organisation are spread out into different locations, as the Project Manager tells us:

PM: There's also problems I see because of the amount of outsourcing that all these companies have done, in that *the team aren't sitting together*. So we've got some of the technology people sitting in London, some of them are in Bangalore, some are in Belfast, because a lot of them have been moved to lower cost locations, which is what most companies have done with anything they think is a fairly standard thing that they can outsource. So that causes problems as well. *Because the communication is just different*, and often you're in a different time zone so it's difficult to get hold of people at certain times of the day.

(Project Manager, lines: 154-161, my own emphasis added)

The Project Manager points to the fact that “the team aren’t sitting together” (line: 155, see emphasis above). She says that this causes problems as well because “the communication is just different” (line: 160, again see emphasis above). In the following extract, the Project Manager expands this point, this time talking about different forms of communication such as conference calls, emails, and lack of face-to-face contact:

B: So when you’re having these meetings you’re not always sat in front of people, but it’s via telephone.

PM: Yeah, what we would normally do is we’d have a *conference room, where some people, like the people who were in the building or could get to the meeting would come along face-to-face, because its more effective that way, I mean it definitely is, than over the phone*. But we’ve obviously got people in Belfast and Bangalore and all these kinds of things, so all of those have to dial in...

B: Is that an issue at all, the fact that you’re not sitting there face-to-face with them?

PM: Yes, it is, it’s a big issue, and I think sometimes you know, what would actually help, in terms of trying to get these problems sorted out and to make it very clear upfront. *If someone could actually sit with the technology guys doing the programming so that as they are going through they can ask questions, which is what we did have a few years ago when everyone was in the same building. It just makes it clear, because they’re not having to make assumptions. Someone would say ‘no, no, no, I didn’t mean that, what I meant was this or I should have also mentioned x, y, z should happen as well, that kind of thing. Yeah, it does make a big difference not having any face-to-face contact*. And I think as well, because the success of a project like this depends very much on the relationships you can maintain across the group, which is slightly fraught at the moment because we’ve got all these delays. *If you can do it face-to-face, I think it helps to build those relationships*. And with some of the people we’ve never ever seen them, we’ve never met them personally and they have no idea what we look like. And it does make it difficult. *Because it’s just not the same. It’s not the same as, you don’t meet at the coffee machine and say good morning or anything, so it does make it more difficult*.

(Project Manager, lines: 297-323, my own emphasis added)

The Project Manager tells us how she experiences different forms of ICT. She says they would often have meetings arranged in a “conference room, where some people, like the people who were in the building or could get to the meeting would come along face-to-face” (lines 300-302, see emphasis added in extract above). And she tells us that it’s “more effective that way” than “over the phone” (lines: 302-303, see emphasis in extract above). But she says that they’ll also have people in “Belfast and Bangalore and all these kinds of things,

so all of those have to dial in..." (lines: 303-304). The Project Manager says that this is "a big issue" and believes it helps if "someone could actually sit with the technology guys doing the programming so that as they are going through they can ask questions" (lines: 308-312, see emphasis above). Sitting with, or being with others seems to be superior to other means of communication like telephone or video link. She says it "just makes it clear, because they're not having to make assumptions" (line: 313). As she says in the extract above: "it does make a big difference not having any face-to-face contact" (lines: 315-316, again see my emphasis in extract). And so, the Project Manager tells us that face-to-face contact is important "because the success of a project like this depends very much on the relationships you can maintain across the group" (lines: 316-318). She maintains that face-to-face contact "helps to build those relationships" (line: 319, see emphasis in extract above). In actual fact, some of the people they have "never ever seen" and "never met them personally and they have no idea" what each other look like (lines: 319-321). The Project Manager explains this by simply saying that it's "just not the same" as meeting at the "coffee machine" and saying "good morning" (lines: 321-323). In the following extract, the Project Manager discusses the use of body language when being face-to-face with others:

PM: ...And another thing is, and I think it's a really key thing, is if you're using conference calls, you've got no idea of the body language going on, on the other side, and that is really important. We have some meetings with our senior managers. You know obviously this project is expected, so everyone wants to know if my project is delayed again, because it costs about two-hundred and fifty dollars a month every time we over run. So, you know, when I have conference calls like that, as I know I've got the managing director in New York on the other end of the phone, I would actually much prefer what he's looking like when I'm explaining this, because you don't know whether he's going 'Oh my god'[respondents eyes roll up and down], or whether he's listening calmly to you, you've got no idea and you would change how you deliver the message if you could see how it was being received. So it's a big problem, and it's a problem for these status calls as well. We did try video conferencing a couple of times but I think that technology really needs to move on because you get such a gap, I mean it's a lot more expensive anyway, and also you get such a gap between, because we tend to do them from London to New York to wherever. You've got a bit of a time delay in how that works, so it just doesn't flow.

(Project Manager, lines: 330-345, my own emphasis added)

The Project Manager raises another important issue. She says that a “key thing” with using conference calls is that “you’ve got no idea of the body language going on, on the other side, and that is really important” (lines: 330-332). If the “managing director in New York on the other end of the phone” she says she would “actually much prefer to see what he’s looking like” because “you’ve got no idea and you would change how you deliver the message if you could see how it was being received” (lines: 336-340, see my emphasis in extract above). In addition to telephone meetings, the Project Manager also talks about other means of communication. She says that they “did try video conferencing a couple of times” but she thinks “that technology really needs to move on because you get such a gap...you’ve got a bit of a time delay in how that works, so it just doesn’t flow” (lines: 341-345). The Project Manager believes if the technology “moves on” the communication problem will be solved. I however am sceptical that enhancing the mediating technology would make such a difference. Even if the picture-screen was a perfect depiction of the Managing Director would the Project Manager still be satisfied with a representation? I raise this question bearing in mind Heidegger’s “bridge argument” (see section 1.5) and I shall revisit this question in my discussion chapter on bodily-presence (section 6.2).

Finally, the Project Manager tells us about a member of her team who she has delegated responsibility to, managing the implementation of one of the projects. She says that she thinks he prefers her not being present at work, because it gives him the authority and the responsibility:

B: I know it’s probably better for you being at home and working from home. But in terms of getting the job done, do you think it’s better for them that you’re here.

P: I suppose the thing is... I ‘m a kind of ... in this particular project we are talking about, although I’m the overall team manager, I’ve got one of my guys who is actually managing the implementation himself and that’s something I delegated to him ages ago. *So from his point of view I think he prefers me not being there because it gives him the authority and the responsibility*, although I will be on the calls to say ‘are you ok?’ Am saying it’s ok based on the information I’m getting from him. Because you have to trust people and delegate this stuff down. You know, you can’t do it all yourself. *I think in this situation its better for him that I’m not there because it makes everyone realise that he’s in control* whereas if I was there they would tend to come for me instead.

(Project Manager, Interview 4b, lines: 460-472, my own emphasis added)

The Project Manager tells us that the person she has delegated responsibility to prefers her “not being there because it gives him the authority and the responsibility” (lines: 466-467, see my own emphasis in extract above). It is apparent that her presence at work carries some kind of authority of its own and by not turning up physically to work (i.e. working from home) she allows the authority to fall on those she has delegated responsibility to.

4.5.2 Conclusion to the Project Manager’s story

The Project Manager’s story is about the importance of communication in her role as Project Manager in the banking industry. In particular, she tells about the different forms of ICT used to communicate with others (email, telephone and video-conferencing). The Project Manager puts a premium on being face-to-face with others when communicating with them, and even suggests that her bodily presence carries with it some authority. In other words, being present at work with others carries with it some weight in the workplace. The Project Manager’s story raises several questions. Why is face-to-face communication different to communicating with others via the use of mediating technology? The Project Manager says it’s “just different” and thinks it’s just a question of inadequate technology, but how is it different? And is it really a question of simply enhancing the quality of the mediating technology used? I shall revisit these questions in Chapter 6 (on Bodily-Presence) of this thesis.

4.6 The themes of the Pilot's story

So what's the Pilot's job at work? The Pilot is a Commercial Aeroplane Pilot who has been flying aeroplanes for more than twenty years. He flies for Atlantic Airliner (pseudonym used) which is UK based and operates International flights. The Pilot's story centres on his career as a trained Commercial Pilot, and how his job has been changing with the introduction of new Information and Communication Technology (ICT). Having spent significant time interviewing the Pilot on several occasions at his home, he invited me to "go flying" with him in a small Cherokee aircraft he used frequently to carry out training exercises. Whilst at the airbase the Pilot also gave me an opportunity to fly on a simulated aeroplane.

There are two themes to the Pilot's story. The first theme to his story focuses on the recent introduction of new technology used for the preparation and take-off of the Pilot's aeroplanes. He shows his frustration towards the new technology he is expected to learn and use and discusses his lack of confidence in using new forms of ICT to fly his aeroplanes. The second theme to the Pilot's story highlights the Pilot's practical ability to use the commercial aeroplanes he flies. In this part the Pilot gives us examples of how he makes decisions and judgements for flying commercial airliners. Let's take a look at these themes to his story.

4.6.1 Using New Forms of ICT to Fly: being "in control"

This first theme to the Pilot's story focuses on his dissatisfaction and uneasiness at using new forms of ICT which serve to replace him or aspects of his job which were once manual. The Pilot tells us that about "five years ago the company decided that a paperless aeroplane was a way to go" (lines: 13-14), and the first stage in this process was that all the pilots got given a laptop. So "all the manuals, of which there used to be about ten, quite large ones..." were replaced with information systems (lines: 14-15). By getting everything onto computer it was "obviously going to save weight" and it was "also going to save library staff" so they "went ahead and got these computers", says the Pilot (lines: 17-18). One of the main jobs the system on this laptop now does is that which is called "the Performance". This is a calculation made to deliver the appropriate power and speed for the aeroplane, based upon things such as the length of runway, obstacles, temperatures, given winds and weight of the aircraft etc. The Performance is very important for a commercial aeroplane, and mistakes with its

calculation can be fatal. The Performance is just one of the things that the new laptop systems are designed to do, and are there to replace manual procedures which were previously carried out. But the introduction of these new systems caused the Pilot some frustration, as we see in the following extract:

B: At the point where they introduced this system and the laptops and whatever else, did you think it improved your job?

P: I didn't no, *I didn't know how to even turn the damn thing on, let alone how to get the information out of it, it was just a complete unknown.* We had computers in the crew room, and they were relatively simple, two or three buttons and you could get your flight plan. It was all relatively simple, and all they did was transfer that straight into this. And then they added everything else on top of it, and because they added everything else on top of it, it just becomes overloaded. But they couldn't afford to get decent laptops. Possibly laptops weren't even available at that time, so this particular machine (points to laptop on the table) is the one they went for and then it took them over two years to get approval.

B: Does it impact on your... Do you think it impacts on your job when you're flying, in terms of your confidence or...

P: *There is a relief of getting airborne is so palpable that both of us feel, once you're airborne, you're in control, up until that moment you're in God's hands, and even he's not interested.* These are programmers that have completely another agenda, they don't have any idea of what we do and they're led by people who've got another agenda, who are very smart with these computer systems but have no practical abilities.

(Pilot lines 153-175, my own emphasis added)

The Pilot's frustration with the system seems partly due to his unfamiliarity with the equipment, and possibly the fact that he received little instruction on how to use it. For example, when first receiving the new laptops, the Pilot tells us that he didn't know "how to even turn the damn thing on, let alone how to get the information out of it" (line: 153, see emphasis above). More importantly however, and more pertinent to the arguments I shall present later in this thesis, is the impact the new technology has on his confidence to fly the aeroplane. He says that there is a "relief of getting airborne which is so palpable that both of us feel [both him and his co-pilot], once you're airborne, you're in control, up until that moment you're in God's hands, and even he's not interested" (lines: 169-171 see emphasis above). Here, the Pilot's relief of getting airborne is in reference to using new forms of ICT to fly his aeroplane. By using the new forms of ICT to assist in take-off, the Pilot really feels he is

“in God’s hands” suggesting that he does not feel in control. He says he is only “in control” once airborne. The Pilot’s lack of confidence in using the new equipment to fly his aeroplane raises questions as to what the difference is between flying the aeroplane manually, and allowing the new system to replace aspects of the Pilot’s job. Let’s turn to the second theme of the Pilot’s story.

4.6.2 Practical Ability of Flying Commercial Aeroplanes: “well, this aeroplane is not doing what we’d expect it to do”

This theme of the Pilot’s story focuses on his ability to fly aeroplanes, and gives an account of the kind of judgements the Pilot makes when making important decisions up in the air. As we shall see, the Pilot tells us that his experience of flying involves a practical ability. This part of the Pilot’s story came out of the discussions we had at the airbase, where the Pilot had invited me to spend the day learning about flying aeroplanes. Throughout the day I had ample opportunity to ask the Pilot about what flying aeroplanes involved, as well as having the added opportunity to experience what flying was really like for me, a key benefit of using participant observation. Following this I had a number of discussions with the Pilot, one of which centred on a recent Turkish Airlines crash that had left nine people dead. An article published in March 2009 reported the incident:

“...a faulty altimeter, which checks altitude, led to the plane stalling. At 1,950ft (600 metres) the device registered the plane, which was on autopilot, at being at about ground level, so fuel to the engines was reduced and the plane lost speed. By the time the pilots realised it was too late. The Boeing 737-800 crashed near Amsterdam’s Schiphol airport on 25 February. Pieter van Vollenhoven of the Dutch Safety Authority said the jet had had altimeter problems twice before, and Boeing had been told to warn clients.”

(The Guardian 2009)

The aeroplane crash raised several questions. Why had the altimeter registered the aeroplane as being at ground level when it was clearly 1,950ft in the air? And why had the aeroplane pilots taken so long to realise that the altimeter had failed? I raised some of these questions with my respondent, the Pilot, who spoke about the kind of judgements pilots make when

flying aeroplanes. Here, we discuss the ability of the pilots aboard the Turkish airlines crash in particular:

B: So how would you know if you were in trouble or you come into land, and using the example of the Turkish airlines...

P: Well, somebody would have had three pairs of eyes on this thing, of which the most senior one was a training captain, so you would expect him to be really on the ball. You'd expect somebody to be thinking *'well this aeroplane is not doing what we'd expect it to do'*. It's not at the right altitude. You saw in the simulator today. You just had a bit of the nose up, when you were flying along, just a few degrees. That was keeping you straight and level and if you didn't do that you were either going down or going up. It was quite clear. And you didn't know how much to put up or to put down to correct it, but you were starting to get the idea. Hey, in fifteen minutes flying on that thing, you have learnt more than some of these kids taking a hundred hours of practicing. You were doing really well, you were really smart. I was impressed with that. *And that is something you have to learn in yourself. When you're at an approach it's going to be that sort of angle. You're going to listen to that much sound that will be coming out of the engines. You can see that the engine instruments are going to be in that sort of mark. You're expecting all these numbers and those numbers go into your subconscious and that's where they stay. And when you're actually doing something and they're not in those numbers, especially in a public transport aeroplane then you really start to get worried.*

(Fieldnotes, Transcript 5b, lines 984-1003)

The Pilot says that he would understand if the plane is in trouble when the "aeroplane is not doing what we'd expect it to do" (lines: 989-990). Here the Pilot describes how to do an approach landing in an aeroplane. He says: "When you're at an approach it's going to be that sort of angle" and you're going to listen to "that much sound that will be coming out of the engines". You even see that the "engine instruments are going to be in that sort of mark", he explains. I was initially surprised by the Pilot's response. The Pilot's explanations on how to recognise if the plane is in trouble seems to lack detail and technical precision that I had expected would be involved in flying commercial airliners. The "sort of angle" the aeroplane is expected to land at, and the "sort of mark" the engine instruments are expected to be at for the approach, are both descriptions made by the Pilot of how he makes judgements for landing his aeroplane. But these remarks raised fundamental problems. How can such seemingly arbitrary descriptions inform us about how the Pilot really flies his aeroplane? And by subconscious, does the Pilot mean know-how? I shall revisit these questions in my discussion chapter on know-how (section 5.4.1).

4.6.2 Conclusion to the Pilot's story

The Pilot's story raises several questions. Why has the new technology (new laptop system, performance and autopilot) resulted in the Pilot's uneasiness to fly his aeroplanes satisfactorily? For example, why is it not the same to view his performance via the new laptop system, as it was to view it via the old manual records? And the Pilot's story also raises questions about his ability to fly his own aeroplane. He uses expressions to describe his ability as something that requires little technical expertise. For example, when asked how he knows if an aeroplane is in trouble, I expected him to tell me about a specific figure of the readings of his altimeter for instance, or a flashing signal which indicates something is going wrong. But instead, the Pilot responded by saying: "you're going to listen to that much sound that will be coming out of the engines. You can see that the engine instruments are going to be in that sort of mark". Why does the Pilot use arbitrary expressions such as this? And what does this say about his expertise? I shall revisit these questions in both the discussion chapters (know-how and bodily-presence) of this thesis. In particular, I shall later focus on the kind of know-how the Pilot uses when dealing with things (everyday equipment used on an aeroplane) but I shall also acknowledge that the Pilot uses know-how when dealing with others too (e.g. knowing how to speak with passengers and cabin crew when dealing with an emergency situation). For now, let's turn to the next respondent's story.

4.7 The Theme of the Insurance Consultant's Story

So, what does the Insurance Consultant do at work? The Insurance Consultant has had several jobs in the insurance industry over a period of about forty years. One of the jobs he did involved working as an insurance underwriter. This involved making decisions on insurance applications for people wanting to buy insurance. So for example, if somebody wanted to buy car insurance, the insurance underwriter would have to take into consideration all the factors which might impact upon the applicant making an insurance claim. They would be asked "their name, their address, the type of car, the driver, their age, their experience" and so on (line: 491-493). These factors help to determine whether or not that person was eligible for insurance. In what follows however, the Insurance Consultant discusses how the decisions of the insurance underwriters have largely been replaced by information systems, which make decisions based on the factors given by the insurance applicants. These information systems however, fail to make the same sorts of judgements which real insurance underwriters make. The theme of the Insurance Consultant's story centres on this.

4.7.1 Replacing Insurance Underwriters: *"you don't really need that number of people to look at the few which need special attention"*

The Insurance Consultant tells us how ICT has changed the insurance industry over the many years he has been working there. He tells us that the number of people who worked in the industry shrank, because systems came to replace people, as he says:

IC: ...The insurance industry from about probably 1990, maybe a little bit before then, through the next 5 years shrank considerably in size. A lot of expertise went out of the market. *Systems have largely replaced people.* I mean there was an awful lot of lesser numbers of people and this very often was... I mean if you took an organisation like Direct Line for example. Direct Line ... before Direct Line arrived which is about the early 1980's probably, 85 maybe. When Direct Line arrived they introduced a different kind of approach to insurance underwriting. Prior to that you would have a lot of senior people in organisations and a whole hierarchy of underwriting - the considering of risks and deciding on premiums and so on. *Direct Line brought with them a new kind of way of doing things which was largely systems driven. They... had taken all the information they could from the Underwriter, created a model whereby 85 or 90% of all quotations would be provided within a three or four minute time period and so on, which was revolutionary at that time.* Prior to that, you would have spent days filling in forms and getting stuff back and forth, but it was driven by this very sophisticated

computer system that presented these questions on screen for people working at call centres.

(Insurance Consultant, lines: 389-405)

The Insurance Consultant tells us that the insurance industry has shrunk because the “systems have largely replaced people” and fewer people have been required to carry out tasks such as providing insurance quotations (line: 391, see my own emphasis added in extract above). The Insurance Consultant tells us that they “had taken all the information they could from the Underwriter, created a model whereby 85 or 90% of all quotations would be provided within a three or four minute time period and so on, which was revolutionary at that time” (lines: 398-402 again, see my own emphasis added in extract above). And so the Insurance Consultant explains that by taking “all the information from the underwriter” and plugging it into a system, real experts are only needed for the few applications which require “special attention”, as he puts it:

That systems driven approach reducing the number of experts you need, because you don't need that many if 90% of what you do or a better part of it can be done simply by screen prompted answers to questions, then you don't really need that number of people to look at the few which need special attention. And that kind of revolutionary system changed the nature of insurance, reduced the number of senior people that you needed and lots and lots of people worked from the industry with all sorts of nice packages and so on from the insurers. And the insurance world was slimmed down considerably.

(Insurance Consultant, lines: 411-418)

The Insurance Consultant tells us that a systems driven approach reduces the number of experts you need (see line: 411). He says that you don't require as many experts if “90% of what you do or a better part of it can be done simply by screen prompted answers to questions” (lines: 412-413). The Insurance Consultant tells us that they only require people for those insurance applications that require “special attention”. In the following extract we get a particular example of when someone might phone up for car insurance. Here we see at what stage an underwriter is required to make a decision:

B: So if someone phoned through and said I want car insurance, they should be asked a series of questions?

R: They would, they would be asked their name, their address, the type of car, the driver, their age, their experience, and it would just be a series of...

B: Multiple choices...?

R: It's all yes/no. Well, unless you've actually got to name drivers for the certificate or something but essentially it's a yes/no thing all the way down, yeah.

B: And then at the end of that, you said it would take about four minutes for it to...

R: *Four minutes for it to go through the process and then at the end of that the machine produces a number and that's the quote, or it will say 'refer' and as I said their aim was to get something like 85 or 90% with the actual premium quote and that's largely what happens today. You get a quote and they'll tell you a price and your own assess level, but they haven't worked it out, it's simply a process of this whole sort of very sophisticated machine...*

B: What about those 10 or 15% who get referred. Who do they get referred to?

R: Well for them, that's the underwriters, so whoever's got that title or role. *Somebody is going to look at the ones that fall outside their mainstream areas. So for example, if you're... if their age range of people who they prefer is let's say 25-55 which it might be. Let's assume it's that sort of age range and the car is no more than a group 15 car or something like that, in the car group rating. If you happen to be 56 with a group 16 car you would fall outside that area and therefore they will then refer it to the underwriter, and the underwriter will then decide whether in all the circumstances having considered the proposal which is what you set every proposal at one time, it does fit their criteria and it's near enough for them to provide a quotation or not.*

B: Right so they'll make a decision.

R: They will...

(Insurance Consultant, lines: 489-528)

When the systems first emerged the Insurance Consultant says that the process of getting insurance would take about four minutes and then "at the end of that the machine produces a number and that's the quote, or it will say 'refer' and...their aim was to get something like 85 or 90% with the actual premium quote and that's largely what happens today" (lines: 502-505, see my own emphasis added in extract above). You get a quote and "they'll tell you a price and your own assess level, but they haven't worked it out, it's simply a process of this whole sort of very sophisticated machine" [sic] (lines: 505-507). The other 10 or 15% of people that the system cannot make a decision on gets referred to the underwriters. These are people who "look at the ones that fall outside their mainstream areas" (line: 516, again see my own emphasis added in extract above). We see that he explains this to us using the example of somebody wanting an insurance quotation for a car (see lines 516-524 in extract above). In

his example, we see that the system refers to a set of criteria in order to decide on whether or not it should provide an insurance quote. The age range might be "25-55" and the car is no more than a "group 15 car or something like that". But if you happen to be 56 with a group 16 car you would fall outside that area and the system would therefore refer it to the underwriter. The Insurance Consultant tells us that the underwriter will then decide whether in all the circumstances it does fit their criteria and "it's near enough for them to provide a quotation or not". Deciding on whether it is "near enough" seems to be one of the things which distinguish the underwriter's decision making process and the computer system's. During my time interviewing the Insurance Consultant, I wondered why there wasn't a system which could make some of the decisions which the underwriters had to make. I pushed the Insurance Consultant to give me answers:

B: So, come back to this bit were it says 'refer' and then they get put through to the underwriter.

IC: Yeah.

B: Can't they... some of the decisions the underwriter makes, haven't they developed a system that can make judgements based on a further set of questions.

IC: ... *I think it would be very difficult in the context that you could do a points scoring system or something.* I mean am sure it's possible to do it but I just think there's always going be some that fall outside it's just a matter of how many really. The other thing is if you've only got two or three a day, you're hardly likely to keep someone employed for... so in a sense there's probably a balance that says well, if we have got to employ one person then let's not worry too much about whether they get a reasonable flow, as long as its got... meaning we've got to employ two or three or four people. There's got to be a balance there. You would have to be on the inside of the organisation to know how far they've taken it.

B: So the underwriter might say oh this is a very high risk car blah blah blah but this guy is a great driver, and as far as the underwriter is concerned should be given such and such a quote.

IC: Yeah, yeah, that's exactly what they do. *I mean that is the job of the underwriter to decide on discrimination factors and things and make them different from the normal risk of its type, whether its age of driver or a named driver added to it, or a young person added into a policy, it's those kinds of things.* So you would find for example that you won't necessary at the quotation stage but suppose a mature driver with a sort of family car suddenly wants his 17 year old to drive because he's learning, then that suddenly is going to take it outside the scope of probably what would be a normal acceptance category. Someone will have to look at that

separately. It would be difficult to say well we've got a model for this and we'll just plug it in and it will give you an extra whatever...

B: So the system works to an extent. It works to 85 to 90% of people.

IC: Yes, yes.

(Insurance Consultant, lines: 566-607)

We see that the Insurance Consultant doubts that the decisions the underwriter makes can be made by a system. He says that it would be "very difficult" for someone to "do a points scoring system" in order to make a particular judgement (line: 580, see my own emphasis in extract above). The job of the underwriter is to decide on "discrimination factors and things and make them different from the normal risk of its type, whether its age of driver or a named driver added to it, or a young person added into a policy" (lines: 595-598 again, see my own emphasis in extract above). But what if there was no underwriter? What if every case was left for the system to decide on? I pursued these questions by asking the Insurance Consultant what would happen if the job of providing insurance quotations was completely mechanised:

B: ... Do you think they will have it one day completely kind of mechanised?

IC: ... You know, they won't just want to insure everyone that phones up, there is still going to be some people who fall outside of that and my guess would be that if anybody did go down that route and try and totally mechanise it so that the only input that the underwriter had was at the end of the process to review it all and see whether generally things were at the right level. It's really difficult to see that as a scenario. *But I mean if that were to happen, then it could possibly, I think that the rate of declined cases would go up...*

B: That's interesting so you said that the decline would go up, so they'd be losing business because they are declining more people.

IC: They would yes.

(Insurance Consultant, lines: 612-637)

The Insurance Consultant believes that if a system did replace the underwriter, then the "rate of declined cases would go up" and there would be serious losses in sales for the company (line: 622-623 see my own emphasis in extract above). So the insurance underwriter's role is crucial for making decisions on those applications which fall outside of the area. The decision making itself is not a strictly financial decision, as he explains:

IC: I think the other thing is that insurance is not exactly a pure financial decision. It's not just 'is my house this old', 'is it worth this much', 'do I do this as a job'. It isn't like that. It's often that things work in combination with each other. Or someone in a particular occupation you'd be very comfortable with the risk for example. For someone in another occupation, even though occupation isn't the thing you normally measure you might actually be more concerned about that as an underwriter and what you can't take into account in a mechanised system is a thing called 'moral hazard'. So you could measure how many claims someone's has, you could measure those things, you can't easily measure how honest people are or the sense of the claim you may have settled in the past showed that they might have been fraudulent. They didn't prove anything. So there are some measures that have to be, well certainly currently have to be measured by a person doing the underwriting and not just purely factual, what code is this car and how many miles does it do in a year. And that would be true of virtually every kind of insurance. I mean most underwriters are much more concerned about what they call 'moral hazard' than 'physical hazard'. Physical hazard are all the measurable things, you know the engine car and so on. The 'moral hazards' are to do with other things and that's difficult to encapsulate in any kind of system.

(Insurance Consultant, lines: 644-661)

The Insurance Consultant tells us that "insurance is not exactly a pure financial decision" (see line: 644, my emphasis added in extract above) and that often things work in combination with each other. The Insurance Consultant says that these things are not merely factual and that you can't easily measure how honest people are or the sense of the claim you may have settled in the past showed that they might have been fraudulent" (lines: 651-654, see my own emphasis in extract above). So I wondered how underwriters made these decisions if they didn't rely on factual data? How do they decide if someone is honest or not? How do they spot fraudulent cases? I asked the Insurance Consultant about how underwriters could pick up on fraud:

B: So they tried to develop... well they did develop a way of trying to combat this fraud.

IC: Yeah.

B: But previous to that you said the judgement of the underwriter for example could pick up on either someone was being dishonest in what you were saying or they were doing some sort of fraudulent activity going on, or what they're saying they have wasn't the truth. How would they pick up on that? You said having an overview?

IC: Yeah, for example if you looked at the value of the vehicle. Now one of the things it would be very difficult to do in a systems sense is to maintain a current register of all reasonable values of vehicles of every age. I mean there are tables for it, you can go to Glasses Guide and find that. But you wouldn't want to keep updating that every month, so that when someone puts in a vehicle value that's very different from what you're expecting in a mechanised way that's not going to be picked up. *It's only going to be picked up when somebody looks at it as well.* So this guy's in the motor trade, he's got the vehicle value, and *its way out of line with the sort of thing that we'd expect.* It's those kinds of judgements.

(Insurance Consultant, lines: 684-702)

The Insurance Consultant tells us how difficult it is to keep a system up to date. And because of this, it's very difficult for a system to pick up on things which might show if a car is fraudulent or not. He tells us that it's "only going to be picked up when somebody looks at it as well", because somebody might think, "its way out of line with the sort of thing" that they would expect (see lines: 699-702 my own emphasis added in extract above). The Insurance Consultant tells us that insurance is not a purely financial decision, and requires insurance underwriters to make human judgements over insurance applications. Are these human judgements the kind we make using what I have called know-how?

Conclusion to the Insurance Consultant's story

And so it seems that the systems have largely replaced the underwriter, by making decisions for 85-90% of insurance applications. But the remaining 10-15% is still provided by a real underwriter because these few require "special attention". But what is this "special attention"? And why can't a system be used to replace this sort of decision making? Perhaps the "special attention" the underwriters use is not something that can easily be thematised and programmed into a computer system? I shall revisit these questions specifically in Chapter 5 (on Know-how) of this thesis.

4.8 The Theme of the Systems Analyst's story

So what's the Systems Analyst's job? The Systems Analyst's job title is Senior Systems Analyst. He's responsible for all the IT (Information Technology) within a car manufacturing plant. He's been working for the company for over thirty-four years and "this particular plant for ten years" (lines: 112-113). He says "there's about 700-800 employees making gear boxes, which go into Ford cars". There's about "600 employees who actually make the gear boxes and associated with it, and there's about 100 staff, and there's a small department that's just responsible for all the IT" which consists of about "three, maybe four people, and then contractors when [they] need it" (see lines 12-17). The System's Analyst and his colleagues in IT are "mainly looking after the network in the plant, in other words the PCs, the printing", and then "getting involved with the computer applications as well to a small scale" (see lines: 17-19). He tells us that "we get supported by Ford corporately, so they'll issue an application, and we'll implement some application, and sometimes we develop computer applications and systems for use just within our plant, like a web based system, or something like that" (lines: 19-22). The Systems Analyst tells us that "every day is totally different" (line: 27). He spends "a lot of time in front of the computer screen doing a lot of email" because he's dealing with people in Essex, Germany (where their head-quarters are) and people in the US (see lines: 28-30). As he says:

SA: [T]here's a lot of sort of dealing with people offsite as well as people onsite, but we've also got to look at the sort of hardware, and problems that come during the day. So anyone from the plant, anyone from the 700 people can walk in and say 'I've got a problem' and then we've got to sort it out. So there's that sort of operational part of it, making sure everything that we've implemented is still working. But there's also like project-type work where we are trying to implement a new system or we are doing a technology refresh. Like we are swapping lines on all the PC's or we are launching a new application.

(Systems Analyst, lines: 30-37)

Basically, the Systems Analyst is there to take care of the ICT for the manufacturing plant he works at. The Systems Analyst encounters various systems at work, but his story centres on using various forms of mediating technology such as telephone, email and internet, and the differences in using different forms of communication. Let's take a look at this theme to his story.

4.8.1 ICT and How Best to Communicate: “it’s always better to see them face-to-face”

In one of my initial interviews with the Systems Analyst, he talked about the difficulty of dealing with ICT problems which were not located in the same geographical area he was based. In a follow-up interview, I ask the Systems Analyst to discuss what these problems were like:

B: ... Just one other thing I wanted to ask you about, I think you said last time that you did a lot of, you work a lot on your computer, sending emails and communicating with people, and you said its not only just sort of on site, but its also off site, so you said that your communicating with people, I guess trying to solve problems, in Essex and also the US and Germany. Does that cause any issues, what’s that like? Sort of communicating with different people externally, especially not just Essex, which is a couple of hundred miles away, but the likes of Germany.

SA: We have sort of communication problems, fortunately because it’s like, it has been like, an American company in the past, and the company language is English. Even though, there are installations in France, Sweden, Germany, Slovakia, and the UK, the company language is still English. So you find that the technical people know English, but it can still be very difficult communicating. Email, phone, text messaging we use. *But sometimes you lose tone or inclination with those facilities; it is not like a face to face meeting, where you can see the whites of their eyes, and the tone and inclination.* So it can be difficult, but it makes it so much easier, than twenty, thirty years ago, where you had to deal with letters or the occasional phone call. So that’s why I spend a lot of time communicating with people. So you can standardise across all these different countries and cultures, you can have a complete culture of how it works and standardise. If we have a new plant in Slovakia, and we were trying to get the best practices, of things that were done in Slovakia, and implement them, you know for our new project.

(Systems Analyst, lines: 301-323b, my own emphasis added)

The Systems Analyst tells us that there are many problems with communicating with people via the use of ICT. He says for example, that “sometimes you lose tone or inclination with those facilities, it is not like a face to face meeting, where you can see the whites of their eyes, and the tone and inclination” (lines: 315-317). So he says it can be difficult, though it makes it so much easier, than twenty or thirty years ago (again see extract above). The Systems Analyst puts a premium on seeing people face-to-face:

SA: *It’s always better to see them face to face, and you build up a relationship so much easier.* So next time if you have met someone, you know and you have had a

cup of coffee with them or discussed the family, you sort of build up a relationship with them. *But if you are dealing with someone over the phone, you tend to just speak business and that's over with, so you don't really build much of a relationship unless you're on the phone all of the time. I always find with a face to face meeting, the next time you ring them up, the relationship is so much better, and they're more willing to do things.* Some of the time you're trying to extract information, or find out information, or need to know something, and you know, the other person will know it. But, you know you need to get that information. That sounds like confrontation but it is not like that. You might have a certain task, which you need to find out about, so you need them to spend time telling you how to do it. If they have got all the deadlines or other work to do, they will be reluctant to spend time with you. *If you have had that face to face meeting, they're more likely to you know, sort of, give you the time.*

(Systems Analyst, lines: 329-342b, my own emphasis added)

The Systems Analyst says that "it's always better to see them face to face, and you build up a relationship so much easier" (line: 329b). But if you are dealing with someone over the phone, he says that "you tend to just speak business and that's over with, so you don't really build much of a relationship unless you're on the phone all of the time" (lines: 332-334b, see my emphasis added in extract above). The Systems Analyst says that he finds "with a face to face meeting, the next time you ring them up, the relationship is so much better, and they're more willing to do things" (lines: 334-336b). He says that if "you have had that face to face meeting, they're more likely to... give you the time" (lines: 341-342b, again see my emphasis in extract above). Later in the interview, the Systems Analyst says that being face-to-face is "always better than picking up the phone" even though he tends to pick up the phone or use email "because it's quicker and you can communicate with a number of people who might be involved" (lines: 347-349b). The Systems Analyst says that there are differences in using different forms of communication, and this will impact on what you're trying to do, and what kind of response you're trying to get:

SA: You see another advantage of email, apart from you will get a response eventually. Sometimes you want people to think about how they're going to respond, so it's horses for courses really. *If you want someone to think, you go to see someone in the next room, they might give you a flip answer, because they're doing some work and don't really want to be disturbed.* If you get a more thoughtful response, we send an email, they respond when they can, benefiting their work load and you might get a better response, so it really depends on what you want. And also by sending an email, you can contact ten people, with that one communication, whereas you might have to visit ten people to get the response.

But sometimes if I send out an email, and don't get a response, I follow it up by a visit. Because people know you've sent them an email, and they have not bothered to get round to answering it, they feel more obliged to spend more time with you. So there is psychology there, so you have got to match it, how you use your email, how you use your phone, and how you communicate with people.

(Systems Analyst, lines: 364-377b, my own emphasis added)

The Systems Analyst says that you might send someone an email "if you want someone to think", because if you go to see someone in the next room, they might give you "a flip answer, because their doing some work and don't really want to be disturbed" (see lines: 366-368b, my own emphasis added in extract above). He adds that an email might be sent to "get a more thoughtful response" (line: 368b). If you don't get a response however, the Systems Analyst says he might "follow it up by a visit". The Systems Analyst says "there is psychology there, so you have got to match it, how you use your email, how you use your phone, and how you communicate with people" (lines: 374-377b, see emphasis in extract above).

4.8.2 Conclusion to the System Analyst's Story

The Systems Analyst's story told of his experience using telephone, email and face-to-face communication when dealing with others in his organisation. Initially, the Systems Analyst said that face-to-face communication was always better, but later added that it depended upon the kind of response he wanted to get back. If he wanted a "more thoughtful" response (line: 368b), then he might send an email. If he did not get a response at all, then perhaps he would go visit them face-to-face. The Systems Analyst suggested that face-to-face communication carried with it a premium over other kinds of communication, and thought that being face-to-face with someone made them more obliged to speak with you, or help you out. The Systems Analyst's story raises several questions. How is face-to-face communication different to other forms of communication? And what explains the differences in using different forms of communication? I shall revisit these questions in Chapter 6 of this thesis.

4.9 The Theme of the Doctor's story

So what does the Doctor do at work? The Doctor is a General Practitioner, who is based near the city of London. This is an area of London which has a very old east end community, as well as attracting many young professionals. The Doctor tells us that he has “all sorts of age groups” coming to his practice and he thinks that “a lot of younger people are there because of the location”. The Doctor has been a General Practitioner for over 35 years, and has always been based in the same practice since qualifying as a Doctor in 1968 (see lines: 34-43). In particular, the Doctor's story tells us about the importance patients place on face-to-face interaction with him in his surgery. Let's take a look at this theme taken from the Doctor's story.

4.9.1 Patients want to be face-to-face with the Doctor: “*people feel face to face is good*”

Over the 35 years since qualifying as a General Practitioner, the Doctor has seen many changes in technology in the medical and healthcare sector. One of the recent changes is the use of mediating technology to provide health care advice (e.g. telephone services, such as NHS direct and online medical services that offer a preliminary diagnosis for patients). These various forms of information and communication technology replace the need for patients to have to see their GP (General Practitioner) face-to-face. And so during my time with the Doctor, I asked him what he thought about the use of ICT in providing medical advice and diagnosis to patients. Initially, I asked him about online internet services offering medical advice, as well as telephone services (specifically NHS direct). The following conversation emerged:

D: ...They're good. They're very useful, unless the patient who is looking at it is confused. It can make them more confused... It's not easy just to learn... It gives some idea definitely. If it's just some condition, which has high potential, it's just easier to look up for what these things are. This is why I need to take medication. It gives all the information, it's like a leaflet, you know. You can print out leaflets.

B: Some of these systems that I've seen recently. I think the way technology has improved, and you know people are finding new ways of getting diagnosed. I've noticed things like NHS Direct has become quite big.

D: Direct means it's direct. You can ring them direct. NHS, National Service, nothing else. That terminology should not baffle anything. It's somebody the other side,

professional person, sitting and you have query and they answer by phone. *I give you for example a patient who can't come here, they ring me, I give advice. It's the same thing.* You can do a lot of stuff like this. You don't have to physically see a patient. There's many things: they've got flu, you can assess, oh you've got flu and take something for it.

B: I always find they ask, they run through. Because I phoned them up about twelve months ago and I was really ill in the night. I was being sick and whatever. And I phoned them up and I found they went through a set of questions.

D: They're asking you what's your problem, number one. Where is it, how long it is? If its heart and you can't breathe they'll advise you to call an ambulance. If it's a pain in the foot they will say did you hurt yourself. They are relevant questions. They are all trained to ask these questions. Depends on the other side of the person, how you dealt with them.

(The Doctor, lines: 264-290, my own emphasis added)

The Doctor said that NHS Direct was simply just medical advice given over the telephone. He said it gave the same kind of advice as a Doctor would give face-to-face: "I give you for example a patient who can't come here, they ring me and I give advice. It's the same thing" (lines: 277-279, see my own emphasis in extract above). We see that the Doctor finds telephone services as "the same thing" as what happens when patients come to see the Doctor face-to-face. In the following extract however, I ask the Doctor about the importance of face-to-face interaction with the patient. It seems that the patient's do not see medical advice via telephone as the "same thing" as being face-to-face with the Doctor:

B: Because you were talking about being face-to-face with the patient. Do you think it's ultimately better to be...?

D: Not necessary. Some are face-to-face, some are by phone. What am I going to do if somebody wants to talk about their problems, face to face, for what? It's only talking and listening. Understanding, you know. Face to face for some things where you need to examine you know. But psychologically people feel face to face is good. It's psychological. Rather than need. Many people don't need it unless you are checking the blood pressure and all the regular monitoring. Or you are coming for a blood form. Many things can be done effectively without being face to face. But it's psychological. The effect will be there. They want to see me and talk to me. I say, my face, but I can talk to you by phone. But some people feel it has to be face to face.

B: So you think it's to do with the patient.

D: *It's the patient, it's nothing to do with the condition.* Conditions can be dealt with by phone. Many conditions. Many conditions can be dealt with by phone. The

patient's important, the psychology of the patient. You have to convince them they don't need it, unless I'm going to go and do something, you know. There are conditions where you need to go and do a physical assessment.

(The Doctor lines: 292-311, my own emphasis added)

The Doctor argues that he doesn't necessarily require face-to-face interaction with patients, but he says that many patients feel it is important. He says that there is a psychological effect on the patient in having face to face interaction with the Doctor. But as he says, "It's the patient, it's nothing to do with the condition" (see lines: 307 in extract above, my own emphasis added). This raises an interesting question. Why is it that patients feel they have to have face-to-face contact with the Doctor in order to be diagnosed or given medication appropriately? The Doctor explains to me that some patients feel more comfortable face-to-face with their GP. But he also says that it's the same with everyone. As he says in the following extract when talking about telephone and internet medical services:

D: Maybe not everybody. Some people find it useful, very efficient. You see, it depends upon the individual as well. Not everything is beneficial. *Some people find it when you telephone they're happy, where some people are not happy.*

B: Because some of these things you go through and you get to the end after they've asked you say twenty or thirty questions...

D: *It's the same, no? When you come, I also ask you questions isn't it?*

B: Yeah, yeah.

D: Because by questioning, it gives you... *the same thing they put into the computer.*

B: That's interesting. That's one of the things I wanted to ask. Do you think you could take your knowledge and you could actually put that into...?

D: I suppose that's what they were doing...

(The Doctor lines: 324-340, my own emphasis added)

The Doctor says that different patients feel differently about using telephone services to get medical advice: "some people find it when you telephone they're happy, where some people are not happy", he says (lines: 325-326). But this also raises another question. Why do some patient's prefer to speak to the Doctor over the telephone, whilst others prefer to see the

Doctor face-to-face? The Doctor however, is adamant that the telephones services are similar to having face-to-face contact. This became apparent when he turned to me and said: "It's the same, no? When you come, I also ask you questions isn't it?" (line: 331, see emphasis in extract above). This discussion raised further questions. If the Doctor asked his patients questions in his surgery, then surely this was the same as asking patients questions via the telephone? As the Doctor says, "it gives you... the same thing they put into the computer" (line: 335).

4.9.2 Conclusion to the Doctor's story

I presented the Doctor's story by focussing on the importance patients place on face-to-face interaction with him at his surgery. The Doctor's opinion is that ICT (specifically various forms of mediating technology, such as the telephone) can largely replace what Doctors do inside their surgery, since it's only a matter of following the correct procedures or asking the relevant questions used for diagnosis and medical advice. But there is an interesting contrast between what the Doctor's opinion is of ICT, and his experience of patient's use of ICT. In particular, the patients put a premium on being face-to-face with the Doctor, whilst the Doctor says it is unimportant. The Doctor's story raised some questions. Why do patient's find being face-to-face with their Doctor better than talking to the Doctor over the telephone? What's the difference between being with the Doctor via mediating technology, and being with him whereby he is bodily present? I shall come back to these questions in Chapter 6 of this thesis, and will specifically draw upon the Doctor's story, in the chapter on Bodily-Presence.

4.10 The Theme of the Teacher's Story

So what's the Teacher's job? The Teacher has worked for about 23 years at a secondary school called Kirkland Community Comprehensive (pseudonym used). Originally from Manchester, she came to the school in Liverpool as a Biology teacher, and after a couple of teaching posts in other schools she arrived there and was appointed Head of Biology. About a year into her teaching post at the school, the "school structure changed a little bit" and so the Teacher became Head of Year too, and did those two jobs for about fourteen years (lines: 19-20). In recent years however, the Teacher's roles have changed again, and she now primarily runs what's called the Silent Work Area (or "SWA" as it is known in the school). The Silent Work Area is a classroom where disruptive pupils are sent, who may display bad behaviour inside 'normal' class. The Teacher says they were running the Silent Work Area "in a sort of ad hoc thing where different teachers took it, whoever was free". She says that "it was chaotic because every teacher had different standards". The kids did their work on paper, and when different teachers took over, the "kids used to tell them they hadn't done this or they'd done that". The Teacher says that "it was just a mess" (lines: 33-38). So the Teacher suggested to Mr Laker (the Head Teacher of the school - pseudonym used here) that perhaps she could "take control of the Silent Work Area". And having "thought about it... he thought it was probably a very good idea" (see lines: 40-44). And so the Teacher came back to school and started running the Silent Work Area in the way it is now. An important part of the Teacher's work in the Silent Work Area involves using an ICT system called a behavioural management system. This is a system used for recording data about pupils' behaviour, and managing the pupils' behaviour using the information it provides. The Teacher's story is centred on the use of the behavioural management system in the school. The use of this system becomes the main theme of the Teacher's story. Let's take a look.

The Silent Work Area and Problems with Managing Behaviour: "It's no good having kids just being numbers or data"

The Teacher says that she can use the database in the Silent Work Area, to display different types of behaviour of the pupils. For example, she can put types of behaviour into "bar charts or pie charts or whatever to display where, or what kind of incidents, which teachers with,

what subjects, what lessons even if you wanted to see if it was afternoons or mornings or whatever was the worst time" [sic] (lines:595-598). The behavioural management system provides all kinds of statistics on pupils' behaviour, and each pupil can be analysed individually, as well as being seen as part of a larger social group (form class, subject class, gender and ethnicity and so on). The behavioural management system provides a way of knowing information about every pupil in the school, in order to enable teachers to monitor and therefore better manage their pupils' behaviour. But the Teacher tells us that she need not necessarily rely on the system, to know what the pupils are up to in the school. We see this in the following extract:

B: So the system... Is this used to know your records or keep records of the kids' behaviour... as you said... do you rely on the system to kind of know what the kids are up to or do you?

T: *Well I know. I know the kids who are badly behaved*, but it must be easier for the year heads to keep track of the kids who are in the middle or well behaved. Because you see, I won't be putting much on about certificates. I mean I will be putting things on about people losing exits (these are penalties for being exited/sent out of class), or having good reports, but the nice things you do like going to the theatre or playing for the school football team, or going on a course, or helping out or doing that peer helping, you know, helping their friends and that in class...

B: Peer support?

T: Yeah. Other people would put that on, but not me really but I could probably tell you what exit all the kids were on *just by remembering* because it's *so part of my everyday life*. Kids say to me 'What am I on?' well I say 'you're on...' say 'how do you know', and I say 'well because...' But you know, that is uppermost in my mind, trying to get kids off exits. I'm saying come on please give me a bit of ammunition so I can say to your year head 'can I take this person off an exit, can we do this?' 'You give me something to go to Mrs Barry with and say come on, let me take him off this. Bit like bad cop and good cop in a way. Mrs Barry will never let me come off this you know if I can't take a nice report book to her. And of course Denise will do if she possibly can because we all want kids to succeed, you know, not to fail. Because if they fail we feel as if we have as well.

B: So even though you've got the system there... ok so say you didn't have the system there, you'd still kind of know, what the kids were...

T: Yeah, yeah... Well we haven't got many kids have we, when you think about it like... I mean maybe that's why the school is so family-like because it's small. You know when you look at these Comps (Comprehensive Schools) and there's 1600 kids, we've got 400. *You can walk down the corridor you know everybody's name*, you know whose brother they are, whose sister they are, whose son they are, or

whose daughter they are, whose class they're in, what they're good at, what they've been doing, you just know so much about them. You can walk down the corridor here and kids say 'hi Miss, I see City won on Saturday, or City were rubbish the other day', and it's such a lovely feeling and atmosphere that I can't describe.

(The Teacher, lines: 608-645, my own emphasis)

The Teacher says that she knows the pupils in the school, without having to look them up on the system. As she says: "Well I know... I know the kids who are badly behaved" (line: 612, see my emphasis in extract above). The Teacher knows more about the badly behaved pupils than any of the other kids, because it is the badly behaved kids who she deals everyday within the Silent Work Area. But the Teacher also says that she knows how many exits each of the pupils are on "just by remembering" because it's so part of her "everyday life" (lines: 623-624, again, see my emphasis in the extract above). She knows the pupils just by being in the school with them, as she says, "you can walk down the corridor, you know everybody's name" (lines: 639-640). Importantly, the Teacher feels that it's no good just having information on the system about the pupils. And she tells us in the following extract:

T: ... It's no good having kids just being numbers or data. They are so much more than that. When you're recording things on the computer, well I always try and keep it short. One, because it always takes me ages to type it. But you're just putting the bare bones down aren't you? You know sometimes somebody will say to me, 'what happened to such a body in that lesson', and I'll say 'Oh I can't remember' and I'll put it up and whatever it is there will spark me off and say 'Oh I know now, they did this and this and this and this'. And it will only be two or three words but as soon as I see it I will remember the situation that occurs, or what had caused it in the first place, so it's an aide memoir as well, you know, as far as what's there triggers the rest of it off after.

(The Teacher, lines: 653-662, my own emphasis added)

The Teacher says that it's "no good having kids just being numbers or data", they are "so much more than that" (lines: 653-654). All that is put down on the system is the "barebones", she adds. The computer system may be used as an "aide memoir" to help the teacher remember what happened in a particular incident, but this by no means replaces the Teacher's memory. On the contrary, it is merely used to "spark" her off, so she can say "Oh I know now, they did this and this and this and this" (lines: 658-659). Thus the Teacher suggests that the system is there to assist her and by no means replaces her own knowledge she has for the pupils in the school.

We see then, that the Teacher has an understanding of the pupils because she deals with them as part of her everyday job in the Silent Work Area. The pupils aren't merely understood by what's being written about them on the behavioural management system. She comes to know the pupils by being with them and by being with other teachers in the school, as she explains in the following extract:

T: ... The computer hasn't taken the place of meeting somebody on the corridor and saying 'oh I see such and such happened in your lesson'. And the teacher saying 'well you should have heard what...' or this, that or the other. We are still very anecdotal teachers. We still like to tell the tale of what happened. I should imagine it would be quite easy for somebody to just read what's there if they were too busy, but generally speaking again people want to know what the kids are doing. You know they don't just look at the behaviour, they look at what lies behind it, why did that happen, why is that happening after dinner, why is that happening in that lesson, what's going on in that class, what's the dynamics in that class between... You know, if you put Francis Maguire and Connor O'Shaunity together in a class and they're going be sitting together you can bet your life on it somebody's going to be in trouble. One of them or both of them. And that doesn't come across on the computer but everybody knows it because we all talk about it. You know, one of the biggest exchanges of information is the staffroom before school, and not so much at dinnertime because other people are on dinner duty but certainly before school.

(The Teacher, lines: 727-742, my emphasis added)

The Teacher says that the "computer hasn't taken the place of meeting somebody on the corridor". She says that the teachers "still like to tell the tale of what happened" (see lines: 727-731, in extract above). She says that teachers don't just look at the behaviour, but that they look at what's behind it. Teacher's look at "why did that happen, why is that happening after dinner, why is that happening in that lesson, what's going on in that class" and they even try to find out what's the dynamics in the class between two pupils, for example (See lines: 733-735 in the extract above). The Teacher says that it "doesn't come across on the computer but everybody knows it because we all talk about it" (lines: 738-739, see emphasis in extract above). Perhaps the Teacher understands what's going on in the classroom by using her know-how? Maybe that's why she *knows* if she puts "Francis Maguire and Connor O'Shaunity together in a class... somebody is going to be in trouble" (I'll revisit this point in section 5.6 of this thesis).

Generally, the Teacher thinks the system only "adds to" the understanding of pupils in the school, because all the teachers already "know what's going on" (see lines: 784-785). She

says that many of the things which happen “you might not have time to tell”. Furthermore, teachers deal with incidents without the need to process it into a database. For example, the Teacher tells us about an incident which happened in the school the day before my interview with her, whereby a teacher had “six people sent out of English”, as she explains:

T: ... She got her note this morning and she said ‘my god what was going on?’. Well, she’s gone to see them all this morning to find out what’s going on, tell them if there’s anything like that again she’ll be right on to their parents. And the person who sent them out yesterday, sent them out, then rang me at dinnertime to apologise for sending six people. Told me the whole story, asked me for advice about what to do next and spoke to me again this morning about the same situation. Now that all goes in a line there from the computer, from the Silent Work Area, talking strategies, going to the year head, going at it from another direction, helping people to deal with those classes. We’ve already had somebody offer to go into that lesson in their free period to act as another pair of eyes because this class are obviously so difficult. *Now none of that is official, it’s just all there.* It’s just all the information.

B: When you say none of its official do you mean...

R: Like nobody sits down and says right what are we going to do with year nine set two or whoever it were, I don’t know, *we need a strategy for this, and strategy for that, we just say how can we help, who can help.* People say I’ll help. Not people going to someone and saying ‘right we need you to give up a free lesson and go to work in that class’. People have said to me ‘oh I’m free then, I’ll go and help’. But like Mr Laker [Head Teacher] won’t ever know that, or nobody would probably know it apart from me and the teacher who was having the bother and the teacher who has volunteered to go and give them a hand, and they might not do it for long, it might only take a couple of lessons and things will settle down a bit.

(The Teacher, lines: 786-806, my emphasis added)

We see then, that the school runs with people who know how to help each other out, and know how to deal with problems in the school. The Teacher says that there is no formal procedure or strategy for what they do. “None of that is official, it’s just all there”, she says (lines: 795-796, see emphasis in extract above). They don’t sit down and say that they “need a strategy for this, and strategy for that... we just say how can we help, who can help” (lines: 801-802). Nobody needs to be told to give up a free lesson in order to help, instead people will say “oh I’m free then, I’ll go and help” (line: 804).

4.10.2 Conclusion to the Teacher's Story

The Teacher works in the Silent Work Area (or "SWA", as she calls it), a classroom where badly behaved pupils are sent to do work. Part of the Teacher's day-to-day responsibilities involve making sure that these pupils are dealt with appropriately, encouraging them to behave responsibly within the school. In order to monitor their behaviour, the Teacher (and other teachers) use a behavioural management system, that records and monitors pupils behaviour. This ICT kit, enhances how the Teacher monitors pupil behaviour (it provides data and statistics on attendance, bad behaviour, incidents the pupil was involved with, and detentions and so on). But the Teacher's story tells us that using the behavioural management system to understand the pupils, is much different to her everyday understanding of the pupils (the kind of understanding she has from speaking to other teachers, seeing pupils in the corridor, and so on: In other words, an understanding of the pupils that does not involve looking at the system). Like the stories of my other respondents, the Teacher's story raises some questions about know-how and social communication. What kind of understanding does the Teacher use to understand the pupils in the school? Is it the kind of understanding we can call know-how? How is this understanding different to seeing the pupils' behaviour via the behavioural management system? I shall answer these questions in discussion Chapters 5 of this thesis. Let's turn to this chapter next.

Chapter 5: Know-how

So far I have presented both the theoretical ideas used in this research and the data gathered from my research by showing the stories of each of my respondents. At this point, I shall bring both of these together for the first time. In doing so it will be necessary to revisit what my respondents said, only this time using the themes drawn from Heidegger's thinking to better understand how my respondents encounter ICT at work. In this Chapter, I shall discuss how my respondents experience the use of ICT at work by using the idea of know-how in particular. I shall argue that know-how is fundamental for experts to carry out their jobs at work, and that any replication or replacement of human expertise using ICT runs into difficulty. My use of Heidegger's distinction between ready-to-hand and present-at-hand which I outlined earlier in the Introduction becomes clear throughout this chapter (see section 1.4.2 for a re-cap of these terms). Basically, we shall see that technologies often seek to replace human knowledge that exists at the ready-to-hand level, as know-how rather than knowing-that, as tacit and implicit rather than discursively explicit or algorithmic. In many cases, this chapter will show, that replacing human know-how with technologies that require explicit algorithmic type formulations results in a loss of meaning for the worker and a loss in the quality of the work. Forced discursive thematization in some of the work places I investigate in this study have many problems because the know-how that has to be replaced with technologies of some kind, cannot be made fully explicit.

In what follows, I shall present the theme of know-how in six main sections, by looking at six of my respondents. The first section of this chapter will look at the Computer Graduate's know-how in his recognition of different types of documents: this kind of know-how deals with recognising things on screen. The second section of this chapter will look at the Director's know-how in understanding his clients, and making commercial partnerships: this know-how involves dealing with people in social communication. The third section of this chapter will look at the Business Developer's use of know-how to manage relationships with clients in the rail sector: this also involves the kind of know-how used in social communication. The fourth section of this chapter will look at the Pilot's know-how used for flying aeroplanes: this kind of know-how is the instrumental kind, used when dealing with things (handling aeroplane equipment and so on). The fifth section of this chapter looks at the Insurance Consultant's use of know-how to make decisions on insurance quotations and the sixth section looks at the

Teacher's know-how in understanding the pupils' behaviour in her school: both these kinds of know-how deal primarily with social communication. Each section shows how know-how is used in a variety of work settings, in a variety of different ways, to achieve a variety of different things. The introduction of ICT to replace human know-how has various effects in each case.

5.1 The Computer Graduate's recognition of document types

In this section, I would like to go back to the Computer Graduates story I laid out in the previous chapter (section 4.2). We saw that the Computer Graduate's job was an administrative one, which involved entering data into a database. At a glance, the Computer Graduate's job seems very straightforward. All he is required to do is differentiate between the documents (letters, emails, reports, publications) and insert its 'document type'. But perhaps the Computer Graduates recognition of document types is not as straightforward as it first seems. Let's take a look.

5.1.1 Know how: "Just the way it looks"

The Computer Graduate said that he carried out his job using his common-sense, and that he could recognise a document type by "just the way it looks". But does this really explain how he carries out his job of recognising documents? To begin with I had thought that the Computer Graduate had lacked an explanation altogether: to say that he "just knows it's a letter" seemed to be getting us nowhere. But I recalled the story of Socrates and Euthyphro. Just like Socrates, I asked the expert how he carried out his job. And like Socrates I was frustrated by the Computer Graduate's Euthyphro-like response (see section 1.4, for a discussion of the Socrates-Euthyphro story). He could not give me the principles for recognising document types in the same way Euthyphro could not give Socrates the principles for recognising piety¹⁹. However, this lack of a thematic explanation does not mean that the Computer

¹⁹ Note: the Computer Graduate's recognition of document types on screen is a different sort of know-how to the one Euthyphro uses to recognise piety. One is making a judgement about a thing on a screen, whilst the other is making a judgement about others in social communication. Although they are different sorts of know-how, the

Graduate has not got a grasp of what he is doing. On the contrary, the Computer Graduate displays his understanding of his job by the very way in which he *knows how* to do it, in the same way Euthyphro could show what he did, but could not thematically explain how he did it. And so I realised that his answers showed that he had a practical grasp of the job he did, rather than a thematic one.

And so by questioning the Computer Graduate about how he recognises the documents on screen, I was forcing him to try and “think through” the principles for document recognition, something he rarely had to do. We see here in the following extract, that the Computer Graduate's response to my questions shows that his understanding of “document types” need not rely upon a set of principles (a thematic grasp) at all:

B: Why not? Why not? Do you know why that's the case? How do you detect if this is an email? Why is there not a computer that can do this job?

CG: Well, *it's just commonsense really*. If you ask a computer what do you think about the day. Whether it thinks it's a nice day, do you think it's a lovely day the computer won't be able to tell you really. They can't tell you. You can ask any human being, what they think of the weather, *he'll tell you straight what he thinks about it*.

B: So you think what you're doing... So you detect an email by its format, the way it's laid out?

CG: *Just the way it looks yes*. Well most of the time if it says it's an 'email', it has the word 'email'. And if it's a letter, it doesn't say the word 'letter' on the document, *but you know it's a letter*. So you have to put that into characteristics. Sometimes there are letters that have been faxed, although it is a letter, but it's been faxed. So I don't know if a computer can do that but I don't really think that they can.

(Computer Graduate lines 132-147, emphasis added)

The Computer Graduate tells us that he uses his “commonsense” to recognise document types. I argue that this common-sense is what I have called know-how, a know-how that

Euthyphro example does have resonance with my example of the Computer Graduate particularly because of the Computer Graduate's inability to make his know-how explicit.

mainly involves dealing with things. The Computer Graduate says that a system cannot presently do his job because it lacks the kind of common-sense (know-how) that he uses to differentiate between the documents. For example, when the Computer Graduate was asked how he detects what type of document it is, he responded by simply saying it's "just the way it looks". But what does he mean by this? Well, a letter for instance, doesn't have the word 'letter' written on it, but most people would recognise that it was a letter. And even sometimes there are particular circumstances where there are "letters that have been faxed" which may add further complications to his job, but the Computer Graduate is still able to *know how* to recognise what kind of document it is. By understanding what the document is by "just the way it looks", the Computer Graduate shows us that he need not "think through" what kind of document it is, in order to place it in the correct file. That is, he need not point out or assert that it's a letter in order to see that it is a letter on screen in front of him. Nor does he need to rely on thinking through a set of propositions, such as the letter will have a sender, or it will have a particular format. He simply sees it's a letter because he relies on his know-how. And because know-how is our primordial way of understanding things (that is, it becomes before any thematic understanding), it is essentially something which we rarely reflect upon, or even realise we are using. The Computer Graduate indicates that his know-how is something so very obvious to us, when he says: "And if it's a letter, it doesn't say the word 'letter' on the document, but *you know* it's a letter" (my own emphasis added here). Finally, his know-how can best be seen when he says:

I don't need to read the whole document in order to find if it's a letter or a publication. *I can just tell, we can just tell.*

(Computer Graduate lines 176-177 emphasis added)

Being able to "just tell" is a key part of the Computer Graduate's role for inserting data. To "just tell" is know-how, and is fundamental to the Computer Graduate's expertise. He says it is very easy for a computer to read all the words of a document, but he says that reading all the words doesn't necessarily mean that the computer will know what the contents are. In other words it is difficult for systems to recognise these documents, because they lack the kind of know-how (what he calls commonsense) that humans' possess. In the following section, the Director also demonstrates a kind of know-how when creating commercial partnerships between different organisations.

5.2 The Director's Understanding of his Clients

I argue that the Director uses know-how, a know-how mainly involving his dealings with people in social communication. His know-how involves understanding his clients and building commercial partnerships between them and other companies. Let's take a look.

In section 4.3, I presented the Director's story. There the Director described his company's objectives as ones which were very clear and straight forward. He told us that his company created partnerships between other commercial companies and compared it to an old dating agency because the activities are very similar in many ways. He called these partnerships "magic dates" because he said there were no straightforward set of facts which could perfectly match the commercial companies together (again refer back to section 4.3).

I had asked the Director whether or not a system could potentially do the "matchmaking" part of his job. Like Socrates I had wanted the Director to tell me the rules or principles for partnering the commercial companies and making the match work out. Given the simplicity of the job, I was curious why people were needed at all? The Director told me that his company must "understand the client in great depth" (line: 57) so that they can present them as "an attractive profile of somebody to work with" (line: 58). However, this understanding is not as straightforward as it may seem. For example, he says this means he must "stimulate the other people to come forward with things which they might not think of first off" (line 59-60). I asked how the Director manages to stimulate his clients. The Director answered by saying that his company needs to "talk to the client in great detail" (line 65-66) and "go through their thought processes" (line 70). The Director refers back to the dating agency analogy as a metaphor for describing what his 'matching job' requires. We see here that 'matching' or building relationships between clients is not that simple:

D: So going back to the dating agency, the matching bit, is that we can sit down with our client. So if it's a guy saying that he wants a five foot six blond with blue eyes, we know jolly well that the brunette with brown eyes is going to be worth looking at, as well. So there's split specification.

(Director, lines 122-126, my own emphasis added)

We see that “matching” is not as simple as it appears, because for the guy who says he wants a five foot six blond with blue eyes, the Director knows “that the brunette with brown eyes is going to be worth looking at, as well” (lines: 123-126, see emphasis in extract above). The Director says that there is a temptation to use a system, because on paper, things can often look straightforward. This is where he believes the problems may lie. The facts may all fit together, but this doesn’t mean that you’ve got a result. The Director is very pessimistic about the possibility of using a system to carry out his work, especially since his work is largely relationship based; a process which involves “building human chemistry” (refer back to the data analysis section 4.3). So we see here that a thematic understanding (the kind of ‘understanding’ we might say computers use) is not the only kind of understanding which the Director uses in his job of “matchmaking”. The Director not only understands his client by the facts written down about his client, but he also has an understanding which involves getting to know his clients: the kind of understanding we can call know-how. Let’s take a closer look at the Director’s use of know-how.

5.2.1 Know-how: “that just doesn’t sound right”

The Director’s dating agency analogy is a way of demonstrating that understanding is much more than a collection of facts that match or go together. Our everyday understanding need not rely on a collection of facts or set of rules in order to make sense of things. In fact, as the Director suggests, any reliance on such facts can be misleading. So how does the Director really understand his clients, if facts about them can be so misleading?

The Director tells us that a successful partnership and business is more to do with the relationship, than for example, the numbers and statistics of the company’s revenue. In the next extract, the Director continues using the dating agency scenario to describe how he does his job of commercial ‘matchmaking’:

B: Are those relationships over the phone? Or are you in physical contact with people?

D: It starts of course, it starts probably with us. In our business it starts with us. We talk to both sides and we start to understand where there’s excitement and where there might be disappointment. *So we can warm the situation up. We can prepare*

the couple for their dinner date. By saying look there's one downside to this guy, or this girls got...

B: You used the words interestingly enough warming them up, so are you stimulating both?

D: We're starting to play an active role in building the relationship. The relationship, given that that's our end result. We need to make a relationship between a client and somebody else; that's a human relationship. *Despite the logic, the financial logic, the technological logic, and all the ingredients we would seek for a successful commercial deal can be there, but if people can't hit it off, then it's a waste of time. And people don't hit it off all the time.*

B: Why?

D: There's no difference in commerce. *Just because something looks financially correct, looks technologically correct, it doesn't make it work.*

(Director lines: 178-200, my own emphasis added)

Going back to using the analogy of the dating agency scenario, the Director describes his role as one that "warm[s] the situation up", by preparing "the couple for their dinner date" (see my emphasis added in extract above). He says that this is a necessary part of his job. As he says: "all the ingredients we would seek for a successful commercial deal can be there, but if people can't hit it off, then it's a waste of time". For the Director, "hitting it off" is a key part of having a successful relationship. At some point the interview with the Director became very frustrating. Again, I found myself in the position of Socrates. I wanted to know what things like "building human chemistry" (line: 139) and "hitting it off" really meant in social communication? On reflection however, I realised that all I was getting was a Euthyphro-like response. The Director could never explain what these things were by attempting to break them down into principles or rules, because this sort of social communication involved know-how. Like Euthyphro, he could only provide examples, and not explicit principles. I asked the Director to provide some examples as can be seen in this extract below:

B: Can you think of any examples?

D: There's an example in the paper client where we found an interesting product for them. *And we did all the comparative work and we stuck the two people together and said get on with it, this is a match made in heaven.* You've got a new product and you're looking for someone to launch it commercially. Here's the guys who can do it. But it wouldn't happen. Because there was too big a gap between the

understanding of each party. And the expectations of each party. And it meant bringing them together, going back to the warming up bit; talking to our clients and saying, don't be such a fool it will never work this way and also talking to the other clients and saying you've to swallow a bit hard as well, there's some downsides to it and it's a risk on your side. And you've got to understand this is part of the real world. Then they start to get a little bit more understanding of the whole situation and start to see the benefits of swallowing some of their prejudices perhaps and starting to talk of the deal that might be in prospect. And we did in that particular case bring them together and made a deal around this particular table, as it happens. And we stage managed their discussions, their initial discussions in which all their fears and expectations were brought out and carefully arranged and orchestrated... No, not orchestrated, carefully reinforced so that nobody got upset by an outrageous statement by the other guys. Slowly they began to see together, how the future could work out for this particular project.

B: So, to start off you said it looked like a match-made in heaven?

D: *The theory said a match-made in heaven.*

(Director lines: 142-225)

The Director gives an example of a client where he found an interesting product for them. The Directors company "did all the comparative work" and "stuck the two people together and said get on with it, this is a match made in heaven" (line 205-206, see my emphasis added). But surprisingly it "wouldn't happen", "because there was too big a gap between the understanding of each party" (lines 207-209). This meant "bringing them together" and "going back to the warming up bit" (lines 209-212). Eventually, the Director's company "did in that particular case bring them together and made a deal" (line 216). And so the "theory said a match-made in heaven" (line 225) but "people are individuals" and "they think and behave in different ways" (lines 229-230). Again, the Director comes back to the importance of understanding his clients. The Director talks about the interpretive problems of a system when he says: "How can you predict systematically, automatically, robotically any one individual's reaction?" (lines 246-248). And even if you could, "it would be completely different to the next persons" reaction (lines 247-248). The Director continues:

Maybe your thinking that you could program in the parameter of behavioural characteristics and that will lead you to a result, but I just don't believe that it's as simple as that, and who is going to decide what those characteristics are; who's going to measure those? Back to the simple housekeeping of even factual data. Factual data like a patterned status, the number of years the guys been trying to do something. Fact is

difficult to maintain. And then we move away from that into subjective material. Trying to assess, you know, characteristics of behaviour of individuals, woo! *It just can't be done. Well, I don't think it can be done, but with some intelligent people, you can do it.*

(Director lines: 248-256, my own emphasis added)

The Director clearly believes that a system cannot succeed in doing his company's job. "It just can't be done" he says, "but with some intelligent people, you can do it". Again the Director shows a high regard for people doing the job, and shows his doubt that any system could do his work. The Director had tried his very best to explain to me how he facilitates the matchmaking process, but I still couldn't understand what kinds of things he did to bring two companies together and make the match work. Was I again falling into the same trap Socrates had fallen into, when cornering Euthyphro and challenging his expertise?

One question I asked the Director was whether or not his job could be carried out using all of the supposed rules of the people involved:

B: You can't, your job, what you do... You use the analogy of a dating agency. You say it can't be done on purely just using facts, even if you had all the rules/characteristics of the people, you still wouldn't be able to...?

D: My guess is you'll *always miss some characteristic which you never thought of*. And I think it would be a super human that could *impassionedly* categorise individuals and their characteristics and come up with any sort of predictive analysis of an IF/THEN situation, and then you've got to do the same thing for the other guy and you've got to play the two together and see what the interaction is. It's going to go wrong too often (interruption). I don't think expert systems are going to help our business... having seen many try, over the years.

(The Director, lines: 258-268 my own emphasis added)

The Director believes that systems will "always miss some characteristic which you never thought of" (line: 271, see my emphasis in extract above). He doubts anyone could "impassionedly" [sic] categorise individuals and their characteristics" in order to provide some sort of predictive analysis. I then asked the Director whether or not there were instances where a system had taken away part of his job:

B: Have there been any instances where expert systems have sort of, maybe, not done your job, but taken part of your job away and been successful?

D: Yes, I think there's a place for information. Of course in our business we need lots of information. But we need that information and we need to understand and draw our own conclusions from that information and not take it all entirely at face value. We would get, without going into enormous detail, but we would get people presenting projects to us and part of our assessment would be to verify the information that they give us and you find that much of the information given us *don't quite hang together*. So, the next stage is to test why these two bits of information don't quite match. *And there's always, not always but very often something that just doesn't sound right.*

(Director, lines: 286-296, my emphasis added)

In the latter part of this extract (note, where my emphasis has been added) we see that the Director describes an aspect of his job as noticing when information given to him just “don't quite hang together” (line: 296). In the next line we see that he says he must “test why these two bits of information don't quite match”. The only way that he gives of explaining this is by saying that there's “very often something that just doesn't sound right” (line: 296). But the Director does not seem to be explaining how he recognises something is not quite right. But we see is that I have stumbled across the same problems encountered with the Computer Graduate. I'm asking Socratic style questions and again receiving Euthyphro like responses. The Director's know-how is reflected in his ability to recognise when something “doesn't quite sound right” or doesn't “quite hang together”. I shall now discuss know-how for the Business Developer in the rail design industry.

5.3 The Business Developers understanding of clients in the Rail Sector

The Business Developer works for an engineering design consultancy in the rail sector (see the opening section of Chapter 1 for an overview of his job). The Business Developer's organisation uses a monitoring system, which asks employee's to keep a record of their relationships that they maintain with their clients (refer back to the Business Developer's story in section 4.4).

When an employee makes contact with a client, they should record that contact on the monitoring system, by typing into the system what happened or what was said. But the Business Developer said that this was not happening. Very few employees' made use of the system and were reluctant to type in the details about the relationship they have with their clients. But why don't employees bother to record things onto the monitoring system? In this section we deal with the kind of know-how involved in social communication. We shall see that the Business Developer and the employees who work for his organisation understand their clients using know-how, a know-how mainly involving dealing with people. I shall first get a grip of this, by again going back to the story of Socrates and Euthyphro. Let's take a look.

5.3.1 Know-how: "I know when I need to call him next"

In this section I shall demonstrate that there is a Socratic attempt to thematise relationships. In the same way that Socrates had tried to force Euthyphro to thematise how he recognises pious behaviour, the Business Developer's organisation tries to force it's employees to thematise the everyday relationships which they maintain with their clients, by getting them to record their relationships in a relationship monitoring database system. If we remember, Socrates had attempted to extract the principles from Euthyphro by getting him to explicitly state what the principles were. Now we can see that the same is happening in the Engineering Design Consultancy where the Business Developer works. Just like Socrates' attempt to extract principles from Euthyphro, the organisation attempts to extract the details of their employee's relationships with clients, and type them into the system. The assumption is that employee's hold information pertaining to the relationships they have with their clients. And this "information isn't held anywhere other than in [their] heads" (As the Business Developer tells us in the following extract). The process of extracting the key information may initially seem straightforward. All the organisation needs to do is get employee's to get this information out of employees' "heads" and start putting it into the system:

BD: ... And right now that information isn't held anywhere other than in peoples heads. I think that kind of key information needs to be available whether it's in a briefing paper or whether it's held in a data base where we keep information about our clients and our contacts.

B: So is it a matter of getting this information out of people's heads and putting it into the system?

BD: Yes, I think so but it's important to be able to know what's the information we need to record rather than trying to record everything. Because you could sit down with one of our senior engineers... *Sit him down for five days and transcribe everything he can tell you and put it all in the system*, but that's not necessarily going to be any help because then *someone's going to take five days to read it* (laughter). *We need some kind of sense check which couldn't be done just by recording pages and pages of gigabytes and gigabytes of information*. It needs a *sense check* of someone with the industry knowledge. They need to make that judgement on what's the key information. On which people we need this information on. To make sure that that's recorded and that it's recorded in enough detail...

(Interview Transcript 3b, lines: 50-83, my own emphasis added)

The Business Developer tells us that information isn't "held anywhere other than in peoples heads". In the same way Socrates had attempted to extract "key information" from Euthyphro's head, the Business Developer's organisation want to take all the key information out of their employee's heads and put it into the system so it can be shared with other members of staff. But just like Socrates, the Business Developer finds that this is much more difficult than it first may seem. What bits of "key information" should you record? Even if you were to sit somebody "down for five days and transcribe everything he can tell you and put it all in the system" it would still take somebody "five days to read it" (see my emphasis in the extract above). Such a process would simply be a waste of time. Perhaps the Business Developer's organisation assumes that their employees have computer-like minds, whereby they can simply store "gigabytes and gigabytes of information" and make decisions by thinking through which relevant information they should retrieve to act in a particular way towards a client? In other words, they believe that their employees have nothing but a pure thematic grasp of the relationships with their clients, and all is required is that their employee's should reiterate this thematic grasp out loud, by recording it into the monitoring system. Because of this, they would ideally like the monitoring system be used to try and record a "true reflection of the actual relationship with the client" (Business Developer, lines: 123-124). But I argue that their ambition to have such a process is flawed. The employees' thematic accounts can never be a "true reflection" of the relationship they have with their clients themselves, because their understanding of their clients is grasped first and foremost by the kind of understanding we call know-how. Having a "sense check", as the Business Developer calls it (see my emphasis added in the extract above), is having somebody with the know-how to recognise what's important in the relationships developed with clients. In the extract that follows, I ask the

Business Developer why engineers (employees of his organisation) might not record their information into the relationship monitoring system:

B: Why else might an engineer not bother to... Can you give me examples where an engineer might not or might record this data?

BD: I think they would record it, if they'd been asked directly by their line manager or one of the business development people, but they'd have to be instructed directly to do that. A time that they may not is... If they do have a good relationship with one of the clients representatives and they speak to that person quite often then a lot of the engineers will keep that relationship for themselves. Whether it's because they want to retain the power that that relationship can give... The power that that knowledge can give or *they just don't give it a second thought*. They think: 'I speak to this person once a week, I speak to this person once a month, *I know what the contents of the conversation was, I know when I need to call him next*'. 'Why does anyone else need to – this is my contact, so I really should be the only person dealing with him, or her and no one else would need this information'. That's one of the major problems I find.

(Business Developer, lines: 150-163)

The Business Developer says that engineers might not record their contact with their clients because "they just don't give it a second thought" (line: 159). Know-how is the kind of understanding which allows employees to "know what the content of the conversation was" and to "know" when they need to call them next without giving it a "second thought". And it is precisely because they "don't give it a second thought" (i.e. they don't "think through" what they are doing) that they are unable to type out their experience into the monitoring system.

And so, I argue that the employees maintain relationships without giving it a second thought. They need not "think through" how they should speak to a client. They need not make assertions or propositions of how to maintain a relationship with their clients in order to keep that relationship. Their understanding of the relationships is articulated by their knowing-how to deal with their clients in given situations and knowing-how to best appropriate themselves in the right way for any given set of circumstances. No thematic grasp can ever up stage this kind of primordial understanding. Thus their recorded account (i.e. their thematic account) of the relationship does not accurately reflect the relationship itself. As a result, the employees within the Business Developer's organisation respond to being asked to use the monitoring system, by providing a Euthyphro-like response.

Because employees are unable to thematise the relationships they have with their clients, they result in providing Euthyphro-like responses to the Socratic style questioning their monitoring system (implemented by their organisation) attempts to force from out of them. By seemingly taking information from the employees “heads” and putting it into the monitoring system, the organisation is under the impression that they’ll see a “true reflection” of the relationships employees have with each of their clients. If this “true reflection” was provided, then the organisation could replace aspects of their employees’ jobs with the monitoring system itself. But when the Business Developer was asked to what extent a system could really replace the person doing the job, he responded by saying:

BD: Am not sure it could replace the engineer completely because it’s a very relationship based industry and you need to have the personal relationship. I think you can replace, the fact that it’s one engineer holding the knowledge with the knowledge being held centrally and then anyone can access that. It’s never going to be everything that everyone knows about every client, and every contact there on the system and available, *because it’s unlikely that we could record that*, and it’s unlikely that we’d have the time to actually get everything down. You could ask people questions about who they know – the different clients. *But they’ll never be able to give you everything because it might not occur to them*. But you could centralise a lot of that knowledge. And it’s not just about centralising the knowledge he has now. It’s about recording everything that he can get in the future.

(Business Developer lines: 296-306, my own emphasis added)

The employees have a grasp of their relationships using their know-how. And this kind of understanding cannot be made explicit and fed into the system. As a result, many employees refuse to give thematic accounts at all. Like Euthyphro, they cannot give the thematic response which they are asked to provide. As the Business Developer says, “they’ll never be able to give you everything because it might not occur to them” (see emphasis above). I argue that this is because it doesn’t thematically “occur” to them at all. A thematic account fails to grasp what it is to be practically engaged in an employee-clientele relationship. Only their know-how constitutes the very way in which they are practically engaged in the world and to reduce this practical engagement in the world to a set of principles or assertions is simply thematising these relationships themselves.

So far I have argued that the Business Developer’s organisation attempts to thematise the relationships their employees have with their clients, by asking them to feed thematic

accounts of their relationships into the relationship monitoring system. I argued that such an attempt results in Euthyphro-like responses. I shall also argue that the attempt to thematise relationships in the Business Developer's organisation is detrimental to maintaining those relationships. This is because employees are no longer comporting themselves in a primordial way [using know-how], but are instead comporting themselves in a deficient way, using thematisation.

The Business Developer says that “the situation that we as a company need to get away from is having one contact for a client and having the same contact for twenty years for a client” (lines: 373-376). He says this is ‘brilliant’ whilst they have that contact, because the “level of the relationship which they build up is outstanding and the client is comfortable with them” (376-378). But, when they leave, or if they’re unavailable, then the relationship has to “start from scratch” (line: 378). Ideally, the Business Developer wants to “move towards having more than one contact for a client” so that when there is a staff turnover they do not lose everything. In order to do this, the Business Developer’s organisation has attempted to centralise the knowledge their employees have of the relationships they have with their clients. He says that this will be a better starting point for other people to pick up with those relationships. The Business Developer says that a system would not be the same as having the person, but he’s optimistic that “the more information that that new contact can have and the more background they know, then the more quicker it will be to reach a good level in the relationship where the ideas can be exchanged freely” (lines: 336-339). As the Business Developer says:

BD: If they phone up and the conversation goes along the lines of: ‘Hello my names Joe Bloggs, I’ve been asked to call you’. And their response is: ‘Why’. ‘Emm I’m not sure, hang on a minute’. And then they’re trying to, like stumble through it... Then the people their speaking to - the clients - will have less confidence in them. If you’ve got a way of giving that person the information they need before they make the call, then it’s going to be a lot easier.

(Business Developer lines: 339-348, my own emphasis added)

Here, the Business Developer argues that information employees have about clients can help to build the relationships with those clients. But I argue that whilst such information can be useful, it cannot substitute a genuine relationship employees have built up with their clients over a number of years. Such an attempt to merely construct a relationship using information

is deficient of the kind of know-how used in social communication with others, and likely to be detrimental to the relationship itself. Next we turn to the Pilot's use of know-how in the aviation sector. Unlike other respondents cases we have so far looked at in this chapter, the examples I shall give in the following section (on the Pilot) shows know-how which involves both dealing with equipment and others in the world. Let's take a look.

5.4 The Pilot: Knowing-how to Fly Commercial Aeroplanes

I argue that the Pilot uses know-how in his everyday dealings with both equipment and others at work. I will focus particularly on the Pilot's activity of flying aeroplanes, arguing that the Pilot flies his aircraft without having to "think through" using the instruments he has in front of him. I argue that this is because he knows how to use the instruments on board, and demonstrates this understanding simply by flying the aeroplane appropriately. In the Pilot's case, we see examples of both types of know-how which I outlined in the introduction chapter, a know-how dealing with things (see section 1.2) and a know-how dealing with others (see section 1.3). Let's take a closer look at this argument.

5.4.1 Know-How and the Pilot's Ability to Fly Aeroplanes: *"it's that sort of angle"*

Does flying an aeroplane involve following a set of principles or rules for flying? If flying an aircraft involved nothing more than following a set of principles, then almost anybody could pick up a manual on how to fly a Boeing 757 and fly it around successfully. But this of course is just not the case. The Pilot should not rely on a set of explicit rules or principles to fly his aircraft, because doing so would probably have a disastrous outcome. Flying requires pilots to have the know-how that enables them to fly an aircraft and this is not something that can simply be made explicit, thematised and shared with others. Rather, knowing how to fly an aeroplane is "something you have to learn in yourself", as the Pilot says (Appendix 2, line: 997). The Pilot's know-how is best described when the Pilot told us how to do an approach landing in an aeroplane. He said that:

When you're at an approach it's going to be *that sort of angle*. You're going to listen to *that much sound* that will be coming out of the engines. You can see that the engine instruments are going to be in *that sort of mark*. Your expecting all these numbers and *those numbers go into your subconscious and that's were they stay*. And when your actually doing something and their not in those numbers, especially in a public transport aeroplane then you really start to get worried.

(Appendix 2, Fieldnotes, Transcript 5b, lines 997-1003, my own emphasis added)

The Pilot understands how to make an approach using expressions which seem to lack any precision at all: "That sort of angle" he says, with engines that make "that much sound", and with engine instruments in "that sort of mark". Earlier, in the data analysis section (4.6.2), I suggested that these comments might simply be arbitrary remarks on how to fly an aircraft, because they seemed to fall short of providing a precise script, articulated plan or set of rules on flying. In other words, these remarks suggested there was no science of flying whatsoever. But to say that the Pilot lacks precision or articulation in what he is doing would be a complete misconception. On the contrary, the Pilot's know-how exhibits the kind of articulation that can only be expressed in an act of doing. This is because his ability to fly can best be explained through flying itself. In an attempt to describe this know-how, the Pilot himself describes his own understanding by saying that all "those numbers go into your subconscious and that's were they stay" (see lines: 997-1001 in extract above, my own emphasis added). Perhaps the Pilot is himself using the term "subconscious" here, to refer to the know-how he exhibits when engaging with the engine instruments.

We can further understand this by drawing upon the associated concept of transparency (outlined in section 1.4.2). We can say that the Pilot's instruments he is engaged with during flight are ready-to-hand (what Heidegger calls *zuhanden*). In other words, the engine instruments, yoke, and other instruments the Pilot uses in his concerned activity readily "disappear", and thus become transparent. The Pilot will "look through" equipment such as the engine instruments and the yoke when controlling and steering the aeroplane during flight, providing they do not throw up any problems. But when problems emerge, transparency evaporates, and the Pilot starts "looking at" the engine instruments and yoke, pointing out for example that "this aeroplane is not doing what we'd expect it to do" (Appendix 2 line: 989-990,

my own emphasis added here, see also data analysis section 4.6.2). At this point the equipment which was ready-to-hand now shows up unready-to-hand, and stands out conspicuously, such as the numbers on the engine instruments which look out of place, or the yoke which doesn't turn the aircraft properly. It's at this point, when things that were once transparent become conspicuous, and the Pilot can start making assertions as to why the aeroplane is in trouble, such as "it's not at the right altitude", for example (Appendix 2, line: 990). And so, for the most part the Pilot need not look at the instruments before him and ask 'what are these numbers telling me?' or 'what does this dial say?', or 'what is this yoke for?' Far from it, he demonstrates his articulate understanding by simply seeing the numbers, reading the dial and using the yoke appropriately. And this is precisely how the instruments should reveal themselves when thoroughly engaged in flying. Even the Pilot's communication with his co-pilot, cabin crew and passengers involves the kind of dealing with others that involves know-how. The Pilot for example, knows how to react when his co-pilot tells him that he thinks the aeroplane is in trouble.

And so we see that the kind of understanding the Pilot puts a premium on when flying aeroplanes is the kind we can call know-how. But what happens when we try to thematise our know-how? What impact on flying might this have? One way in which flying is thematised is when computer programmers working in aviation attempt to turn the pilot's know-how into a set of rules or procedures capable of being implemented into autopilot software. Let's take a look at this in the next section of this chapter.

5.4.2 Designing Auto-Pilot Systems and the Attempt to Thematise Flying

In the Introductory Chapter I told the story of Socrates and Euthyphro (taken from Dreyfus 2001). Socrates had asked Euthyphro for the principles of recognising piety, in an attempt to thematise his expertise. I shall argue that the same thing is happening with the Pilot. Like Euthyphro, the Pilot is being asked questions in an attempt to thematise his expertise. If the Pilot (and other pilots) can give the aviation industry a set of principles or rules for flying aeroplanes (in other words, thematise his expertise), then the aviation industry, along with software developers, can design a computer program that can carry out some of the jobs that

a real aeroplane pilot has to do whilst flying an aircraft. The software development can be used to enhance or reconstruct autopilot systems, which ultimately take the place of the aeroplane pilots themselves. The Pilot told me about the development of a new autopilot system which computer programmers are currently working on. And he told me about his involvement in consultation with computer programmers in order to put together new autopilot software. In particular the Pilot talked about one particular occasion when many commercial aeroplane pilots were asked to attend a consultation meeting whereby several researchers working in computer programming would ask the pilots to tell them how they did particular tasks at work, and how they would deal with particular scenarios should they occur. We can see this from the ethnographic fieldnotes taken from my participant observation with the Pilot:

The Pilot, along with other pilot's had sat in a room and were asked a number of questions about flying aeroplanes. The idea seemed to be that one could extract all of the knowledge from the aeroplane pilots, and plug it into a system which could do all the things the aeroplane pilots could do in order to fly the plane. One of the questions they were asked, says the Pilot, was to "*name all the different types of emergencies which they might come across when flying an aeroplane*". The Pilot explained that he came up with sixteen different emergencies he could think of. One of them was "*spilling coffee over the laptop system*" in the flight deck and losing control of some of the instruments and information he is provided with. The Pilot gave other examples, but he said that there were an "*infinite number of emergencies*" which might arise which he could never possibly think up until it actually happened. He told me that he had tried his best to support these researchers who were collecting data to develop autopilot systems but he doubted that a system could ever "*capture all the skills and knowledge that a real pilot had*"²⁰.

(Appendix 2 Fieldnotes Transcript 5b, line: , my own emphasis added)

The idea of the consultation was that the pilots could collaborate in advising what they would do in a given situation. By seemingly extracting the expertise from the pilots, computer

²⁰ Note that this extract was taken from the field notes I had made driving to the airbase with the Pilot. Unlike most of my other sets of transcripts, this extract is a combination of my own description of what the Pilot was conveying to me, along with verbatim quotes I had jotted down. It was not appropriate to switch on the Dictaphone because the background noise of the car engine and outside traffic made it difficult for my equipment to pick up coherent speech, as well as the fact that switching the Dictaphone on in front of the Pilot would have been detrimental to the naturalistic approach adopted in this setting. The Pilot was simply having a conversation with me (see methodology section 3.3 for a discussion of this).

programmers thought they could produce an autopilot system that was capable of doing the job of the pilots. But how did computer programmers attempt to do this?

Computer programmers attempted to extract knowledge from real aeroplane pilots and “plug it into a system” to produce an autopilot system capable of doing the pilot’s job by asking pilots to name all possible outcomes of a particular event. One example given by the Pilot was that of an emergency situation. For example, the pilots were asked to “name all the different types of emergencies which they might come across when flying an aeroplane” (Field notes Transcript 5b: 83-84, see my emphasis in extract above). The Pilot explained that they came up with sixteen different emergencies he could think of. One of them was “spilling coffee over the laptop system” in the flight deck and losing control of some of the instruments and information they are provided with. The Pilot gave other examples, but he said that there were an “infinite number of emergencies” which might arise which he could never possibly think up until they actually happened (Field notes Transcript 5b: 86-88, see my emphasis in extract above). He told me that he had tried his best to support these computer programmers who were collecting data to develop autopilot systems but he doubted that a system could ever “capture all the skills and knowledge that a real pilot had” (Field notes Transcript 5b: 90-92, see my emphasis in extract above).

In summary, the Pilot explained to me just how computer programmers had tried to take his knowledge of flying aeroplanes, in order to develop new computer programs. And like Euthyphro, the Pilot was able to come up with many examples, but merely listing these examples I argue, would never amount to capturing the Pilot’s real expertise. The aviation industry and their computer programmers may well be aware that the principles of flying aeroplanes cannot simply be extracted from aeroplane pilots and programmed straight into a system, but they are still attempting to acquire this knowledge by asking Pilot’s to explicitly tell them how they do what they do. This is only ever getting a thematic understanding of what pilot’s actually do. And so I argue drawing on Heidegger’s ideas, that a thematic understanding is a deficient understanding, in the sense that it is deficient of know-how. This is because computer programmers are left with only a set of assertions and propositions about flying rather than an understanding of flying which pilots have; the kind of grasp which has the kind of transparency which enables pilots to deal with an infinite number of emergency situations on commercial airliners. Among other things, my argument here

addresses the process by which computer programmers are attempting to extract expertise. I argue that this is impossible, given that know-how cannot be made explicit and extracted as such. I am not arguing however, that aeroplanes cannot be flown using automated flight systems. On the contrary, such aeroplanes already exist. And many can be flown with more accuracy than human pilots (this point is a controversial one of course). But the kinds of flying are crucially different: one involves know-how and the other relies primarily on a set of algorithmic rules or formulas. In the following section, the Insurance Consultant also demonstrates a kind of know-how when deciding whether to offer an insurance quotation or not. Let's take a look.

5.5 The Insurance Consultant's Decisions over Insurance Quotations

In the insurance industry, computer systems are used to automate decisions on 85-90% of customer's insurance quotations. The other 10-15% of decisions is made by an insurance underwriter (refer to section 4.7 for a detailed discussion of this). I had interviewed the Insurance Consultant for the same reason I had interviewed the Computer Graduate. I wondered why the Insurance Consultant's job was so important. Why couldn't a system make a decision for 100% of the customers, instead of merely 85-90%? As we shall see, the Insurance Consultants decision over insurance does not rely upon using a thematic understanding at all (if it did, then a system could surely do his job). Instead, the Insurance Consultant uses know-how. This is the kind of know-how involved when dealing with others through things. But why is the Insurance Consultant's know-how so important for the insurance industry?

The Insurance Consultant explained that the job of the underwriter was to make a decision on the 10 or 15% of people that the system cannot make a decision on. He explained that the underwriters are very important for the industry, since these are people who "look at the ones that fall outside their mainstream areas" (line: 516, again see section 4.7). However, the Insurance Consultant told us that the more decisions a "real person" has to take, "rather than a processed one" then "the more it's going to cost them" (lines: 561- 564). So it is cost-effective for insurance companies to try and automate such processes wherever possible. But this again raised the important question: Why is it that there isn't a system which could make

some of the decisions which the underwriters had to make? I pushed the Insurance Consultant to give me answers:

B: So, come back to this bit where it says 'refer' and then they get put through to the underwriter.

IC: Yeah.

B: Can't they... some of the decisions the underwriter makes, haven't they developed a system that can make judgements based on a further set of questions?

IC: I don't know the answer to that. I mean they might be trying to do that. The problem is that once you've decided that you can make money out of people within this particular range. Once you have gone outside that range even to a modest extent, *whether that's capable of being done without someone's judgement*. Individually looking at competing issues, you know, ok it's a high risk car but the driver's very solid, so you know, maybe that's ok, or... trying to balance those factors *I think it would be very difficult in the context that you could do a points scoring system or something*. I mean am sure it's possible to do it but I just think *there's always going to be some that fall outside, it's just a matter of how many really*. The other thing is if you've only got two or three a day, you're hardly likely to keep someone employed for... so in a sense there's probably a balance that says well, if we have got to employ one person then let's not worry too much about whether they get a reasonable flow, as long as it's got... meaning we've got to employ two or three or four people. There's got to be a balance there. You would have to be on the inside of the organisation to know how far they've taken it.

B: So the underwriter might say oh this is a very high risk car blah, blah, blah, but this guy is a great driver, and as far as the underwriter is concerned should be given such and such a quote.

IC: Yeah, yeah, that's exactly what they do. *I mean that is the job of the underwriter to decide on discrimination factors and things and make them different from the normal risk of its type, whether its age of driver or a named driver added to it, or a young person added into a policy, it's those kinds of things*. So you would find for example that you won't necessarily at the quotation stage but suppose a mature driver with a sort of family car suddenly wants his 17 year old to drive because he's learning, then that suddenly is going to take it outside the scope of probably what would be a normal acceptance category. *Someone will have to look at that separately. It would be difficult to say well we've got a model for this and we'll just plug it in and it will give you an extra whatever...*

B: So the system works to an extent. It works to 85 to 90% of people.

IC: Yes, yes.

(Insurance Consultant, lines: 566-607, my own emphasis added)

The Insurance Consultant tells us that it's the job of the underwriter to decide on "discrimination factors and things and make them different from the normal risk of its type, whether its age of driver or a named driver added to it, or a young person added into a policy" (lines: 595-598 again, see my own emphasis in extract above). But the Insurance Consultant doubts that the decisions the underwriter makes can be made by a system. He is unsure whether it is "capable of being done without someone's judgement" (line: 577). He says that it would be "very difficult" for someone to "do a points scoring system" in order to make a particular judgement (line: 580, see my own emphasis in extract above). As the Insurance Consultant says: "It would be difficult to say well we've got a model for this and we'll just plug it in and it will give you an extra whatever..." (lines: 601-603). But I continued to push the Insurance Consultant for more answers. Why is an underwriter required for that 10-15%? What would happen if the process was completely mechanised? In the following extract, I ask the Insurance Consultant what would happen if the job of providing insurance quotations was completely mechanised:

B: And then you still require... even 15 years, or 20 years after Direct Line have come on the scene and others have followed or others have mirrored them, they still require that underwriter there to make these decisions overall. And do you think they will one day... I mean you suggested a points system.... Do you think they will have it one day completely kind of mechanised?

IC: They could do it and.... The thing that might happen if they do, is that they would have more people that they decline. The tendency I think is there to be... because insurance people are relatively cautious. You know, they won't just want to insure everyone that phones up, there is still going to be some people who fall outside of that and my guess would be that if anybody did go down that route and try and totally mechanise it so that the only input that the underwriter had was at the end of the process to review it all and see whether generally things were at the right level. It's really difficult to see that as a scenario. *But I mean if that were to happen, then it could possibly, I think that the rate of declined cases would go up.* That has some serious implications in the case of motor insurance because its compulsory by law and if you went over the water to Ireland for example, because it's a big issue there and they've had much higher rates of premium over there you have to keep a note of who has declined your proposal if you're in that situation. And once you've had I think its three declinators, you're entitled by law to go back to the first one and get a quote, even though they didn't want to quote for you, so there are some compulsory insurance issues as well that sort of sit there behind the possibility of people turning down more and more cases just so they can do it all by machine if that was the way it worked.

B: That's interesting so you said that the decline would go up, so they'd be losing business because they are declining more people.

IC: They would yes.

(Insurance Consultant, lines: 609-637, my own emphasis added)

Here we see that the role of an insurance underwriter is very important for maintaining a sufficient level of sales. If a system did replace the underwriter, then the “rate of declined cases would go up” and there would be serious losses in sales for the company (line: 622-623 see my own emphasis in extract above). We see that this has serious implications for the insurance industry. If those underwriters, who were providing quotations, were totally replaced by systems then declined cases would go up and this would result in a loss of sales. It seems that systems cannot make the kind of decisions which real underwriters make. I realised that insurance underwriters made decisions in a way which a system couldn't imitate. The insurance underwriters used the kind of understanding we can call know-how. But what does this know-how involve? Let's take a closer look at the Insurance Consultant's kind of know-how in particular.

5.5.1 Know how: “its way out of line with the sort of thing that we'd expect”

So how do insurance underwriters make the decisions they make? The Insurance Consultant tells us that decisions are made without needing to “think through” a set of rules, facts or figures. The Insurance Consultant need not necessarily have a thematic grasp of an insurance application in order to agree an insurance quotation, or in order to turn it down. Instead, the Insurance Consultant would get a feel for whether the insurance application was in line or “way out of line” with the sort of thing they would expect. We see this in the following extract, whereby the Insurance Consultant tells us that “insurance is not exactly a pure financial decision”:

B: So, what they're saying is the system will make errors or decline people... If you had a totally mechanised system the machine would decline more people than it should and make errors. And therefore they need this person to come in and make those decisions on the ones that are kind of borderline, borderline people if you like.

IC: I think so. *I think the other thing is that insurance is not exactly a pure financial decision.* It's not just 'is my house this old', 'is it worth this much', 'do I do this as a job'. It isn't like that. It's often that things work in combination with each other. Or

someone in a particular occupation *you'd be very comfortable with the risk for example*. For someone in another occupation, even though occupation isn't the thing you normally measure you *might actually be more concerned* about that as an underwriter and what you can't take into account in a mechanised system is a thing called 'moral hazard'. *So you could measure how many claims someone's has, you could measure those things, you can't easily measure how honest people are or the sense of the claim you may have settled in the past showed that they might have been fraudulent*. They didn't prove anything. So there are some measures that have to be, well certainly currently have to be measured by a person doing the underwriting and not just purely factual, what code is this car and how many miles does it do in a year. And that would be true of virtually every kind of insurance. I mean most underwriters are much more concerned about what they call 'moral hazard' than 'physical hazard'. Physical hazard are all the measurable things, you know the engine car and so on. The 'moral hazards' are to do with other things and that's difficult to encapsulate in any kind of system. They have tried to for, specific areas like fraud for example. There was a whole system set up. The association of British insurers has a system were you are suppose to put in some fraud indicators. Things were you think there might be the possibility of fraudulent claims. They were concerned at one time about credit hire – its accident management companies that will take over your claim for you and get you a replacement car and do all sorts of things. But there was lots of issues surrounding this, particularly the fact that you as an individual didn't have to sign up to pay for this because it was always going to be collected from the act fault persons insurer, so you never had to pay for your car, and they would take a proportion sometimes of your personal injury claims settlement if you were injured. Now there were some honest people in this [*cannot hear*] and there were some dishonest people. There was an interesting fraud video that the AVI produced on this were they did some undercover work with the Granada television or something to kind of investigate what went on. The result of all of that was that they decided to ask insurers in their claims department to put fraud indicators against every motor claim and the kind of indicator they were looking at were: 'Are both the vehicles registered in the same area...', 'Is one of the vehicles at least 8 years old', 'Was there a claim from a solicitor within 7 days of the claim arising' and so on, a whole series of things. This was then passed through to a database that the API had. The API would then alert insurers to possible fraud issues especially if they'd got similar information about that person from somewhere else, and so on, all sorts of issues, and there are a number of databases that try and measure some of those.

(Insurance Consultant, lines: 639-682)

The Insurance Consultant tells us that "insurance is not exactly a pure financial decision" (see line: 644, my emphasis added in extract above) and that often things work in combination with each other. Decisions on insurance are made by things which aren't measurable. An underwriter might feel that with "someone in a particular occupation you'd be very comfortable with the risk" even though "occupation isn't the thing you normally measure" (lines: 646-649). The Insurance Consultant says that these things are not merely factual and that "you can't

easily measure how honest people are or the sense of the claim you may have settled in the past showed that they might have been fraudulent” (lines: 651-654, see my own emphasis in extract above). The Insurance Consultant spoke about the attempts of using fraud indicators to pick up on fraud, so I asked the Insurance Consultant about how underwriters could pick up on fraud:

B: So they tried to develop... well they did develop a way of trying to combat this fraud.

IC: Yeah.

B: But previous to that you said the judgement of the underwriter for example could pick up on either someone was being dishonest in what you were saying or they were doing some sort of fraudulent activity going on, or what they're saying they have wasn't the truth. How would they pick up on that? You said having an overview?

IC: Yeah, for example if you looked at the value of the vehicle. Now one of the things it would be very difficult to do in a systems sense is to maintain a current register of all reasonable values of vehicles of every age. I mean there are tables for it, you can go to Glasses guide and find that. But you wouldn't want to keep updating that every month, so that when someone puts in a vehicle value that's very different from what your expecting in a mechanised way that's not going to be picked up. *It's only going to be picked up when somebody looks at it as well.* So this guy's in the motor trade, he's got the vehicle value, and *its way out of line with the sort of thing that we'd expect. It's those kinds of judgements.*

(Insurance Consultant, lines: 684-700)

The Insurance Consultant tells us how difficult it is to keep a system up to date. But even if the system was kept up to date, it would still be very difficult for a system to pick up on things which might show if a car is fraudulent or not. He tells us that it's "only going to be picked up when somebody looks at it as well" (lines: 699-700 my own emphasis added in extract above). We see that the kinds of decisions an underwriter makes cannot be encapsulated in any kind of system. At its most basic, an underwriter will refuse to give a quotation when "its way out of line" with the sort of thing that he'd expect (see line: 701). This kind of understanding is know-how, the kind that cannot be formulated into a hand book of rules or set of facts which can be fed into a system.

Like the Computer Graduate, the Insurance Consultant's work as an Underwriter involves making decisions and judgements that cannot be made using thematic reasoning alone. A thematic understanding (an understanding based upon a set of rules or principles) can be made for up to 90% of cases, but the other 10% requires "special attention". And this "special attention" simply requires know-how. I shall now discuss know-how for the Teacher, in understanding the pupils' behaviour in her school.

5.6 The Teacher's Understanding of Pupils' Behaviour in the School

The Teacher works at a secondary school for 11-18 year olds. One of her responsibilities is to take care of the badly behaved pupils. As part of this work, she uses a behavioural management system to keep electronic records of the behaviour of every pupil. The system provides data about instances which have happened in the classroom, such as swearing, bullying, and fighting and so on. The system also keeps records of when pupils have been exited (sent-out) from class and other things like building detentions, as well as good behaviour, such as certificates for outstanding work (refer back to the Teacher's story I presented in section 4.10).

When an incident happens in school, it is the Teacher's responsibility to record the information into the behavioural management system she uses. For example, if an incident occurs and a pupil is sent out of class, the Teacher is required to enter into the system that the pupil was exited (the term the school uses for being sent out of class). The Teacher also has to enter in the reasons why the pupil was badly behaved and consequently exited. But in the sections that follow, I shall argue that the Teacher is left with the same problem Euthyphro had with Socrates. In the same way Socrates asked Euthyphro the reasons for pious behaviour, the school behavioural management system asks the Teacher to enter the reasons why a pupil is deemed to be badly behaved. And just like Euthyphro, the Teacher responds by arguing that she doesn't have to provide the principles of bad behaviour, in order to see what's going on in class. Likewise, the Teacher doesn't have to point out, assert, or map out a strategy, in order to resolve problems in the school. In fact, the Teacher rarely has to "think through" how to resolve problems at all. She simply deals with them and resolves them, in the way she knows how to. I argue that the Teacher's know-how is the type which involves dealing with others.

Let's take a look at this argument by using an example of a pupil being sent out of class for bad behaviour.

When the Teacher deals with a pupil who has been exited (sent out of class) from a classroom in school, it is her job to bring up the pupils records on her computer screen and enter relevant information concerning the incident. The system asks for reasons why the pupil was exited, and how the incident will be resolved. In this sense, the system corners the Teacher in the same way Socrates had cornered Euthyphro when asking him for the principles for recognising pious behaviour. The system expects the kind of reasoning which Socrates expected, the kind of response that could be written or typed out explicitly onto the computer screen. The Teacher finds the system a useful tool for sharing information and communicating what's going to other staff within the school and thinks the system is very useful in this respect. But the Teacher says that what she types onto the system is only the "bare bones" of what has happened in class. Her thematised understanding, which is typed out on screen, can only ever be derived from the kind of understanding we call know-how. The Teacher's descriptions of what happened in the classroom, and her reasons given for punishing pupils, are all typed out into the computer system. But this only stacks up as a thematic understanding. At best, this means that anybody viewing the system can only ever get a thematic grasp of what the pupils are like in the classroom, and only a thematic grasp of the incidents which occurred inside the school. The Teacher is well aware of this. She experiences the system as something that provides a watered down version of what really happens in school. As she explains in the following extract below:

T: ... It's no good having kids just being numbers or data. They are so much more than that. When you're recording things on the computer, well I always try and keep it short. One, because it always takes me ages to type it. But you're just putting the barebones down aren't you. You know sometimes somebody will say to me, 'what happened to such a body in that lesson', and I'll say 'oh I can't remember' and I'll put it up and whatever it is there will spark me off and say 'Oh I know now, they did this and this and this and this'. And it will only be two or three words but as soon as I see it I will remember the situation that occurs, or what had caused it in the first place, so it's an aide memoir as well, you know, as far as what's there triggers the rest of it off after.

(The Teacher, lines: 653-662, my own emphasis added)

The Teacher says that it's "no good having kids just being numbers or data", they are "so much more than that" (lines: 653-654). All that is put down on the system is the "barebones", she adds. The computer system may be used as an "aide memoir" to help the teacher remember what happened in a particular incident, but this by no means replaces the Teacher's memory. It is merely used to "spark" her off, so she can say "Oh I know now, they did this and this and this and this" (lines: 658-659). Thus the system is there to assist the Teacher and by no means replaces her own knowledge of r the pupils in the school. We start to see that there are two ways of understanding what goes on in the school. There is the understanding one has from viewing the system (a thematic understanding, laying out the "reasons" why a pupil was sent out of class), and there is the understanding which the Teacher and other staff have from being directly involved with what happens in the school (an understanding they have from using their know-how). Let's take a closer look at the Teacher's know-how.

5.6.1 Know-how: "I know the kids who are badly behaved"

Among other things, the behavioural management system seemed to be used as a communication tool. Staff can see what's going on with the pupils by looking up on the database, where all good and bad behaviour can be recorded. But I wondered if this information was really enough to know what's happening in the school. I ask the Teacher this in the following extract:

B: And do you think, going back to you typing stuff into the system, or other teachers and sort of head teachers have sort of an overview of what's going on in some of the classes with some of the kids. Did you think they kind of... because they are only getting one sentence and a few words of what's going on, do you think they kind of lack what's going on with the kids in the classroom? Or do they follow that up with?

T: Yeah I think they talk to people about it. *The computer hasn't taken the place of meeting somebody on the corridor and saying 'oh I see such and such happened in your lesson'*. And the teacher saying 'well you should have heard what...' or this, that or the other. We are still very anecdotal teachers. We still like to tell the tale of what happened. I should imagine it would be quite easy for somebody to just read what's there if they were too busy, but generally speaking again people want to know what the kids are doing. You know they don't just look at the behaviour, they look at what lays behind it, why did that happen, why is that happening after dinner, why is that happening in that lesson, what's going on in that class, what's the dynamics in that class between... You know, if you put Francis Maguire and Connor

O'Shaunity together in a class and they're going to be sitting together you can bet your life on it somebody's going to be in trouble. One of them or both of them. *And that doesn't come across on the computer but everybody knows it because we all talk about it.* You know, one of the biggest exchanges of information is the staffroom before school, and not so much at dinnertime because other people are on dinner duty but certainly before school.

(The Teacher, lines: 721-742, my emphasis added)

The Teacher says that the "computer hasn't taken the place of meeting somebody on the corridor". In other words, the computer cannot replace know-how used in social communication with others. Teachers will stop to tell each other what's been going on because they "still like to tell the tale of what happened" (see lines: 727-731, in extract above). She says that teachers don't just look at the behaviour, but that they look at what's behind it. Teachers look at "why did that happen, why is that happening after dinner, why is that happening in that lesson, what's going on in that class" and they even try to find out what's the dynamics in the class between two pupils. As she says: "You know, if you put Francis Maguire and Connor O'Shaunity together in a class and they're going to be sitting together you can bet your life on it somebody's going to be in trouble" (See lines: 733-735 in the extract above). The Teacher says that it "doesn't come across on the computer but everybody *knows* it because we all talk about it" (lines: 738-739, see emphasis in extract above). The Teacher suggests that although the computer system provides knowledge about what's gone on in school, there is another kind of knowing which the Teacher's and staff share amongst themselves. I argue that this kind of knowing is know-how, the kind that cannot be readily made explicit and entered into the school system, because it is the tacit, implicit sort which is used in social communication.

Generally, the Teacher thinks the system only "adds to" the understanding of pupils in the school, because all the teachers already "know what's going on" (see lines: 784-785). She also says that many of the things which happen "you might not have time to tell". Furthermore, teachers deal with incidents without the need to process it into a database at all. We see this in the following extract whereby the Teacher tells us about how the form tutor reacted when finding out six of her pupils had been sent out of class:

T: ... She got her note this morning and she said 'my god what was going on?'. Well, she's gone to see them all this morning to find out what's going on, tell them if

there's anything like that again she'll be right on to their parents. And the person who sent them out yesterday, sent them out, then rang me at dinnertime to apologise for sending six people. Told me the whole story, asked me for advice about what to do next and spoke to me again this morning about the same situation. Now that all goes in a line there from the computer, from the Silent Work Area, talking strategies, going to the year head, going at it from another direction, helping people to deal with those classes. We've already had somebody offer to go into that lesson in their free period to act as another pair of eyes because this class are obviously so difficult. *Now none of that is official, it's just all there.* It's just all the information.

B: When you say none of its official do you mean...

T: Like nobody sits down and says right what are we going to do with nine set two or whoever it were, I don't know, *we need a strategy for this, and strategy for that, we just say how can we help, who can help.* People say I'll help. Not people going to someone and saying 'right we need you to give up a free lesson and go to work in that class'. People have said to me *'oh I'm free then, I'll go and help'*. But like Richard (the Head Teacher) won't ever know that, or nobody would probably know it apart from me and the teacher who was having the bother and the teacher who has volunteered to go and give them a hand, and they might not do it for long, it might only take a couple of lessons and things will settle down a bit.

(The Teacher, lines: 786-806, my emphasis added)

The Teacher tells us that there is no formal procedure or strategy for what they do. "None of that is official, it's just all there", she says (lines: 795-796). They don't sit down and say that they "need a strategy for this, and strategy for that... we just say how can we help, who can help" (lines: 801-802, see emphasis in the extract above). Nobody needs to be told to give up a free lesson in order to help, instead people will say "oh I'm free then, I'll go and help" (line: 804, again, see emphasis in extract above). We see then, that the Staff do not have to arrange meetings, create lists or write strategies in order to help each other out. They just help each other when they see that their help is needed. "I'll go and help" they say. This response is one which I argue shows most appropriately the teacher's grasp of what's going on in the school. The teachers need not thematically point out or assert that there is a problem, in order to solve it. They show their understanding most intelligently by knowing how best to go and help. This knowing-how to solve a problem is the kind of understanding which is best articulated in an act of doing rather than pointing it out, discussing it, writing about it or making strategies for it. The staff seem to help each other out without giving it a second thought (i.e. without the need to thematically reflect upon it). The Teacher also tells us that such activity is never brought to the attention of the Head Teacher or even anyone else in the

school. As she says, “nobody would probably know it apart from me and the teacher who was having the bother and the teacher who has volunteered to go and give them a hand” (lines: 802-805). We see here, that much of what happens in the school goes on without the need to discuss it, or raise it explicitly whatsoever.

The Teacher and her colleagues deal with incidents and solve problems appropriately because they have the kind of understanding we call know-how. They need not write out a series of reasons for carrying out a particular action. In what follows, we see that the Teacher has an understanding of the pupils in the school using know-how, in addition to a thematic grasp she has (which the system asks her to lay out). Here I ask the Teacher to what extent she relies on the system to know the pupils in the school:

B: So the system... Is this used to know your records or keep records of the kids' behaviour... as you said... do you rely on the system to kind of know what the kids are up to or do you?

T: *Well I know. I know the kids who are badly behaved*, but it must be easier for the year heads to keep track of the kids who are in the middle or well behaved. Because you see, I won't be putting much on about certificates. I mean will be putting things on about people losing exits, or having good reports, but the nice things you do like going to the theatre or playing for the school football team, or going on a course, or helping out or doing that peer helping, you know, helping their friends and that in class...

B: Peer support?

T: Yeah. Other people would put that on, but not me really but I could probably tell you what exit all the kids were on *just by remembering because its so part of my everyday life*. Kids say to me 'What am I on?' well I say 'you're on...' and they say 'how do you know', and I say 'well because...' But you know, that is uppermost in my mind, trying to get kids off exits. I'm saying come on please give me a bit of ammunition so I can say to your year head 'can I take this person off an exit, can we do this?' 'You give me something to go to Mrs Parry with and say come on, let me take him off this. Bit like bad cop and good cop in a way. Mrs Parry will never let me come off this you know if I can't take a nice report book to her. And of course Denise will do if she possibly can because we all want kids to succeed, you know, not to fail. Because if they fail, we feel as if we have as well.

B: So even though you've got the system there... ok so say you didn't have the system there, you'd still kind of know, what the kids were...

T: Yeah, yeah... Well we haven't got many kids have we, when you think about it like... I mean maybe that's why the school is so family-like because it's small. You

know when you look at these Comps and there's 1600 kids, we've got 400. *You can walk down the corridor you know everybody's name*, you know whose brother they are, whose sister they are, whose son they are, or whose daughter they are, whose class they're in, what they're good at, what they've been doing, you just know so much about them. You can walk down the corridor here and kids say 'hi Miss, I see City won on Saturday, or City were rubbish the other day', and it's such a lovely feeling and atmosphere that I can't describe.

(The Teacher, lines: 608-645, my own emphasis)

The Teacher says that she knows the pupils in the school, without having to look them up on the system. As she says: "Well I know... I know the kids who are badly behaved" (line: 612, see my emphasis in extract above). The Teacher knows more about the badly behaved pupils than any of the other kids, because it is the badly behaved kids who she deals everyday within the Silent Work Area. But the Teacher also says that she knows how many exits each of the pupils are on "just by remembering" because it's so part of her "everyday life" (lines: 623-624, again, see my emphasis in the extract above). The Teacher knows the kids because the school is like a big family. As she says, "you can walk down the corridor, you know everybody's name" (lines: 639-640).

Conclusion to Know-how

In this chapter I have presented the theme of know-how in *six sections*, each section looking at a particular respondent and how they carry out their job at work. In each section we saw that know-how was fundamental for my respondents to carry out their jobs. In the first section we looked at the Computer Graduate's know-how in his recognition of different types of documents. We saw that the Computer Graduate recognised documents by "just the way it looks". This know-how primarily involved dealing with things on screen. In the second section we looked at the Director's know-how in understanding his clients, and creating commercial partnerships. We saw that the Director understands if a commercial partnership won't work "if it just doesn't sound right". In the Director's case, his know-how was the sort specifically involved in social communication. The third section of this chapter also looked at know-how involved in social communication: the Business Developer's tacit management of relationships with clients in the rail sector. We saw that Business Developer quoted an employee who, speaking about a client, said: "I know when I need to call him next". The employees need not rely on a system to remind them when they should contact the clients they have, because

they simply know when best to do it (a knowing that involves a knowing how, rather than a knowing that). The fourth section of this chapter looked at the Pilot who uses know-how to fly aeroplanes. Here I said the Pilot uses know-how to deal with flying equipment, as well as know-how to deal with others (although my examples primarily focussed on the equipment he uses). We also saw in this section, the difficulty computer developers have in replicating what Aeroplane Pilots do. The fifth section of this chapter looked at the Insurance Consultant's use of know-how to make decisions on insurance quotations. We saw that the Insurance Consultant would refuse an applicant for insurance if the application was "way out of line with the sort of thing we'd expect" [sic]. Here we saw examples where insurance underwriters had to make judgements on things such as the honesty of people. Again, this kind of know-how involved in social communication seemed impossible to replicate using a computer system. Finally, the sixth section looked at the Teacher's understanding of pupils' behaviour in the school (another case of know-how involved in social communication). We saw that the Teacher understands the pupils' behaviour because she simply "knows the kids who are badly behaved". She need not attempt to make her know-how explicit at all.

In each case I showed that my respondents use the kind of understanding I call know-how, as opposed to using a thematic understanding to carry out their jobs. The Computer Graduate's know-how was of the instrumental kind, recognising documents on screen. There is a possibility that a set of algorithms used in computer programming could do his job, but this is still fraught with difficulty (for reasons discussed in section 5.1). For other respondents however, such as the Director and Insurance Consultant, they're know-how used in their job involves social communication, and this sort of know-how is much more difficult (if not impossible) to have replaced by forms of ICT. The Insurance Consultant showed that a computer system could provide up to 90% of insurance quotations, using a set of rules for determining a good insurance application, whilst the other 10% could only be provided by the insurance underwriter, a real person who makes decisions using know-how. We saw that the Teachers understanding of pupils in the school, and the Business Developer's understanding of clients also involved know-how used in social communication. These were both primarily using know-how to deal directly with the kids and staff in the school [as in the Teacher's case], or in being directly involved with the company's clients [as in the case of the Business Developer]. In both of these cases we saw that the system provided only a thematic understanding of what was actually happening: a grasp which always rides on the back of

know-how. That ends my discussion chapter on know-how. Let's now turn to my other major theme in this thesis: bodily-presence.

Chapter 6: Bodily-Presence

Another central theme that emerged from my data centres on bodily-presence. This Chapter discusses bodily-presence in relation to my respondents' use of Information and Communication Technology (ICT) at work. In this chapter I have adapted and modified Heidegger's arguments (following his lectures given on Husserl in the *History of the Concept of Time*, 1992). Some critics may argue that my adaptation is inappropriate, given that Heidegger had other reasons for using the "bridge" example (he was not referring to social communication in any way). But I have only adapted or modified Heidegger's ideas where this was suggested by the themes brought up in the interviews (i.e. in places where I wanted to illuminate what my respondents experienced in their use of mediating technology). Here I have modified Heidegger's arguments about "the bridge" (a thing) to incorporate the different kinds of social communication that happens between people. Some may object that, by using the bridge argument, I am drawing on parts of Heidegger's (1992) work, *History of the Concept of Time*, that have different aims and implications to those found in his later and more famous work, *Being and Time* (2003). However, my goal has been to take insights I have found best articulated in Heidegger's writings and show where they help to bring implicit themes within my ethnographic data into explicit discourse. My emphasis is always on my ethnographic findings, not on Heidegger's philosophy as a whole.

As outlined in my Introduction (section 1.5.1) there are various ways in which we are being-with-others in the world. In this section in particular, I shall discuss two different kinds of being-with-others. The first kind of being-with-others is "Bodily Presence" (Heidegger 1992: 40). For example, in the workplace, we may have others in the same office or room as us, directly face-to-face with us, and we are attending to them. I argue, drawing on Heidegger that this is our primordial mode of being-with others: other modes are deficient (but deficient only in the sense that they lack bodily-presence). Heidegger outlines several deficient modes (for example, when we gossip about someone behind their back, we make them present in a different way). But one mode is particularly pertinent to my own argument: the mode of a picture-thing. In this mode, Heidegger shows how being-with is mediated by an image, in his example this is looking at a postcard of the Weidenhauser Bridge as opposed to being there, looking at the bridge itself (again, refer back to section 1.5.1 for a recap on the "bridge

argument”). In this chapter I argue that I can extend this mode of being-with to the use of ICT. Let’s take a look.

6.1 The Project manager: Bodily Presence as the Superlative Mode of Being-With Others

In this section we shall revisit the story of the Project Manager, this time looking at bodily presence. In particular, we shall look at how the Project Manager encounters the use of mediating technology when dealing with others within the industry of banking. I shall argue, drawing on the work of Heidegger, that the Project Manager experiences bodily-presence as the superlative mode of being-with others. But I want to be clear that I use the term “superlative” strictly in an ontological way. In some cases, my respondents prefer to use superlative modes (i.e. they prefer to be bodily-present) and in other cases they prefer to use deficient modes (i.e. they prefer to use mediating technology, to communicate with others). In what follows in this section are two particular examples. The first example involves outsourcing used by the Project Manager’s organisation. Here we see that employees frequently deal with each other but are rarely bodily present with one-another. The Project Manager says that this sort of communication is “just different” compared to the kind of communication which happens when others are bodily present. I shall argue that the communication is “just different” because of the different underlying structures involved with bodily-presence. The second example involves the Project Manager specifically dealing with the Managing Director via telephone and video-conferencing. The Project Manager says that she would much rather be bodily-present with the Managing Director when dealing with him, rather than using mediating forms of technology. Again I shall argue that this preference relates to the different structures involved in being bodily-present with others. Let us take a look at these examples more closely within the case of the Project Manager.

6.1.1 The Problems with using Mediating Technology: “Because the communication is just different”

The first example I shall look at is the issue of outsourcing within the Project Manager’s organisation. Like many large companies, the Project Manager’s organisation employs people based in cheaper locations, to do various administrative jobs. In this particular case, the

organisation had employed workers living in Belfast and even Bangalore (as the Project Manager explains in the following extract). But we saw earlier in the Data Analysis Chapter, (the Project Manager's story in section 4.5) just how important good communication was for the Project Manager's job and for co-workers in her organisation. And the fact that workers were spread out in different locations was seen as a major problem. Now let's go over what she said again, but this time looking at the being-with issue:

PM: There's also problems I see because of the amount of outsourcing that all these companies have done, in that *the team aren't sitting together*. So we've got some of the technology people sitting in London, some of them are in Bangalore, some are in Belfast, because a lot of them have been moved to lower cost locations, which is what most companies have done with anything they think is a fairly standard thing that they can outsource. So that causes problems as well. *Because the communication is just different*, and often you're in a different time zone so it's difficult to get hold of people at certain times of the day.

(Project Manager, lines: 154-161, my own emphasis added)

The Project Manager has reservations about the amount of outsourcing they've done in her organisation. She says that it becomes a problem because "the team aren't sitting together" (line: 155, see emphasis above). This causes problems because "the communication is just different", she adds (line: 160, again see emphasis above). The Project Manager is unhappy about outsourcing because the "communication is just different", but this itself raises important questions. Why is the communication "just different"? And in what ways is the communication different?

I argue by drawing on Heidegger that the communication is different because employees are not bodily present with others, but being-with-others via various forms of ICT (in this particular example the Project Manager discusses, employees are in contact via mediating technology such as email and telephone). Here I have adapted Heidegger's argument to understand social communication using mediating technology. So, where Heidegger argued that going down the hill to look at the Wiednhauser bridge is significantly different from looking at a postcard of the bridge, I argue that the same applies to being-with-others via mediating communication technology, and that the Project Manager's comments support this. Following my adaptation of Heidegger's work to include social communication, we can say that there are different structures to that of someone bodily present to us, than of someone perceived via ICT. These different structures are evident in our dealings with others, in the very fact that we

experience dealing with others bodily present as different to that of dealing with others via the use of mediating technology. We see this particularly in the following extract, whereby the Project Manager talks about the problems with conference calls, emails, and the general lack of face-to-face contact in her organisation:

B: So when your having these meetings your not always sat in front of people, but it's via telephone.

PM: Yeah, what we would normally do is we'd have a conference room, where some people, like the people who were in the building or could get to the meeting *would come along face-to-face, because its more effective that way, I mean it definitely is, than over the phone.* But we've obviously got people in Belfast and Bangalore and all these kinds of things, so all of those have to dial...

B: Is that an issue at all, the fact that you're not sitting there face-to-face with them?

PM: Yes, it is, it's a big issue, and I think sometimes you know, what would actually help, in terms of trying to get these problems sorted out and to make it very clear upfront. *If someone could actually sit with the technology guys doing the programming so that as they are going through they can ask questions, which is what we did have a few years ago when everyone was in the same building. It just makes it clear, because their not having to make assumptions. Someone would say 'no, no, no, I didn't mean that, what I meant was this or I should have also mentioned x, y, z should happen as well, that kind of thing. Yeah, it does make a big difference not having any face-to-face contact...*

(The Project Manager, lines: 297-316, my own emphasis added)

Again, the Project Manager says that people who were geographically located in the same place "would come along face-to-face, because it's more effective that way...than over the phone" (lines: 302-303, see my own emphasis in extract above). In this example, she puts a premium on bodily presence, as one of the important factors for getting things done more effectively. She raises this point by using the example of the technology guys: "If someone could actually sit with the technology guys doing the programming so that as they are going through they can ask questions" (lines: 310-312, my own emphasis added in extract above). The Project Manager gave lots of particular reasons as to why the communication via ICT was different to communicating with someone who was bodily present. Sitting with somebody so they could "ask questions" was just one reason. However, the important issue here is not merely that there are many differences between being bodily present and being-with others

via the use of mediating technology, but that the underlying structures of both are completely different.

Some claim that technology can make our communication with others “just like” that of being bodily present with others and of course software developers and others who design technological equipment used for telephone and video-conference facilities try to design their equipment so that communication is as fluid as possible, and so it is as close as possible to being bodily present with others. But no matter “how close” the technology makes being-with others via ICT “just like” being with others bodily present the very same structures that Heidegger refers to will still persist. In other words, no matter how alike telephone or video-conferencing is to being in the same room as somebody, the fact that they are not in the room (and therefore not bodily present) means that the underlying structures remain the same: bodily presence will still remain the superlative mode of the self-givenness of an entity.

The Project Manager clearly brings out the difference when she says that “it does make a big difference not having any face-to-face contact...” (lines: 315-316, again see my emphasis in the extract above). I argue that the “big difference” between bodily-presence (i.e. face-to-face contact as the Project Manager puts it) is the difference in the underlying structures. When the Project Manager says that communication via the telephone is “just different” (as she does earlier) she again acknowledges that bodily-presence has a different mode to the use of mediating technology. At a later point during one of my interviews with the Project Manager, she even adds: “And it does make it difficult. Because it’s just not the same” (lines: 321-322). And so, when we try to answer the question: why is using mediating technology “just different” or “just not the same” as being bodily present with others? We can answer by saying that they are different because the underlying structures are different: being bodily present is the authentic and superlative mode, whilst communicating with others via the use of ICT is a deficient mode. But again I wish to point out that it is deficient only in the sense that it lacks bodily-presence, and not because mediated communication is always *necessarily* less preferential. Let’s now turn to some specific examples drawn from my interviews with the Project Manager.

6.1.2 Telephone and Video-Conferencing: The Picture-Screen of the Managing Director

For the most part the Project Manager need not be bodily present with her Managing Director in order to work with him. On the contrary, she routinely works with her Managing Director by communicating with him via various forms of mediating technology, such as email, telephone and video-conferencing. In my interviews with her, the Project Manager spoke about how she used telephone and video conference equipment in order to talk to her Managing Director (see Chapter 5, Section d for the Project Manager's story). I shall demonstrate that the Project Manager's comments on these procedures make Heidegger's arguments on the real bridge, versus a postcard of the bridge look convincing. Like the bridge in Heidegger's picture-postcard, the Managing Director does not show up as an entity bodily-given. Instead, the Managing Director is perceived by the Project Manager via various forms of mediating technology.

By drawing on and adapting Heidegger's argument, I have argued that being-with others face-to-face has a different structure to our being-with others via the use of mediating technology. This is shown particularly in the next example taken from the case of the Project Manager, who would much prefer to see her Managing Director's face when speaking with him:

PM: And another thing is, and I think it's a really key thing, is if you're using conference calls, *you've got no idea of the body language going on, on the other side, and that is really important.* We have some meetings with our senior managers. You know obviously this project is expected, so everyone wants to know if my project is delayed again, because it costs about two-hundred and fifty dollars a month every time we over run. So, you know, when I have conference calls like that, as I know I've got *the managing director in New York on the other end of the phone, I would actually much prefer what he's looking like when I'm explaining this, because you don't know whether he's going 'Oh my god'[respondents eyes roll up and down], or whether he's listening calmly to you, you've got no idea and you would change how you deliver the message if you could see how it was being received.* So it's a big problem, and it's a problem for these status calls as well. We did try video conferencing a couple of times but I think that technology really needs to move on because you get such a gap, I mean it's a lot more expensive anyway, and also you get such a gap between, because we tend to do them from London to New York to wherever. You've got a bit of a time delay in how that works, so it just doesn't flow.

(project Manager, lines: 330-345, my own emphasis added)

The Project Manager tells us how she experiences the use of conference calls. Sitting with, or being bodily-present with others seems to be superior to other means of communication such as telephone or video conferencing. She says that a “key thing” with using conference calls is that “you’ve got no idea of the body language going on, on the other side, and that is really important” (lines: 330-332). If the “managing director in New York is on the other end of the phone” she says she would “actually much prefer to see what he’s looking like when I’m explaining this” because you “don’t know whether he’s going ‘Oh my god’[respondents eyes roll up and down], or whether he’s listening calmly to you, you’ve got no idea and you would change how you deliver the message if you could see how it was being received” [sic] (Project Manager, see lines: 336-340 in extract above). The Project Manager also said that they did try using video-conferencing but she thought that technology really needed to move on. But, following my adaptation of Heidegger’s thinking, I think that she is reporting symptoms of a deeper problem, rooted in this: being-with others via mediating technology has a different structure to being-with-others face-to-face (i.e. being bodily present). We can understand this in particular by recalling Heidegger’s argument about the postcard of the bridge. Just like Heidegger’s example of the bridge, the Managing Director is perceived through something (though in this case a picture-screen, rather than a picture postcard). In Heidegger’s example, the postcard is present, and we see the bridge through it. In the Project Manager’s example, what is present is the video-conferencing equipment, and we see the Managing Director through it. Using Heidegger’s terms, we can say that the Managing Director is “now the represented in the sense of being represented by way of being depicted through something” (Heidegger 1992: 42). It is not the same to view the picture on screen of the Managing Director, as it is to stand before him whereby he is bodily given. And even if the technology “moved on” so the postcard/screen became better and better, this would still be the case. In the next section I will show that the premium of bodily presence can be useful for getting the most out of other people in the workplace, by drawing upon the story of the Systems Analyst.

6.2 The Systems Analyst and Bodily Presence: “It’s always better to see them face to face”

In Chapter 4 I presented the story of the Systems Analyst (see section 4.8 for a recap). The System’s Analyst told us that he spent a lot of his time at his desk, communicating with people

in different locations via email. Just like some of my other respondents, the Systems Analyst finds the use of mediating communication different to communication involving bodily presence. As he tells us in the following extract:

SA: Email, phone, text messaging we use. But sometimes you lose tone or inclination with those facilities, *it is not like a face to face meeting, where you can see the whites of their eyes, and the tone and inclination*. So it can be difficult, but it makes it so much easier, than twenty, thirty years ago, where you had to deal with letters or the occasional phone call.

(Systems Analyst, lines 314-320, my own emphasis added)

The Systems Analyst says that mediating communication is “not like a face to face meeting, where you can see the whites of their eyes, and the tone and inclination” (lines 315-316, see my emphasis in extract above). But yet he accepts that mediating communication (in this case the use of email) makes things “much easier” than the kind of communication they would have had “thirty years ago”. Earlier (in section 4.8) I asked why the communication was so different. Here I shall try to answer this question by arguing, following arguments adapted from the work of Heidegger, that the differences between mediating communication and face-to-face communication which the Systems Analyst describes are a consequence of the different underlying ontological structures. In what follows we shall see that bodily presence has several benefits for the Systems Analyst within his organisation.

6.2.1 The Superlative Mode of Bodily Presence: “They’re more willing to do things”

I have argued throughout this chapter, that bodily presence is the superlative mode of being-with others. We see this particularly in the case of the Systems Analyst, who shows that being bodily present with others carries with it an important premium for getting others to do what you want them to. As he says:

SA: It’s always better to see them face to face, and you build up a relationship so much easier. So next time if you have met someone, you know and you have had a cup of coffee with them or discussed the family, you sort of build up a relationship with them. But if you are dealing with someone over the phone, you tend to just speak business and that’s over with, so you don’t really build much of a relationship unless your on the phone all of the time. I always find with a face to face meeting, the next time you ring them up, the relationship is *so much better*, and *their more willing to do things*. Some of the time you’re trying to extract information, or find out information, or need to know something, and you know, the other person will know

it. But, you know you need to get that information. That sounds like confrontation but it is not like that. You might have a certain task, which you need to find out about, so you need them to spend time telling you how to do it. If they have got all the deadlines or other work to do, they will be reluctant to spend time with you. If you have had that face to face meeting, their more likely to you know, sort of, *give you the time*.

(Systems Analyst, lines: 329-342, my own emphasis added)

For the Systems Analyst, bodily-presence brings a premium which makes the relationship “so much better”. Furthermore, having been bodily-present with someone makes them “more willing to do things” he said. It seems that bodily-presence makes others feel more obliged to work with you, and to do what you ask of them. The Systems Analyst says that it’s not about “confrontation”, but it’s simply that being bodily present makes people more likely to want to “give you the time” (line 342, see my emphasis in extract above). In this case, the superlative mode of bodily presence is used as a way of getting employees to do certain things, because they are more likely to give up their time when being encountered face-to-face. But again I want to emphasise a key point: social communication via bodily-presence is superlative in Heidegger’s ontological sense, *not* because people prefer it (as this is not always the case). Social communication in co-presence has a completely different ontological structure to social communication via mediating technology.

6.3 The Doctor’s Bodily Presence with his Patients: “people feel face to face is good”

During my interviews with the Doctor (see my Data Analysis chapter, section 4.9), I asked him what he thought about the use of ICT in providing medical advice and diagnosis to patients. I asked him about online internet services offering medical advice such as NHS direct, which offers an immediate way for patients to seek medical advice over the telephone if they are ill. Unlike my other respondents, the Doctor thought that bodily presence was unimportant, and that diagnosis over the telephone was “the same thing” (line: 278 emphasised in extract below) as giving a diagnosis to patients who would come along to the surgery. We see this in the following extract:

B: Some of these systems that I’ve seen recently. I think the way technology has improved, and you know, people are finding new ways of getting diagnosed. I’ve noticed things like NHS Direct has become quite big.

D: Direct means it's direct. You can ring them direct. NHS, National Service, nothing else. That terminology should not baffle anything. It's somebody the other side, professional person, sitting and you have query and they answer by phone. I give you for example a patient who can't come here, they ring me, I give advice, *the same thing*. You can do a lot of stuff. *You don't have to physically see a patient*. Many things. They've got flu, you can assess, oh you've got flu and take something.

(The Doctor, lines: 271-280, my own emphasis added)

The Doctor said that NHS Direct was simply just medical advice given over the telephone. He uses the example of him giving his own patients advice over the telephone and said it's the same kind of medical advice that would be given to patients who visited the surgery. "You don't have to physically see a patient" exclaimed the Doctor. The Doctor has a firm opinion that telephone and internet services just allow medical professionals to get on with giving advice to patients who require it. In the Doctor's opinion, whether or not they are bodily-present just doesn't matter. What I realised however, was that I was only getting the Doctor's opinion about telephone and internet services, and that I was not uncovering how he [or his patients] experienced the use of such services. And so when the Doctor spoke about how such services were used (such as giving medical advice over the telephone) it became apparent that many patients would much rather be bodily-present with the Doctor, as we see in the following extract:

B: Because you were talking about being face-to-face with the patient. Do you think it's ultimately better to be...?

D: Not necessary. Some are face-to-face, some are by phone. What am I going to do if somebody wants to talk about their problems, face to face for what? It's only talking and listening. Understanding, you know. Face to face for some things where you need to examine you know. But psychologically people feel face to face is good. It's psychological. Rather than need. Many people don't need it unless you are checking the blood pressure and all the regular monitoring. Or you are coming for a blood form. Many things can be done effectively without face to face. But it's psychological. The effect will be there. *They want to see me and talk to me. I say, my face, but I can talk to you by phone. But somebody feel face to face.*

B: So you think it's to do with the patient.

D: It's the patient, it's nothing to do with the condition. Conditions can be dealt with by phone. Many conditions. Many conditions can be dealt with by phone. The patient's important, the psychology of the patient. You have to convince them they don't need, unless I'm going to go and do something, you know. There are conditions where you need to go and do a physical assessment.

(The Doctor lines: 292-311, my own emphasis added)

The Doctor argues that he doesn't necessarily require bodily presence (or as he says "face-to-face" presence) with patients. In other words, referring back to Heidegger's "bridge" argument, we can say that the Doctor is as happy with a picture of the bridge as seeing the bridge itself. However, the Doctor's patients feel very different. They feel that bodily-presence is important. The Doctor says that there is a psychological effect on the patient in having face-to-face interaction with the Doctor. But as he says, "It's the patient, it's nothing to do with the condition" (see lines: 307 in extract above, my own emphasis added).

This raises an interesting question. Why is it that patients feel they have to be bodily-present with the Doctor in order to be diagnosed or given appropriate medication? I argue that patients prefer being bodily-present with their Doctor because it is the authentic and superlative mode of receiving a diagnosis. The ontological structures in being bodily-present with the Doctor during diagnosis are completely different to those in using mediating technology to be diagnosed by the Doctor, say for example, via the telephone. Following my argument drawn from Heidegger's thinking, and as I have pointed out in previous sections, bodily presence is the superlative mode of being-with others, not because it is preferred by all my respondents (as this is not always the case) but because ontologically it is the superlative mode (i.e. it is not dealing with the Doctor as represented through something, but dealing with him as he shows up in actual bodily-presence). However, as the Doctor points out, it is not necessarily the case that patients who are bodily present with the Doctor will receive a better diagnosis or treatment. This is not the argument I am pursuing here. On the contrary, there are many benefits to giving medical advice online (for example, the saving of cost and time is one major advantage). The argument I wish to make here in this thesis, is that patients find being diagnosed over the telephone different to being diagnosed whilst being bodily-present with the Doctor. And that this difference should not be overlooked (as people deal with this difference in different ways). Being diagnosed over the telephone or online is not the same as being diagnosed by a Doctor who is bodily-present. And improvements to technology will not change this ontological difference. Furthermore, if we believe that the telephone and the internet are just simple extensions of our communication with others, we fail to recognise the importance of bodily-presence with others in the world.

There is however a major problem here. How do we make sense of those patients who do not want to see the Doctor in person? In other words, what about those patients who prefer to speak on the telephone to the Doctor? There are many such patients, as the Doctor explains:

D: Maybe not everybody. Some people find it useful. Very efficient. You see, it depends upon the individual as well. Not everything is beneficial. *Some people find it when you telephone they're happy*, where some people are not happy.

(The Doctor lines: 324-326, my own emphasis added in the brackets above)

As the Doctor explains, there are some patients who “find it when you telephone they're happy” [sic] (line: 326 in extract above). However, I argue following Heidegger, that being bodily-present with others has a completely different ontological structure to being-with others via the use of mediating technology. Whether or not people prefer to use deficient modes of communication is another matter. For example, some patients might feel more relaxed talking about their personal health problems on the telephone, than being bodily present with the Doctor and seeing him face-to-face. This could be because they are embarrassed about their illness, or feel uncomfortable showing the Doctor various parts of their body.

6.4 When Mediating Technology is the Preferred Mode of Communication

So far, I have argued that bodily-presence is the superlative mode of being-with others, and the use of mediated technology is one of the many deficient modes. But I want to emphasise the point that, I am using these terms, following Heidegger, in a completely ontological way. To put it bluntly, I am showing that my respondents are ontologically primed to tell the difference between mediated presence and bodily presence like Heidegger's example of the post-card of the bridge and the bridge itself. My respondents have an “understanding” (to use Heidegger's ontological term) that something is bodily-present *or* encountered through the use of mediating technology. In other words, and to use Heidegger's expression, my respondents understand when something is “being represented by way of being depicted through something” (Heidegger 1992: 42). The expression “superlative” and “deficient” which I have taken and adapted from Heidegger's work, is not an indication that my respondents will necessarily like or dislike technology which they use. Nor is it an indication that they will necessarily like or dislike being bodily present with others. I'm not pursuing that argument

here. On the contrary, whether or not it becomes an issue depends on the ontics, i.e. the particular worlds of each of my respondents. These worlds are those which my respondents are “familiar” (Heidegger’s ontical term). In fact at times, several of my respondents prefer to use mediating technology to communicate with others, than communicating with them face-to-face (i.e. they prefer not to be bodily-present at all). But their ontological understanding underlies and comes out in their ontical happiness with the preference of mediated technology in any given situation. In what follows, I shall show that my respondents use the most suitable mode of communication, depending on the context and situation. In these cases they prefer to use deficient ontological modes of being-with others (they would rather use mediating technology, than be bodily-present with others at work when communicating). This section will draw upon two of my respondents in particular: the System’s Analyst, and the Project Manager. Let’s take a look.

6.4.1 The System Analyst’s Use of Email: “Sometimes you want people to think about how they’re going to respond”

In this section I draw upon examples taken from my interviews with the System’s Analyst. He says that being face-to-face with others is not always ideal. On the contrary, in the example he gives, the Systems Analyst says that using email can be most useful in his workplace, for getting others at work to “think about how their going to respond” to a particular request. In this particular situation/ context, emails are more desirable than meeting face-to-face, because work colleagues are more likely to give an “off the cuff” or flippant remark when pressured by the immediacy of bodily-presence. We see this particularly in the following extract:

SA: You see another advantage of email, apart from you will get a response eventually. Sometimes you want people to think about how their going to respond, so its horses for courses really. If you want someone to think, *you go to see someone in the next room, they might give you a flip answer, because their doing some work and don't really want to be disturbed.* If you get a more thoughtful response, we send an email, they respond when they can, benefiting their work load and you might get a better response, so it really depends on what you want. And also by sending an email, you can contact ten people, with that one communication, where as you might have to visit ten people to get the response. But sometimes if I send out an email, and don’t get a response, I follow it up by a

visit. Because people know you've sent them an email, and they have not bothered to get round to answering it, they feel more obliged to spend more time with you. So there is psychology there, so you have got to match it, how you use your email, how you use your phone, and how you communicate with people.

(Systems Analyst, lines: 364-377)

We see that different forms of communication are used in different sorts of context, depending on what is deemed most appropriate. For example, the Systems Analyst tells us that you can often get a "more thoughtful response" using email, because people have time to "think about how their going to respond" whereby you could "go to see someone in the next room" but they might give you a "flip answer, because their doing some work and don't really want to be disturbed" (lines: 367-368, see my own emphasis in extract above). He says that choosing how to contact somebody "really depends on what you want" (line: 370). The Systems Analyst's case shows us that people are acutely aware of there being differences in different forms of communication, and that people will use these different forms of communication to their own advantage, depending on what they want to achieve. I argue that this acute awareness is informed by the ontological distinction (difference) between those things bodily-present and those encountered through mediated technology.

Following these examples taken from the System's Analyst, I wish to make clear that my argument that bodily presence is superlative (following my adaptation of Heidegger's work), does not mean that people always want to be bodily-present at work. On the contrary, in many situations people much prefer to use mediated forms of communication: they often prefer to use deficient modes of being-with others. We see this particularly if we return to the Project Manager. Her bodily-presence brings with it an authentic quality which has authority, but sometimes she purposively does not want to make use of this. Let's take a look at this in the next section.

6.4.2 The Project Manager and the Authority of Bodily-Presence

In this section, we shall see that bodily-presence has some authority for the Project Manager when carrying out her job. For example, in the following extract I ask the Project Manager if being co-present with her team was better for doing her job:

B: I know it's probably better for you being at home and working from home. But in terms of getting the job done, do you think it's better for them that you're here?

P: I suppose the thing is... I 'm a kind of ... in this particular project we are talking about, although I'm the overall team manager, I've got one of my guys who is actually managing the implementation himself and that's something I delegated to him ages ago. *So from his point of view I think he prefers me not being there because it gives him the authority and the responsibility,* although I will be on the calls to say 'are you ok?' Am saying it's ok based on the information I'm getting from him. Because you have to trust people and delegate this stuff down. You know, you can't do it all yourself. *I think in this situation its better for him that I'm not there because it makes everyone realise that he's in control* whereas if I was there they would tend to come for me instead.

B: So your there in one sense because your communicating with them still.

P: Yeah, exactly.

B: But your not there in a kind of physical sense.

P: Yeah, so I'm there as an adviser so if he's got problems he can call me and say I'm not quite sure what to do with this. Or he can check out with me, and say 'we found this issue, am going to do this are you alright with that', so he'll kind of check back with me, but it will be him kind of proposing the decisions and solutions and stuff and I'll just kind of agree or disagree based on what the issue is.

B: So you're saying that your physical presence if you went into work would have an impact on people seeing who is in charge, and who has the authority over the project.

P: Yeah, yeah, yeah.

(Project Manager, Interview 4b, lines: 460-489, my own emphasis added)

The Project Manager tells us that the person she has delegated responsibility to prefers her "not being there because it gives him the authority and the responsibility" (lines: 466-467, see my own emphasis in extract above). It is apparent that her bodily presence has some kind of authority and by not turning up physically to work (i.e. working from home) she allows the responsibility and authority to fall on those she has delegated responsibility to. As the Project Manager points out: "I think in this situation its better for him that I'm not there because it makes everyone realise that he's in control" (lines: 470-471, see my own emphasis in extract

above). Because of the authority that being bodily-present has in the Project Manager's workplace, she avoids being face-to-face with her team when she delegates responsibility to one of her team members, called Geoff (pseudonym used). We see this in the following extract:

B: Because it was one of the things you were going on about last time. You know, conference calls, working from home and communicating with people in different countries and over the telephone or whatever else. And you were saying that it's just not the same as being face-to-face or whatever.

R: No it isn't, it isn't. *And that's why I'm particularly trying not to be face to face in situations like this*, that people will see... You know this guy Geoff who is running with this one for me. *They'll see him as being the most senior person from the team there. And that gives the signal that he's running the project.* So obviously if I am needed to be called in if there was a disaster I would go, but it's very unlikely in a situation like that that I would have to.

B: So they see him as leading it because of your lack of presence?

R: Yeah.

(Project Manager, Interview 4b, lines: 501-511, my own emphasis added)

The Project Manager tells us that in particular circumstances whereby she has delegated management responsibility to a colleague (in this case Geoff), she would much rather not come into contact with other colleagues face-to-face. As she says: "I'm particularly trying not to be face-to-face in situations like this" (lines: 506-507, see my emphasis added in extract above). It seems that the Project Manager's bodily-presence will undermine the authority she has given to Geoff to manage the team. As she points out: "They'll see him as being the most senior person from the team there. And that gives the signal that he's running the project" (lines: 508-509).

Finally, the Project Manager says that bodily-presence has more importance in certain situations, particularly when there is certain problems or confrontations. She says it's important to be bodily-present in those situations:

R: Yeah, and I suppose it depends on what kind of situation it is. I mean the one that I'm talking about now is like everything's being tested, we are going for an implementation and one of my team is responsible that that all goes smoothly. Whereas there are lots of

other calls where we are having to give a status update on a project that's in a critical state when we've had delays and things like that. *In those situations where I'm having to give the information out and I'm having to explain its all gone tits up, I would much rather see the body language of the people* that I'm giving that information to because it will depend on what you see happening how you will articulate what's going on. And if they seem to be reasonably relaxed then you don't feel like you need to start pulling the stops out in terms of why, or making...

B: Explaining yourself...

R: Explaining yourself, yeah, exactly, and blaming the other teams which is what we normally end up doing because it's normally the other peoples fault (laughter). So *yeah it's those kind of things which I think it would be much more useful to be face to face, particularly where there is a bit of confrontation going on or likely to go on, it's more important definitely.*

(Project Manager, Interview 4b, lines: 526-543, my own emphasis added)

For the Project Manager, bodily-presence carries with it a premium, especially in critical situations, as the Project Manager says: "In those situations where I'm having to give the information out and I'm having to explain its all gone tits up, I would much rather see the body language of the people..." (lines: 531-532, see my emphasis added in extract above). And so again, the decision to be bodily-present or not depends on what's happening in the particular world of the Project Manager. In this case, and in this particular situation, bodily-presence is better. But this really depends on what's going on. I argue that what underlies the decision to be bodily-present or not is the different underlying ontological structures of communicating in bodily-presence and communicating via mediated technology: communicating in co-presence has a totally different ontological structure to communication using mediating technology, and this difference persists no matter how sophisticated the technology is.

And so, in this section, I want to clarify that just because mediated technology is a deficient mode of being-with others, does not mean that it's necessarily a bad thing. On the contrary, my respondents use mediating technologies in situations where they find it appropriate. For example, sometimes they prefer to leave somebody an email, than bother them directly at work by going to visit them (as in the case of the Systems Analyst). Or sometimes they prefer not to be bodily-present at work, because they realise that it carries with it a premium (or authority) and they do not wish to use it in particular circumstances (as in this particular case of the Project Manager). Therefore my respondents are aware of the distinct differences

between communication via mediating technologies, and communication in co-presence, and can in some cases use these differences to their advantage depending on what they want to achieve or do at work.

6.5 Flying in a Simulated Aeroplane: Heidegger's Picture-Postcard Revisited

In this section I shall also revisit Heidegger's argument about the picture-postcard of the Weisenhauer Bridge. However, in this section I shall focus on another part of my research, flying in a simulated aeroplane with the Pilot. In particular I shall show how Heidegger's discussion about the picture postcard can be used to examine the way in which the pilot's experience using a simulated aeroplane is different to flying a real aeroplane. While the case of the Project Manager shows that viewing others through a picture is a deficient form of being-with-others, this case is closer to Heidegger's own bridge example: flying a plane on a flight-deck simulator is a deficient form of being with *things*.

First I wish to describe my experience of flying in the simulated aeroplane with the Pilot. In particular I want to draw attention to the three way discussion that occurred between myself, the Pilot, and pilot trainer Rob, whom I met at the airbase, and who gave us access to the training facilities. In this discussion, there are several points I wish to note. First, by seeing the Pilot's reactions to using the simulated aeroplane (this particular one he had used for the very first time), it can be seen just how similar the Pilot finds the simulated aeroplane is compared to a real commercial airliner. This can be seen particularly by the way the Pilot directs me in flying the aeroplane (as if it were a real aeroplane), as shown in the following extract:

P: So put the nose down a little bit, not very much. So we'll stop it at eight thousand feet....

(I continue to fly the aeroplane)

P: This is far too much more complex than what we ever had on the seven-five. Do a good turn, go on wrap it round. That's it. Give it a bit of welly. As you turn, you'll notice that the nose goes down, so what you've got to do is you've got to pull the nose up a little bit. I'll give you a bit more power and there she is. (he turns to Rob) It's a very responsive little beastie isn't it.

R: Lovely.

P: Very responsive.

R: (Speaks behind but cannot hear).

P: Yeah, excellent. This is a lovely little toy. I want one of these at home.

R: (cannot hear, some laughter)

(Heading towards virtual mountains)

(Large bleeping and vibrating sound seems to indicate that something is going terribly wrong)

P: Now that's telling you it doesn't like it because you are below the ground. What are you going to do about that?

B: Pull it up?

P: Yeah. Keep going up.

(Bleeping sound stops)

P: That's very good. If we can recover from all that, fantastic. It's like driving a car isn't it Brian?

B: I don't drive! (Laughter)

(Field notes Transcript 5b, lines: 354-395)

The extract shows the Pilot instructing me on how to fly the aeroplane: "So put the nose down a little bit, not very much" says the Pilot (lines: 354, see my own emphasis added in extract above). Given that this was the Pilot's first time of using this particular simulator, it became obvious that the controls were "just like" that of a real aeroplane, because the Pilot seemed to know exactly what he was doing, evident by the fact that he was instructing me how to use the equipment. It was also apparent that the Pilot experienced the simulator as something very similar to that of a real aeroplane, because he compared its instruments and controls to those on real aeroplanes, by explaining to me for example that they were "much more complex" than he ever had "on the seven-five" ("seven-five" is a reference to an aircraft model, as in a Boeing 757). But the Pilot was not the only one to experience the simulator as something 'like' a real flight. I too imagined I was flying a real commercial airliner, by taking seriously the instructions the Pilot was giving to me. Thus the simulated aeroplane was doing just what it

Was designed to do: it was giving us an experience of what it is *like* to fly a real commercial airliner. But here we have a problem. Creating an artificial experience which represents the real thing, or which is “just like” the real thing, is not the real thing itself, just as the postcard of the bridge is not the bridge itself. This raises the following question: Why can’t the simulated aeroplane be experienced as the same as the real aeroplane?

We already have the answer: regardless of how impressively similar the simulated aeroplane is to a real aeroplane, it will always remain as a deficient mode of a commercial aeroplane given that the aeroplane itself is not bodily-present (consequently nor is the sky, clouds and mountains, and so on). In flying the real aeroplane, it is bodily-present and gives itself to us; in flying the simulator the simulator is bodily present and the aeroplane gives itself to us through the simulator. No matter how like the simulated aeroplane is to the real aeroplane, flying the simulator and flying the aeroplane on a commercial flight are primordially different ways of being-with-things. Quite simply, the real aeroplane itself is the authentic and superlative mode of the self-givenness of an aeroplane.

Again this cannot be solved by simulator technology “moving on”: the real plane is merely given *through* the simulator. But I want to clarify a point here: the argument is not that, when entities, bridges, managing directors or airliners, are mediating in one way or another, we are thematically aware of the mediation. We need not, for the most part, “think through” how we use the technology. After all, we get on with what we are doing, by looking at the bridge through the postcard, talking to the managing director through the picture-screen, flying the simulated plane over the virtual Alps by looking through the picture-screen of the virtual sky and so on. But I argue that, while we are there in deficient modes, the primordially authentic mode breaks through. Put simply, there is a realisation that the inauthentic mode is inauthentic. We know the Managing Director is talking to us through video equipment, in the same way we know that the virtual mountains we see on board the simulator are not real mountains.

To substantiate this point, I want to return to my experience on the simulator where the Pilot is instructing me to fly the simulated aeroplane towards Mont Blanc:

P: Best thing to do is to take the power off and turn the nose up. We are flying to Mont Blanc.

B: Oh, ok.

(Rob and the Pilot talk behind me as I fly the aeroplane).

P: I want to see Mont Blanc.

(Short silence)

(Cannot hear)

P: (Talking to Rob) I've actually flown over Mont Blanc so many times I can actually see the cross on top of it, but I've never been this close.

R: You probably won't see the cross on top of it.

P: (Talking to me) Where are you flying now Brian? See that hole in between the mountains, aim for that.

B: (laughter).

P: That's a good boy, go on. Get the feeling now. Don't be nervous. I'm terrified but you don't need to worry about that.

B: (Loud laughter).

R: If you need to pull up, then do pull up because if you crash I need to reset everything and start it up all over again.

P: Go over there Brian.

R: That's the only drawback, it shuts everything down.

P: (Turning to Rob) I can well believe it, we don't want to crash it, it's not good.

P: (Turning to me) You're going up to... Brian, you're not even holding it level.

(Rob chats again with the Pilot in the background)

P: No that's a bit too low.

(Rob chats again with the Pilot)

(The Pilot then turns again to me and instructs me on how to fly)

P: Now put the nose over and you go over the edge.

(I fly the aeroplane over the white snowy mountain top and dip the aircraft over it)

P: Gentle, gentle, that's perfect.

B: Wow.

P: Hello skiers!

P: What do you think?

B: Brilliant.

P: (Again he asks) So what do you think of this then Brian?

B: Brilliant, yeah. (laughter).

R: *If you look at that valley, I mean it's so realistic isn't it.*

P: Yeah.

(I continue flying the simulator)

(Field notes Transcript 5b, lines: 465-543)

The extract shows the discussion I had with the Pilot whilst he was directing me (and the simulated aeroplane) towards Mont Blanc. Just like a real aeroplane, we could fly the simulated commercial airliner towards Mont Blanc, in the same way one could fly towards Mont Blanc on a "real" aeroplane. But what is fundamentally different is that neither the actual Mont Blanc, nor is the actual Boeing 757 airliner actually bodily-present, but instead we are seeing a picture in Heidegger's sense, of both. This is a crucial difference if we pay closer attention to the Pilot's remarks about my flying ability. When the Pilot asks: "Where are you flying now Brian?" he is sarcastically mocking my ability to fly the aeroplane. He goes on to say jokingly: "Don't be nervous. I'm terrified but you don't need to worry about that". The Pilot laughs at my beginner's incompetence to fly the aeroplane. But there's a more important point to note here too. If this were a "real" flight over the Alps in which Mont Blanc was not depicted, but actually there in front of us, then the Pilot, and the trainer pilot Rob would in no doubt have been wrestling me off the controls. They genuinely would have been terrified had I been flying a "real" flight. We even see that the mediating structure of the simulator breaks through: if I flew this simulated plane into Mont Blanc, the pilot would have to reboot the simulator. More

importantly, had I flown the “real” plane into Mont Blanc, then I, the pilots, and around 150 other people would be dead – “really” dead.

6.6 Conclusion of Bodily-Presence

In this Chapter I have presented my argument, using the work of Heidegger, to point out that social communication in the mode of bodily-presence and social communication using mediating technology (in the picture-thing mode) are ontologically different. I argued this by drawing on Heidegger’s discussion of the “bridge”, which could either be perceived by going down to the riverside whereby the bridge was itself bodily-given, or by viewing the bridge through the “picture-postcard”. Heidegger said that the former was the superlative mode of the perception of something, because in the simple apprehension of an object, nothing like a consciousness of a picture can be found. However, in the consciousness of a picture, there is the picture-thing and the pictured. I applied Heidegger’s argument in my own way to my respondents in this thesis. In particular, I drew upon the stories of the Project Manager, Systems Analyst, the Doctor, and the Pilot.

In the Project Manager’s case, we saw that communicating with staff via ICT was “just not the same” as communicating with staff who were bodily present (see section 6.1.1). We saw this particularly with the Project Manager’s telephone and video-conferencing with her Managing Director. Having the Managing Director on a picture-screen was not the same as having him bodily-present (see section 6.1.2). This is because it is simply not the same to have someone represented, in the sense of “being represented by way of being depicted through something” (Heidegger 1992: 42), as it is to stand before someone whereby they are bodily given (note: here I am adapting Heidegger’s argument to include different forms of social communication). The underlying ontological structures of these two modes of communicating with others are completely different.

In the case of the Doctor, we saw differences between patients who come to his surgery to be diagnosed face-to-face, and those who might be diagnosed over the telephone. There we found that most patients preferred seeing the Doctor face-to-face. I argued, again drawing upon Heidegger, that being bodily-present with the Doctor is the superlative mode of being

diagnosed and treated. But I emphasised that I was using these terms, following Heidegger, merely in an ontological sense. In some instances my respondents preferred to use mediating technology than deal with others face-to-face (see section 6.4). In these particular cases, the ontological distinction was used to their advantage. For example, we saw that the Systems Analyst sometimes uses mediating technology to his advantage when wanting to get the right sort of response from others at work. He said he might use email to get a more “more thoughtful response” because email often allowed people to think about what they wanted to say (see section 6.4.1). Another example I gave in this section was the Project Manager, who preferred not to be bodily-present at work on some occasions because she likes to delegate her authority to other members of her team (in the case I presented, it was the supervisor called Geoff who she wished to give her authority too – see section 6.4.2). In both examples, mediating technology was the preferred mode of communication. And so I have made clear that my argument is not that ICT (and in particular, various forms of mediating technology) is necessarily a good or bad thing. I am not pursuing that argument here. Rather, this chapter has showed that people are ontologically primed to know the difference between social communication in co-presence, and social communication via mediating technology. And this ontological difference underlies their use of it.

Finally I revisited Heidegger’s “bridge argument” by giving the example of the Pilot (in section 6.4). Here we noted the ontological differences in the flying of a simulated aeroplane and the flying of a real aeroplane. This was not necessarily due to the controls being any different, but because the Pilot encountered the simulated aeroplane as a simulated aeroplane. I recalled what Heidegger said about the Weidenhauser Bridge and the picture postcard of the Weidenhauser Bridge (1.5.1). Whilst one is bodily-present, the other (the picture postcard of the bridge) is not. It is represented by way of being depicted *through* something. This example has resonance with the example the Pilot and I experienced of flying towards Mont Blanc, whereby I argued that the simulated picture-screen of Mont Blanc was different to the actual Mont Blanc, because the latter is bodily-present. Not matter how sophisticated the simulator is, and no matter how much it can be technologically improved, Mont Blanc will always be [whilst using the simulator] represented by way of being depicted through something (i.e. a picture-screen).

And so, this chapter has specifically addressed the use of mediating technology (i.e. use of telephones, emails, video-conferencing, and in the Pilot's case simulator technology). Specifically this chapter has been concerned with how mediating technology is used to communicate with others at work (with exception to the Pilot perhaps). My theme used in this chapter was developed by adopting, and to some extent adapting Heidegger's ideas on bodily-presence. Heidegger's "bridge argument" and the ideas of bodily-presence and picture things was used as 'sensitising concepts' in this chapter, because they helped to bring out common themes in my respondents' accounts (see introductory section 1.5.1, and the previous sections in this chapter). However, just to be clear, I want to point out that the bridge example and its emphasis on bodily-presence, as laid out by Heidegger is not identical to the issue of bodily-presence brought up by my respondents in this thesis, but it definitely has strong resonance with many things that my respondents say. Respondents noted the distinction between communications in contexts of bodily-presence and communications mediated by technologies. In most, but not all cases my respondents express a preference for bodily-presence when communicating with others. In a few cases, my respondents express a clear awareness of the difference between telepresence and bodily-presence but either regard the difference unimportant or express a preference for technologically mediated communication. My use of Heidegger's discussion of bodily-presence is therefore not a direct application of Heideggerian philosophy but rather an appropriation used to illuminate themes in my qualitative data.

Chapter 7: Conclusion

My thesis is a qualitative study centred on ethnographic interviews with a number of people, which focused on their experience of using Information and Communication Technology (ICT) at work. My intention was to gain an insight into the impact and implications of the recent, widespread use of ICT to replace the jobs or parts of the jobs of experts in many industries. I approached these interviews with the presupposition that various ideas found in Heidegger's work would enable me to identify and draw out themes (you could say that I used the ideas as "sensitizing concepts"). In practice I found that some of Heidegger's ideas did not prove to be particularly useful in relation to the interviews; his arguments in *The Question Concerning Technology* are an example. So I discarded those arguments for the purposes of my thesis. And I also found that other Heideggerian ideas were useful in relations to the interviews, if I adapted them. The Bridge Argument in *History of the Concept of Time* is the major example found in my thesis. Thus I used and/or adapted Heidegger's ideas to the extent that they illuminated the interviews: I did not, and it was never my intention to, engage with Heidegger's philosophy as a whole. If my thesis does contribute to philosophical debate, then that is for later. My thesis has addressed two particular issues in this thesis: know-how and bodily-presence. These were developed by drawing upon the work of Heidegger, or in some cases, adapting Heidegger's arguments where this was suggested by the themes brought up in the interviews. I shall conclude my thesis by presenting two summaries in relation to the two key themes I have addressed throughout. Within these two sections, I shall return back to the theoretical concepts outlined in chapters 1 and 2, and summarise my thesis in relation to my research findings presented in Chapter 4 (my data analysis) and discussion sections in Chapter 5 (on know-how) and Chapter 6 (on bodily-presence).

7.1 Summary of Know-how

The first argument I presented in my thesis was this: expertise involves a practical and immediate grasp of what to do in the workplace. Put simply, it is not enough to merely possess a set of facts setting out what the tasks are at work; people need to have the practical ability to know how to do the tasks at work. Since expertise is rooted in having a practical grasp of tasks in the workplace, expertise itself is consequently difficult to emulate or

replace by current forms of ICT. Human expertise, I have argued, involves a knowing-how, whilst in most cases both the creation of, and very often the use of ICT, involves merely a knowing-that: a reliance on just knowing a set of facts about the jobs we do at work, either to create systems to do our jobs, or in using systems to carry out certain aspects of our jobs.

In Chapter 1, I introduced and developed several Heideggerian concepts which could be used to make sense of the ethnographic data taken from the interviews with my nine respondents. I shall return to them here in this concluding chapter, to recap the way in which they were used to make sense of my ethnographic data. One of these concepts was “equipment” and another was “others” (see sections 1.2 and 1.3). In a nutshell I argued, following Heidegger, that we comport ourselves in particular ways towards equipment and others in carrying out our everyday activities in the “world” (“world” is another Heideggerian term I referred to in the Introduction – see section 1.3). More importantly however, my introduction focussed on the different modes in which we comport ourselves towards equipment, and to others within the world. I said that one mode of comporting ourselves to equipment, and others, centres on using our know-how. And another mode of comportment centres on using thematisation (these are two terms I used and developed from Heidegger's thought – for a more detailed recap, refer back to section 1.4). I said that my respondents in this thesis know how to carry out everyday tasks in the workplace, as opposed to having to “think through” how to carry out their tasks. In the introduction I used the example of the Teacher, who knows how to do basic tasks like opening classroom doors, sitting in classroom chairs, and writing with her pen in order to mark her students work. I said that her know-how was not confined to physical activities such as these, since she could also recognise pupils faces, do basic adding up (without the need for a calculator) and recognise different styles of music without having to “think through” how she carried out these activities at all. I said that “thinking through” how to do ‘stuff’ (making assertions or propositions) came after our knowing how to do ‘stuff’. I meant this in the ontological sense: know-how is a primordial mode of understanding, and thematisation therefore comes afterwards (see section 1.4.1).

The concept of know-how which I laid out in the introduction later became important for the data analysis and discussion chapters of my thesis because I was able to use the concept in order to make sense of the way in which my respondents carried out their everyday tasks in the workplace. The concept helped to give solutions to problems I encountered when dealing

with my ethnographic findings. For example, know-how helped to explain why some respondents could not thematically explain or justify why they made the decisions they did (why the Pilot for example, struggled to provide a set of rules for flying aeroplanes, that would adequately enable a novice pilot to fly to his own standard). It also showed the problems with the design and implementation of software programs. The development of algorithms to replace human expertise is no easy task, given that much of our expertise is very difficult to make explicit if we can do this at all (for a specific example of this, refer back to my discussion of the attempt to thematise flying - section 5.4.2).

Following from this, I applied the idea of know-how to a number of my respondents, in order to understand the way in which they carried out tasks at work (and consequently encountered ICT there). I showed that for the most part, my respondents know how to carry out their tasks at work without having to “think through” what’s going on at all. That is why I said we sometimes know how to carry out a task, but can’t explain exactly how we did it (i.e. we have the kind of understanding we call know-how, but struggle to provide a thematic understanding alongside it). In the introduction I gave the example of Socrates and Euthyphro (taken from the work of Dreyfus 2001). We saw that Socrates had asked Euthyphro (the expert on pious behaviour) for the principles for recognising piety. Euthyphro, to Socrates’ dismay, did what every person did when cornered by Socrates, and only gave examples of piety. Although an expert on piety, Euthyphro never knew explicitly the principles for recognising it. This was because Euthyphro recognised piety using his know-how, without the need for a thematic understanding at all (Dreyfus 2001). Any attempt to provide a thematic understanding would force Euthyphro to start “thinking through” the rules or principles for recognising piety, something which he could never do since he had never followed any rules or set of principles to begin with (see section 1.4.1). In this example, I said that Euthyphro was demonstrating the sort of know-how involved in recognising meaning and that this is arguably very different from, say, knowing how to fly an aeroplane and so on. I applied the example to many of my respondents in this thesis because the example echoed the way in which my respondents knew how to do things, and their inability to provide a thematic interpretation of what they did.

The theme of know-how and the example of Euthyphro and Socrates was used to illuminate what was happening in a number of the cases I presented throughout this thesis. For example, in section 5.1.1 (in chapter 5 on know-how), I returned to the story of the Computer

Graduate who knew how to recognise a document type by “just the way it looks” (see section 5.1.1). I explained how I had asked the Computer Graduate how he recognised those documents on screen. By recalling the story of Euthyphro and Socrates, I realised that I was asking the Computer Graduate for an answer he could not provide. When he said that he “just knows” it’s a letter I became frustrated; but on reflection I realised I had fallen into the same trap as Socrates. Like Socrates I was frustrated by his Euthyphro-like response. He could not give the principles for recognising document types in the same way Euthyphro could not give the principles for recognising piety, despite knowing how to recognise document types perfectly well. I used the story of Euthyphro and Socrates in the case of the Director too. In the Director’s case, know-how was used to understand and work with others when building collaborations between different commercial companies. Instead of using know-how to recognise things (as in the case of the Computer Graduate), the Director used know-how to understand what his clients wanted in face-to-face communication with them. He wanted to get to know his clients and wanted his various clients to get to know each other. Knowing them however did not mean ‘knowing that’ (having a set of facts about each client). It was rather the sort of knowing (or understanding) which involved know-how. This became apparent when the Director used expressions like “hitting it off” to describe the sorts of collaborations he formed between his different sets of clients (see section 5.2.1). I asked what he meant by this term, but later realised that I would again only get a Euthyphro-like response (examples of his expertise, but not the principles).

In section 5.3, I gave the example of the Business Developer, whose organisation attempts to extract from its employees information about relationships with clients. By using the Heideggerian concept of know-how, and by referring back to the story of Euthyphro and Socrates, I showed that the Business Developer’s organisation was attempting to thematise the everyday relationships which employees maintained with their clients. They thought they could get employees to get this information out of their “heads” and start putting it into the system. But like Socrates, the Business Developer found this attempt to be unsuccessful. Any information recorded required a “sense check” (as the Business Developer describes it – section 5.3.1). This required somebody with know-how to look over the information, and to recognise what was important about the information regarding clients. Forcing employees to thematise their implicit, tacit knowledge was potentially detrimental to the organisation as well as potentially damaging to the way in which staff carried out their jobs. To put it bluntly,

reducing know-how to a set of thematic terms potentially devalued what they did within the workplace.

In section 5.4.2, I also used the example of Euthyphro and Socrates to illuminate part of the process by which many computer programmers arrive at producing auto-pilot systems. This process involved sitting down with many aeroplane pilots and asking them how they dealt with various emergency situations. Just like Euthyphro, the Pilot (along with other pilots) was being asked questions in an attempt to thematise his expertise. But the Pilot himself was unhappy with this process. He thought that it was impossible to come up with every possible emergency situation because he said that there were an infinite number of emergencies which might arise which he could never possibly think up until they actually happened (refer back to section 5.4.2). Towards the end of chapter 5, I again returned to the example of Euthyphro and Socrates, only this time in relation to the Teacher. In this case, the behavioural management system forced the Teacher to thematise what was happening in the classroom in the same way Socrates had tried to force Euthyphro to provide a set of principles for recognising piety. It asked her to report incidents in class, and explain why pupils were badly behaved and so on. It provided a thematic understanding of what was going on in the school. But I argued that the Teacher did not have to point out, define, or map out a strategy in order to resolve problems in the school. She simply got on with resolving issues in the way she knew how to. And so my thesis provided examples which cut across a variety of different sectors, showing how systems often encouraged thematisation to take place, which had various effects, many of which were detrimental to my respondents and the organisations in which they worked.

In the introduction I also outlined two associated ideas that relate to know-how and thematisation: transparency and conspicuousness (see section 1.4.2). In this thesis, I used these ideas to explore further the relationship my respondents had with the systems they encountered at work. I outlined transparency as something we also encounter primordially and contrasted this with conspicuousness which, like thematisation, was a deficient mode of comporting ourselves towards the world (remember I said that conspicuousness involved 'looking at' something rather than 'looking through' it). I said that for the most part of our everyday dealings in the world, things show up to us as *zuhanden*, meaning to hand, or ready-to-hand (Heidegger 2003: 103). For example, I said that the Teacher's chair is to hand

when sitting down to read her morning newspaper. The doorknob is to hand when opening the classroom door. The pen is to hand when writing in her diary. I said that when things are ready to hand in this way, they become *transparent*. So the Teacher “looks through” the chair in sitting down and reading. She “looks through” the door knob in the opening of the door. She “looks through” the pen when writing in the diary. In this sense I said that these objects are transparent (again refer back to section 1.4.2).

I used the concept of transparency to illuminate the way in which my respondents carried out their tasks at work. In particular I used the example of the Pilot (see section 5.4.1). There we saw that the Pilot’s instruments become transparent when he is using them during flight. Remember, that the Pilot said at an approach it’s going to be “that sort of angle”. He will listen to “that much sound” coming out the engines. And the engine instruments will be in “that sort of mark” (refer back to section 5.4.1). Initially it may have seemed that the Pilot’s judgement lacked intelligence. But by using the concept of transparency, I said that the Pilot’s equipment becomes transparent when he totally engaged in flying his aeroplane. He shows his articulation in simply knowing how to fly his aircraft. This is because transparency occurs when entities are suitably assigned to do the job (i.e. when aeroplane equipment is fit for purpose the Pilot need not “think through” how to use it). Only in some cases, where the equipment turns out to be faulty or not working effectively, does it become unready-to-hand, or present-to-hand (refer back to section 1.4.2 for a discussion of these terms). Throughout this thesis I have used the concept of transparency to show that my respondents have a thorough engagement in their activities at work and in these situations the equipment which they use shows up as ready-to-hand.

So we see that ideas of transparency and conspicuousness drawn from Heidegger’s work allow us to explore further the notions of know-how and thematisation. My use of these concepts, and in particular my use of Heidegger’s distinction between ready-to-hand and present-at-hand, was clarified throughout my thesis and was a direct application of some of Heidegger’s philosophy. We saw that technologies often seek to replace human knowledge that exists at the ready-to-hand level, as know-how rather than knowing-that, as tacit and implicit rather than discursively explicit or algorithmic. In many cases, my thesis showed that replacing human know-how with technologies that require explicit algorithmic type

formulations had various effects for my respondents, and for the organisations in which they worked, many of which were detrimental (e.g. a loss in the quality of the work). Forced discursive thematisation in some of the work places I have investigated in this study produces many problems because the know-how that has to be replaced with technologies of some kind, cannot be made fully explicit.

In Chapter 2, I discussed some of those who have already used know-how in their work. In particular I outlined the work of Dreyfus (2001) who uses know-how to show the limitations of artificial intelligence and expert systems when carrying out the tasks of humans. I presented the skill acquisition model that Dreyfus (2001) uses to show the extent to which expert systems can competently cope with many human tasks. What was particularly important in this model was that it showed how humans could use explicit rules and follow basic principles to carry out tasks at the level of the novice. But as humans passed through to more advanced stages, they started to leave explicit rule-following behind, allowing the immediate intuitive situational response that is characteristic of expertise. To put it bluntly, when proficient performers wished to progress to the expert level, knowing that was replaced with knowing how. I also paid particular attention to Suchman (2007) who distinguishes between “plans” and “situated action” in her work. I said that my research was similar to that of both Dreyfus (2001) and Suchman (2007) because, like them, I put a premium on knowing how, supported by the ethnographic data I gathered from the interviews with my respondents. Like them, I also emphasised the point that know-how precedes knowing-that. Suchman uses different terminology to express this point: “to think that rules, plans or procedures precede human activity at work misguides us in understanding how action is ‘situated’” (Suchman 2007: 67). Suchman (2007) pointed out that the idea that we can copy or mimic human activity at work using a ‘handbook’ of knowledge, leads us to believe that any task at work can be emulated if we so wish. But even if “implicit knowledge” could be enumerated indefinitely, deciding in practice about the enumeration of background knowledge remains a stubbornly ad hoc procedure, for which researchers have not succeeded in constructing rules that do not depend, in their turn, on some deeper ad hoc procedures (Suchman 2007: 64).

So Suchman's (2007) work has resonance with my thesis because it shows the way in which “implicit knowledge”, or know-how (as I refer to it) is fundamental to carrying out our activities at work and elsewhere. It also tackles the problems with replacing know-how using ICT.

Suchman's (2007) approach however differs from mine in that she primarily draws on ethnomethodology, whilst I use Heidegger's phenomenology. My thesis also draws on ethnographic findings to show the complexity of know-how (refer back to the different stories of my respondents I presented in Chapter 4). For example some forms of know-how were instrumental in nature, like the Pilot's understanding of how to hold the yoke in order to fly his aeroplane, whilst many other forms of know-how involved social relationships and communication skills (such as the Business Developer's contact with clients in the rail sector industry or the Director's business of building commercial collaborations). What becomes apparent in my analysis (presented in Chapter 4) is that some tasks can be carried out (replaced and so on) using particular forms of ICT (even with some difficulty), whilst for other tasks this replacement is impossible. Certain kinds of instrumental know-how are easily articulated into algorithmic form in such a way that ICT can indeed perform the activities as well or better than human beings but some know-how cannot be easily articulated into explicit form and some, it can be argued, cannot be made explicit at all, by its very nature. The respondents in my study worked in very different occupations requiring distinctively different forms of know-how. They also used (or resisted) technology that differed by type.

7.2 Summary of Bodily-Presence

My research developed another important argument in this thesis. I showed how ICT is used as a way of communicating with others at work, by substituting mediating technology for bodily-presence. I gave a variety of examples taken from the ethnographic research conducted with my nine respondents. For example, I said that telephones, emails, and video-conferencing often take the place of being bodily-present with others. My argument adapted Heidegger's (1992) discussion about the "Weidenhauser Bridge" in the *History of the Concept of Time* (see introductory section 1.5.1 of this thesis). Chapter 6 on bodily-presence was a particular place in my thesis where I modified Heidegger's ideas because this was suggested by recurring themes in the interviews. In particular, I modified Heidegger's argument about the bridge to include the crucial difference between social communication that takes place in bodily-presence and the kind of social communication that takes place via various forms of mediating technologies. Some may object that, by using the bridge argument, I am drawing on parts of Heidegger's work, *History of the Concept of Time*, that have different aims and

implications from those found in his later and more famous work, *Being and Time*. However, my goal has been to take insights I have found best articulated in Heidegger's writings and show where they help to bring implicit themes within my ethnographic data into explicit discourse. My emphasis throughout has been on my ethnographic findings, not on Heidegger's philosophy as a whole.

My use of Heidegger has enabled me to make an important contribution to the literature in this area, particularly by showing that there is an underlying ontological difference between social communication which is encountered in bodily-presence and social communication encountered via mediating technology. These differences have varying effects on my respondents (some of which are detrimental). I laid out this argument by introducing two very different ontological modes of communicating with others: the mode of bodily-presence and the mode of the picture-thing. These two modes which Heidegger specified, and which I adopted in light of my interviews, showed two very different ontological structures which my respondents experienced whilst communicating with others. I said in the introduction, following Heidegger's thought, that the first mode of the self-givenness of an entity is that which is bodily given. In Heidegger's example of the Weidenhauser Bridge, Heidegger says that we can perceive the bridge if we go down to the hill and place ourselves before it (Heidegger 1992: 41). By placing ourselves before the bridge, the bridge itself is bodily given. Heidegger added that "bodily presence is a superlative mode of the self givenness of an entity". (See Heidegger 1992: 41, and remember that my use of the term 'superlative' in my thesis is not an indication that my respondents would necessarily prefer to be bodily-present as this is not always the case.)

The other mode I introduced in Chapter 1 following Heidegger was the mode of the picture-thing (see section 1.5.1). I explained that Heidegger says that, in the postcard of the Weidenhauser Bridge, the Bridge itself is not bodily given: rather the picture-thing (the post card) is bodily given. But this is not a simple point. We see *through* the postcard to the bridge, and so there is a layered structure to picture-things. Thus the bridge itself is "now the represented in the sense of being represented by way of being depicted through something" (Heidegger 1992: 42).

What is most important to highlight is this: the apprehension of a picture-thing has a structure totally different from that of the direct perception found in bodily-presence. So by using these arguments from Heidegger (as outlined in my introduction) I pointed out that there is an ontological distinction between the mode of bodily-presence and the mode of the picture-thing, and I pointed out these differences with a particular focus on the different ways in which we communicate with others (specifically communication face-to-face or via the use of mediating technology). Heidegger (1992) points out that it is not the same to view the postcard of the bridge as it is to stand before the bridge itself, whereby it is bodily given, and I have argued that it is not the same to communicate with others using mediating technology as it is to communicate with others in bodily-presence. In Chapter 6 I used Heidegger's argument about the bridge, and applied it to a number of my respondents. I showed for example, that it is not the same to communicate with the Managing Director via video-link as it is to stand before him, whereby he is bodily-present (see my discussion of the Project Manager in section 6.1.2). I showed it is not the same for patients to be diagnosed over the telephone, as it is to be diagnosed at the surgery whereby the Doctor is bodily-present (see the Doctor's discussion of his patients which I address in section 6.3). Similarly, for my respondent the Teacher, I showed it is not the same to view the picture-screen of her pupils (on her behavioural management system) as it is to stand before the pupils whereby they are bodily-present. And so Heidegger's argument about the bridge has resonance with what my respondents say about mediating technology during my interviews.

By using Heidegger's ontological distinction, my thesis has also shown this: no matter how much we improve mediating technology to overcome the fact we are not bodily-present with others, the fact remains that we are *not* bodily-present with them and this is fundamental to the way in which we use mediating technology to communicate with others. As I showed in Chapter 6, the respondents in my study are ontologically primed to know the difference between communication in bodily-presence (i.e. being face-to-face) and communication via the use of mediating technology. I used Heidegger's philosophy to tease out this distinction in each of my respondents' cases, by showing how each of my respondents deals with this ontological difference. Many of my respondents make use of this ontological difference in one way or another. I reinforced my argument by giving examples of cases whereby my respondents preferred bodily-presence (refer back to section 6.1, 6.2 and 6.3) and also by giving cases whereby my respondents preferred to use mediating technology: they preferred

not to be bodily-present (refer back to section 6.4). Some people like communicating with others via mediating technology, and some people hate it. But my ethnographic research shows that in either case, people are aware of there being a difference between the two. I argue that these experienced differences stem from the ontological difference between the two distinct modes I outlined following the work of Heidegger (the mode of the picture-thing, and the mode of bodily-presence).

Finally, I would like to emphasise the point that my approach to using Heidegger's work in this thesis changed when considering bodily-presence. Whereas in the know-how chapter (Chapter 5), my use of Heidegger's distinction between ready-to-hand and present-at-hand (see section 1.4.2) is a fairly direct application of Heidegger's philosophy to my data, the use of Heidegger's (1992) discussion of "bodily-presence" in *History of the Concept of Time* is not direct. The discussion of bodily-presence that Heidegger gives in *History of the Concept of Time* was used as a "sensitizing concept" in my data analysis. This was because many of the respondents in my study had important things to say about communications with other people mediated by technologies, things that involved the lack of bodily presence between communicators. This brought to mind the bridge example given in *History of the Concept of Time*. The bridge example and its emphasis on bodily-presence is not identical to the issue of bodily-presence brought up by my respondents, but it has strong resonance with many things that my respondents had to say. To elaborate, Heidegger's discussion of intentional fulfilments in *History of the Concept of Time* concerns the meaning of signs (a sign represents a potential state of fulfilment that only the bodily-presence of what is represented by the sign can satisfy or "ground"). But in my research we have bodily-presence as a context for something else: communicating. Two or more human beings communicating with each other has a different structure because it is not the bodily presence of the other human being that is intended; rather it is a mutual understanding that is intended. Bodily presence of human communicators does not fulfil anything in that it is not a necessary, nor a sufficient, condition for reaching mutual understanding. Bodily-presence as part of a communicative setting is rather one of several contexts within which a special type of intention is pursued: mutual understanding.

Technologies change the conditions within which communicative goals are pursued by taking away the bodily presence of the communicators. This is not the same sort of situation as that

described in *History of the Concept of Time*. Nevertheless there is some resonance between these two forms of bodily-presence and this is what inspired my use of this sensitising concept in my data analysis. My respondents noted the distinction between communications in contexts of bodily-presence and communications mediated by technologies. In most, but not all, cases participants expressed a preference for bodily-presence when communicating with others. In a few cases, participants expressed clear awareness of the difference between telepresence and bodily-presence but either regarded the difference as unimportant (e.g. the Doctor, in section 6.3) or expressed a preference for technologically mediated communication (e.g. the Project Manager who believed her absence freed a colleague to act with more authority – see section 6.1). Use of Heidegger's discussion of bodily presence is therefore not a direct application of Heideggerian philosophy but rather an appropriation used to illuminate themes in the qualitative data. It is very possible that good philosophical arguments could be developed to show that bodily presence as the fulfilment of the meaning of a sign involves principles constitutive of bodily presence as communicative context. For example, the ways in which people reach understandings through technologically mediated interactions could be argued to be based on more primordial forms of human communication in face-to-face contexts and in this sense they make reference to and are parasitic upon face-to-face communication. But that possibility is not an issue for this thesis although it is something that may be pursued in future studies.

Finally, I want to conclude my thesis with a summary of my approach to conducting this research. My thesis adopted an ethnographic approach for understanding the way in which experts from a variety of different occupational backgrounds encountered ICT at work. Most of these respondents were professionals and gaining access to them and their workplaces would have been very difficult but the ethnographic methods I adopted enabled me to get into some situations and social contexts which I could not have achieved using other methods (the airbase I visited with the Pilot is one example highlighted in this thesis – see Appendix 10). Like many other ethnographic approaches, my thesis showed the importance of building rapport and establishing good relationships with respondents in order to understand them. The ethnographic interviews I conducted provided rich data, telling interesting stories from each of my nine respondents. These stories (presented throughout Chapter 4) enabled me to investigate the way in which they encountered ICT at work. The ethnographic methods I

employed were important for my study because they allowed me to appreciate and see things from the perspectives of my respondents, whilst at the same time maintaining a sense of detachment (see section 3.2 for a brief discussion of this). This is best exemplified by my participant observation at the airbase with the Pilot. I did not merely want to learn the facts about flying (as one might by asking the Pilot to fill in a fact sheet or questionnaire) but I wanted to know how to fly an aeroplane, and know how the Pilot used various forms of ICT on board his aircraft (see particularly sections 3.3.1 and 3.3.2). As I argued in this thesis, participant observation with the Pilot was not used merely to talk about flying, or just observe flying, but as well as these things it involved a practical engagement with flying where my understanding became articulated in the actual flying of the aeroplane itself. This 'hands-on' approach to doing qualitative research was influenced by Heidegger's thinking and the theoretical concepts I had already developed in my introductory chapter (i.e. know-how and thematisation). The analytic treatment of my interviews also used a Heideggarian approach, which I believe could be developed in future work within the social sciences.

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1 **Appendix 1 - Interview Transcript 1: The Computer Graduate**

2
3 Key

4 B: Brian

5 R: Respondent

6
7 B: Ok, so I'll just ask you first of all, what kind of things you do on an average [if you
8 like], an average week? At this moment, what kind of things do you do of a week?
9 What's your kind of routine for the week?

10
11 R: Well, I'm working Monday to Friday at [.....] which is a legal company, and
12 basically inserting data into the databases. That's what I do at work. Over the weekend,
13 I'm seeing my wife, go on some day trips, and that's basically it... and I do some studies
14 of an evening during the week, and on the weekends sometimes I go out with friends.

15
16 B: So you're just finishing your computer degree off?

17
18 R: Yes, technically, I've finished the degree, but I'm going back in August to re-sit my
19 exams.

20
21 B: Going back to your job, how many days a week do you work? [Did you work?]

22
23 R: Five days a week.

24
25 B: Five days, a week, Monday to Friday.

26
27 R: Monday to Friday.

28
29 B: Yeah, and you said it involves inserting data into a database. Is that right?

30
31 R: That's right.

32
33 B: And can you go into more detail of what that would consist of?

34
35 R: Well, its basically very simple database, Microsoft Access. And they are forms
36 [inserted into forms on Access]. There is varied data...[various data], depending on the
37 clients. For example we have [.....] and the main client we have is [.....]. Also
38 we work for small projects such as [.....] called [.....] and so, and so on...
39 However I cannot go into much detail what data I'm inserting. But yeah, it's a kind of
40 data from hard copy of letters, emails, reports, publications on various subjects.

41
42 B: Right, so you get given data. Is it numerical data or is it...?

43
44 R: Well, as I say it's a report, or could be anything, a publication or report or anything
45 like that. And it's printed, it's a hard copy on paper, or it could be digitalised [which is
46 just the image on the screen]. If the image appears on the screen, you view that image,

47 and you can take the data that you want, what you need, and you insert that data into the
48 database so you have got basically two screens - sorry, two windows on the screen. So
49 you are looking at one, the image, so you're looking at one image, you find what you
50 need for example, if it's a publication, you will look for a title of the publication, the date,
51 and the author, and you will put that into the database.

52
53 B: Right. So, can you think of any examples, recent examples where you've taken a
54 particular publication, or an article or an email? Can you think of an example of say, you
55 did last week?

56
57 R: Well last week I was working with [.....] company. We got it back, sometimes we
58 have documents or publications, as just mentioned, printed or published in 1960's for
59 example or 70's. So it could be back to the 60's, or even 40's and 50's I've found. So,
60 most of the publications are at least one page long. It could be even over fifty or sixty
61 pages. So, obviously, I don't need... My job doesn't require me to read those
62 publications. What I need is just the author of the publication, the date of the publication
63 and the title of the publication. So I don't really read the publication itself. Of course I
64 could do it if I wanted to. If there is something interesting there, sometimes scientific
65 publications, if I am really interested to, then I will read just a paragraph or two.

66
67 B: So is it a bit like...would you describe it like a big library, you're kind of like a
68 librarian in a way. You are picking a publication and you're slotting it into the right shelf,
69 if you like, in your database?

70
71 R: Well, I don't know if you can call it as a librarian. I don't really know how you call
72 that? But basically you take the data, and insert it into the access form.

73
74 B: So does it involve a lot of interpretation on your part to actually...

75
76 R: Oh right. Yes, I know what you mean. Well, it's really manual... Although you
77 interact with the computer and sometimes you don't have hardcopies or you get the data
78 from the images and you insert into the computer, its sort of repetitive and manual work
79 really. What I have to do is differentiate between the documents. If I have an image, and
80 it's an email... Oh yes, another information that I need to insert is its 'document type'. So
81 if it's a 'email', then I have to say that this is an 'email', so I cannot say it's a 'letter' or
82 'report' or something like that. So if it's an email, I have to put as that the document type
83 is an 'email'... Ok, let me just tell you in general ways what were doing this for... Well
84 this is basically for lawyers. So before they go into court for example, and see the court
85 and they argue the case - instead of taking all these hardcopies of the publications from
86 for example the [.....] archive, what they need. They have got all digitalised images
87 and it's all in the hardware... in the computer. The reason why we insert this into
88 Access... so when they go to court ... if the lawyer argues some case and he needs some
89 particular email sent five years ago, from one director to another. And he mentions
90 something about for example, what a particular cigarette contains, and it doesn't contain.
91 There's some really private email, that you know can't be accessed from outside, so he
92 can show and it will show on the screen in a court. And that basically makes the lawyers

93 life easier, much easier. So we insert the 'document type' and it's an email, and the date
94 the email was sent, and the author. And if it's an email or letter then obviously there will
95 be a recipient as well. And also CC, if it's been forwarded to someone else. And so on.

96
97 B: So this database that you use. It makes the lawyers... it makes their work a lot easier?
98

99 R: That's right yes. And also the clients, this particular one, the [.....company], they had
100 for years and years, for decades. They had data, or archive or library in hardcopies. So
101 they have a warehouse outside of London, and keep it in large boxes, and it's a big
102 warehouse... And instead of doing that, because today, many things are digitalised, so
103 they inserted this into the digital format. So instead of using one big warehouse, they can
104 use just one small room to keep all this data, really. And they can view anytime they
105 want. And it's easy to view. You just keep it on the database, a mass database and they
106 can just click. You can get the image or whatever you want, whatever you're looking for
107 on the screen.

108
109 B: So it's a lot quicker.

110
111 R: It's much quicker of course, yes.

112
113 B: When you're using this database system, what is it about the system... Why couldn't
114 you have a system that could just do it automatically say... from a sort of computing
115 point of view? Why couldn't you have a system that just reads the documents as 'this is
116 an email' for instance - so we are going to put this into the 'email' classification?
117

118 R: Well...

119
120 B: Why does the system require you?

121
122 R: Yes I understand what you're trying to ask me. There are a few things as a computing
123 science background student, talking about, that I could see that there are things that can
124 be improved or can be made in a more automatic manner rather than using people to
125 decide what this is about. And the computer could do it much quicker and in more of an
126 efficient manner. However in this particular point... If a computer I think... Well, there is
127 no software, there is no computer that can decide if this image is an email or is just a
128 memo, or is it a letter. So there is no software that can say this is an email and they have
129 to be differentiated between these three, and I don't think there is a computer that can
130 differentiate that.

131
132 B: Why not? Why not? Do you know why that's the case? How do you detect if this is an
133 email? Why is there not a computer that can do this job?

134
135 R: Well, it's just commonsense really. If you ask a computer what do you think about the
136 day? Whether it thinks it's a nice day, do you think it's a lovely day the computer won't
137 be able to tell you really. They can't tell you. You can ask any human being, what they
138 think of the weather, he'll tell you straight what he thinks about it.

139

140 B: So you think what you're doing... So you detect an email by its format, the way it's
141 laid out?

142

143 R: Just the way it looks yes. Well most of the time if it says it's an 'email', it has the
144 word 'email'. And if it's a letter, it doesn't say the word 'letter' on the document, but you
145 know it's a letter. So you have to put that into characteristics. Sometimes there are letters
146 that have been faxed, although it is a letter, but it's been faxed. So I don't know if a
147 computer can do that but I don't really think that they can.

148

149 B: Potentially, do you think in the future sometime that there will be a system that's
150 capable of just doing... Well it doesn't sound enormously difficult... Well obviously you
151 need to know whether it's an 'email' or an 'article', but do you think one day in the future
152 there will be a system that can actually do what you are currently doing?

153

154 R: I think... Well the short answer is 'yes'. It all depends of course on if it's in the
155 foreseeable future. It depends on when we are talking about in the future. If you're
156 talking about five years or ten years then my answer will be 'no'. If you're talking
157 twenty, thirty or perhaps fifty years then my answer will be 'yes', in short.

158

159 B: Why's that?

160

161 R: Well, again, because I've been studying. I'm not really a computer expert. I've not
162 really been studying expert systems in computing. I've got general background in
163 computing. But... however, I know how the source codes are written in computer
164 software programs. We touched a little bit of expert systems, so called artificial
165 intelligence side. Well, I'll give you an example, there is a software that can translate the
166 verbal language. If someone talks, for example me talking here - instead of the tape
167 recording, the computer could take that microphone and write that on the software. So the
168 computer can either hear something and write, or computer can read from the document
169 and also save. So there are already technology that can read like this. However, they are
170 not advanced enough. And when I said 'yes, in short'. What I mean is, when technology
171 develops further and further in the future, which I think it will, in time then the possibility
172 of reading each document, like what I'm doing now for example. If the computer can
173 read all these words of the one single document and can detect it is an email, and it might
174 not say it's an email but it read all the words. Which is not difficult. But I don't think it
175 will be based just on that. That's just one side. The other side is what the contents are of
176 the document. Because we don't really need to read... I don't need to read the whole
177 document in order to find if it's a letter or a publication. I can just tell, we can just tell.
178 But the computer can however detect. Which as I said, whatever I mentioned before - that
179 the computer can read, the computer can talk. That's just one sort of side. The other side
180 will be artificial intelligence which can be based on the contents of the documents. If the
181 documents are looking kind of publication, then the computer can decide, and also the
182 computer can decide in terms of when it reads the heads - the headers and the footers,
183 and things like that. And based on that then the computer if its programmed in a way...

184 again, perhaps in a artificial intelligence way, then computers can make the decisions that
185 we are making as humans.

186
187 B: So am I right to say, that you could have a system whereby it could read this as such as
188 such, by reading various aspects of the information it could detect this as an email, or this
189 is obviously a publication, because it has got references in, for instance. How many
190 emails does it have, do they reference authors and whatever else. So are you saying that
191 you could have a system which could potentially do what your doing at the moment?

192
193 R: Yes it could be possible in some time yes. In the future.

194
195 B: What would you... I mean, you mentioned artificial intelligence/ expert systems,
196 databases and whatever else. What would you consider that system to be? If in fifty years
197 time, you had a system that was doing your job, would you consider that to be an expert
198 system, for instance?

199
200 R: Yes. If the computer can read the contents of the document and as you just mentioned
201 now, if the computer can differentiate the publication from the letter because of the
202 references then I think that would be , well I would consider it to be an expert system.

203
204 B: What reason would you give? Could you not just call it a database for instance?

205
206 R: Well no, because the computer has to go through all the contents of the document and
207 the computer has to go through each word. Now... This is a very difficult subject to
208 really make it clear – things like expert systems, and what I consider now. When I said I
209 would consider expert systems if a computer can replace me in fifty years time. I also say
210 that in fifty years time, if I've been asked the same question I would probably say 'no' I
211 wouldn't consider the system as an expert system.

212
213 B: Ok. Why is that?

214
215 R: Well because I think the computers will be so much in everyday life. For example, if
216 we are using Microsoft word, and I am not considering Microsoft word as an expert
217 system. However, in twenty years time or thirty years time if someone been asked, 'Oh
218 do you think this is an expert system?' even me perhaps, if I was using then and I'd just
219 heard, I would say 'Oh yes, this is an expert system'. The same is with typewriters, no
220 one was using for centuries more than just typewriters. Then suddenly, one day Microsoft
221 Word revolutionised the way these things been typed.

222
223 B: Do you mean twenty years ago?

224
225 R: Yes. Twenty years ago.

226
227 B: When they brought out Windows and whatever else.

228
229 R: Yes.

230

231 B: If you say, taking a typewriter, then you would consider that change. And that would
232 be the similar to in fifty years time - you wouldn't call it an expert system because it
233 would be so ingrained or embedded in society.

234

235 R: Yes

236

237 B: Do you think then that the term expert system... - does it change? Is it something that
238 changes within flux? Is it flexible?

239

240 R: [pause] Well, it changes because we all know that technology changes. Technology is
241 evolving. We all know that. We don't need to be from the computer background or the
242 technology background in order to see this. It changes so rapidly, especially, the
243 computer technology, changes very rapidly. And we can see that there were no mobile
244 phones used by majority of people, and almost everyone is using mobiles today. And it's
245 about digital technology and about... In every mobile today there is a software. So it's
246 based... without computers being introduced, and without software being written there
247 would be no mobile phones for example. So yeah, technology is evolving, technology is
248 changing, and it's changing very rapidly. And I think because of that, we know that
249 technology is changing we can also say that this can change – my conception of what I
250 view an expert system today, will change over time, yes.

251

252 B: Do you think that conception would change? Do you think that's an accepted
253 conception? So you think twenty years ago people were saying – we've got an expert
254 system here. You know, no more typewriters – we've got Microsoft Word/ Windows,
255 whatever. We've got an expert system here. Do you think that people will be saying the
256 same thing? If tomorrow your boss says 'we don't need you anymore' to you... we've
257 got this new system, would he call it an expert system? Would people say an expert
258 system has just taken over?

259

260 R: Yes, it might happen. Yes, they would call it an expert system, but... I mean, I don't
261 know. If there was, which I doubt, that they can create something tomorrow. But if I lost
262 a job because of this... I wouldn't call it anyway an expert system... Perhaps I could.
263 Well, when I say I couldn't call it that's because I know that there isn't a system that
264 could replace, and differentiate between 'document types' for example. But I think most
265 people will say that there is an expert system that can do it, and thank you very much.

266

267 B: But you think in the future they'll drop that term?

268

269 R: Of course, it will be embedded in the everyday life. And also the new generation of
270 people when they're born, they will grow with these systems that they can take for
271 granted. They will not see it as an expert system. For us television was just a normal way
272 of living – having a television. But for my granddad for example, it was something wow
273 – it's an expert system. So I think the new generation, when they will be in their twenties,
274 in 2050 and this particular system will be, for example is introduced, what am doing now
275 is replaced by computers, then I don't think these people will call it an expert system, not

276 at all. There will be something new of course. Technology will be so advanced that there
277 will be something else going on, and that will be called an expert system.

278
279 B: Do you think if for instance, say a new technology emerged, like for instance a cash
280 machine – when a cash machine first started to appear, and people started to get the cards
281 with the numbers. Do you think they were considered expert systems?

282
283 R: Well, I'm just talking from my point of view obviously, I don't what people would
284 call it, but because I know how it works, and most people don't... if they are not from a
285 computing background, they might call it an expert system, am not sure but I'd rather [...] it
286 as an expert system because I've been studying in theory how cash machines or check
287 machines in Sainsbury's for example supermarkets work, and I don't consider it as an
288 expert system because they have been programmed in a way, either in an object
289 orientated language which is not artificial intelligence at all, its not touching the artificial
290 intelligence boundaries. So they are not really expert systems because they are
291 programmed in a way which is not considered in computer society as an expert system.

292
293 B: So, from a computing perspective, you say you use the term object orientated
294 language.

295
296 R: Well, the cash machines yes, it could be object orientated it could be not. It doesn't
297 matter, but what I differentiate is that its just pure computer language which has nothing
298 to do with the artificial intelligence. Which is also computer science, but artificial
299 intelligence is something to do with how humans behave, learning the human brains and
300 things like that. And for example, these cash machines, is nothing to do with that. Its just
301 mathematical or programming language, and that's basically it.

302
303 B: So, there's a difference between what's artificial intelligence and what's classified as
304 artificial intelligence and what's not. So you'd say for instance, if you had a system that
305 did your job tomorrow, which could read whether or not it was an email for instance, then
306 that would be artificial intelligence. Whereas a cash machine wouldn't be artificial
307 intelligence?

308
309 R: That's basically what I think. Well, I'll give you an example. For example, when we
310 go to cash machine we insert the card inside, into the machine. And you will see on the
311 screen some message, which is automatic – it's programmed that way. See the message
312 'please enter your pin'. So you enter your pin. If the pin is wrong, it will ask you again
313 'it's the wrong pin, please enter your pin', so you try again. And I think I can't remember,
314 if its three times it allows you to enter your pin. So, if the third time its wrong, it either
315 takes the card, or it gives you the card back. Which is programmed in a way that the lines
316 of code, in the language – it could be Java C or CC+ which is nothing to do with artificial
317 intelligence – if the pin is right, then it will go, by the programme, line by line and it will
318 ask you, 'what service would you like?' so you say, 'I want to see the balance', so you
319 press the button on the 'balance'. Ok, it does some interaction with the main system of
320 the bank, and the interaction with the database of the bank, and it gives you that
321 information on the screen. That's basically how it works. So the database is just data....

322 *[Phone rings loudly]* So these cash machines they interact with the database, and we all
323 know that databases [well I know] is nothing to do with artificial intelligence. And it's
324 just the system that collects the data, and you can put the data into the system and keep it
325 there. Whenever you need the data, you can ask the database, and it gives you a view of
326 that information. That's all a database is really. So when you click on the button 'I want
327 to see the balance', cash machine somehow because its programmed, - its nothing to do
328 with artificial intelligence, as I said, it just asks the database of the bank, which is not
329 where the cash machine is – its centralised somewhere, it could be in another country
330 even. Asks that, and it says... *[His voice goes very low, cannot understand]* and then it
331 shows on the screen. So that's how it works, so it's written line by line, you know the
332 code, in programming language. Now when we talk about the job I did, and if the
333 computer... why I differentiate like this... when I gave the example of the cash machine,
334 how it works. Now when I said what am doing, and if the computer will replace me one
335 day - We also mentioned that it has to read the document contents, and based on that has
336 to make a decision. Now that's... the core of this subject really, when we talk about
337 artificial intelligence. When a computer has to make any decision then I consider it an
338 expert system. Even a very simple decision. To make a very simple decision – I consider
339 it to be an expert system. Because at the end of the day, computers are just piece of metal
340 and codes been written, so you can not write something in software wise to make a
341 computer make a decision. You could, there are ways, but limited. So in order to
342 differentiate, which is very simple for humans, between document types, even that is very
343 difficult today to programme. So therefore, I would consider it as an expert system
344 because it is something to do with 'thinking' behind it. Although a computer wouldn't be
345 thinking, you know, it will go through the content and it will see the reference, it will see
346 that, it will see that, and based on that information what a computer has, it will give you
347 an answer it's an 'email' – or it's a 'publication', for example. Now having said that,
348 there's also the aspect about when a computer can make a decision on the basis that a
349 problem being written in artificial intelligence language. For example there is a... well I
350 touched it for example, there's a program called Prologue. It's based on artificial
351 intelligence so it would search the program for information, for example, any
352 information. And then you make this program make a decision. So if for example, my
353 parents, and I'm a son of my parent, then my son - The computer has to make a decision
354 that my son would be a grandson of my parent.

355
356 B: OK yeah...

357
358 R: So this kind of thing. This is very simple to put in words and explain. So this kind of
359 thing, I consider as expert system. So when I said the computer reading the contents of
360 the document. It's not just oh right ok, saw some references in there, and saw some
361 author, and some words and based on that it will know. When it reads all the words, and
362 perhaps even will make a decision what this is all about. In a publication you can tell. If
363 that is the case, and the computer can make a decision, then of course it is an expert
364 system. Because it has to be programmed in a way that I've just explained. If you fetch
365 that information. So the computer by reading all this contents it will fetch the information
366 and based on that. For example, I mentioned Prologue – This program will make
367 decisions such as this. Logical decisions. If I am a son of my father, then my son will be

368 son of the son of my father. That sort of thing. So, it is in a way artificial intelligence
369 because you make computers decide without letting computers know who is my son. You
370 just fetch the computer with information that I've got a son, but you are not saying that
371 my son is the grandson of my father, I'm just saying I am the son of my father, and I've
372 got a son. So the computer works out that my son must be the grandson of my father - so
373 that kind of thing - without explicitly telling the computer who my son is, whether he is
374 or not the grandson of my father.

375
376 B: So you see artificial intelligence and expert systems as having more, or making more
377 judgements on... I mean you give the example of the cash machine for example.
378 Wouldn't it be making a decision if it scratched your card on the third time that you never
379 put your number in correctly, and it swallowed the card. Would that not be a decision that
380 was being made?

381
382 R: Based on Artificial Intelligence?

383
384 B: Yes.

385
386 R: No, no, definitely not. Well that's because it's just a programme been programmed in
387 a way. So basically human told the computer. When we say programme been
388 programmed, that's what the programmer who is the human, programmed the software in
389 a way that the computer do this. So explicitly saying: 'IF the pin number.' for example,
390 there are actually, the 'IF' word in computing programming languages. So 'IF' the pin
391 number has been inserted and it's not equal to the pin number of this particular card,
392 which needs to be matched THEN swallow the card. And if of course IF it is the third
393 time of trying the pin, THEN swallow the card. It's explicitly the computer being told to
394 do that.

395
396 B: So Artificial Intelligence is more than just IF/THEN?

397
398 R: Well, of course yes. Artificial Intelligence is all about computers making decisions
399 without letting computers know. So you just have to fetch the computer just with the data,
400 and then you let the computer decide, to make a decision, and that's what I consider
401 artificial intelligence. At the end of the day, what artificial intelligence, what they are
402 trying to do is to learn how human brains work. The more they know how the brains
403 work, they will be in a position to advance the computer software. If they know how
404 humans brains work, then they can use that information and write software in a way that
405 can make those decisions today what humans can make today and the computers can't.

406
407 B: Can you think of any other examples that you might say would constitute as an expert
408 system or a form of artificial intelligence?

409
410 R: Well for example, I can name, well I can't name any particular one, but I know there
411 are a number of expert systems for example in medicine. So if you are a doctor,
412 especially, well, I don't know if GPs use them but when you are in hospitals and you
413 have to be diagnosed with Cancer or anything. Obviously doctors can diagnose without

414 making judgement on what the computer think. But today, I think most of this will have
415 to rely on computers. And in most cases, these computers in hospitals are literally expert
416 systems. Because these computers have been taught. OK, for example, the cancer can be
417 diagnosed if humans feel this, or this, or this, or can feel at night they have got this
418 feeling, in the morning this, or during the day they've got dizziness, or blah blah, so on
419 and so on and so on. Millions of information. And then let the computer decide if this can
420 be a cancer or not. I have very little knowledge of cancer, I just used that as an example.

421
422 B: Yes, that makes sense.

423
424 R: And of course then doctor when he sees them. I think 99% of these systems in
425 hospitals are accurate. And of course the final say is up to the human, doctor. If he agrees
426 with that computer, but I think its pretty accurate. And the reason why I said they are
427 using it there, is because, if we take these computers, they are programmed in artificial
428 intelligence programs such as Prologue. There are some other ones. When I said about
429 son of son of my granddad and so on. So the computers have this information that's
430 around them. They've got this random information about different diseases, and that they
431 can make this decision if these diseases picked randomly, what the user says I can feel
432 this or can feel that, I can feel that. So the computer based on that can tell, if this can lead
433 to the cancer or not. So this is...

434
435 B: Just to go back, you mentioned that doctors would have the final say. Do you not think
436 if expert systems are 90% or 90+% accurate, do you think there's any call or need for the
437 doctor to make the final decision.

438
439 R: Well, I don't know anything about medicine so I wouldn't be able to say but I think
440 you can replace even doctors, but there will be final say to the human, yes. But what I'm
441 trying to say, if you advance the artificial intelligence and create new systems, more
442 advanced systems, so that doctors can do something else - they can think in different
443 ways. They can do tests in university in different ways. You can use all this information
444 already there, that's been given by expert systems. You can use that in order to do even
445 more for patients, rather than the doctor spending time to diagnose patients, for example.
446 I don't know much. The more advanced artificial intelligence and more advanced these
447 expert systems are in hospitals, then there's more chance patients will get treated better,
448 more accurately and quicker and so on.

449
450 B: How would you feel, if for instance you had a pain, or woke up with pains one
451 morning or whatever the case may be. And you went to the hospital, and you had a
452 number of tests, and this just hypothetically speaking, this expert system was used to
453 diagnose what you've got. How would you feel about that? Would that be fine with you?
454 Or would you say...

455
456 R: Well, of course if that was only just for my cold then, I don't think that would be
457 tested by an expert system, then I would go along, yes. But if it was something more
458 serious. And I think more serious then... I would go along if the Doctor or Professor who
459 was looking at this case would make the final say, yes. They've been trained in a way that

460 they can't rely of course on expert systems, but expert systems give great support to
461 doctors. We are talking about efficiency; we are talking about time wise. So it's much
462 quicker for an expert system; it helps the doctor to realise what's going on, and the doctor
463 can make a decision in much quicker time. So it's saving of time, efficiency and also
464 accuracy. I think it could be accurate. There's a lot of doctors making mistakes when they
465 are trained to diagnose somebody, and I think if the expert system are advanced enough
466 they could be even more accurate than the humans can diagnose patients. So there are a
467 number of advantages, that you know...

468
469 B: What about, just going back to the examples of, if you walked into work tomorrow,
470 and your manager says to you, 'we don't need you today because we've got an expert
471 system doing your job'. How would you feel about that?

472
473 R: How I would feel?

474
475 B: Yes.

476
477 R: Well, that would affect my life and I wouldn't feel happy at all no - No, I wouldn't. I
478 would feel of course... It would affect my life. If that was my career job, then I would
479 have to think about either how to learn new skills and find a new job with new skills
480 which I think is a big challenge for me, if you've been working long time doing some job.
481 However, talking from background, well talking from what I'd like to see, and I'm not an
482 artificial intelligence guy, but I see in general in society, perhaps even today and in the
483 future of course it will affect individuals like me greatly. But in general, I think it will
484 improve peoples' lives in the future.

485
486 B: Expert systems and...

487
488 R: Yes, if I look at the whole thing, the much bigger picture, then of course, yes.

489
490 B: So even though now as an individual, you can see it from society's perspective as
491 improving.

492
493 R: Yes, and even at the time, if they purchase expert systems and they made a lot of
494 people redundant because they've got a system, then you know instead of paying one
495 year redundancy pay off, then they could pay for two years because they will be saving
496 forever and ever, for that particular job. And that would give me some more time to learn
497 new skills. And it will affect different people in different ways of course. The older you
498 are of course it will affect more than if you are younger, because if you are younger then
499 you got more chance to learn new skills to find new jobs. Now having said that there's
500 also the point of when there are new systems introduced you can of course cut down on
501 the amount of people you are using to do that. On the other hand you need more
502 specialised people to make decisions behind it anyway. It just makes really... the
503 company doesn't cut down on people in general unless they are manufacturers, or
504 something like that. You cut down on workers in a lower level but you need to create new
505 jobs for a higher level people to make decisions, for example. Which will make whole,

506 business perspective wise, will make whole company more successful if they concentrate
507 on the higher level.

508
509 B: You think it will be beneficial in the long run?

510
511 R: For the company, and you know for the economy. And if the economy goes... then its
512 good for people in general.

513
514 B: Ok. Well...

515
516 R: I am not saying what you want to hear.

517
518 B: Thank you very much. I might very well ask you for a follow up.

519
520 R: That's fine.

521
522 B: Nice meeting with you [.....].

523
524 R: And you.

525
526 **END OF INTERVIEW**
527

1 **Appendix 1b - Interview Transcript 1b: The Computer Graduate**
2
3
4
5

6 B: Ok, I think that's working... [*I place the Dictaphone closer to the respondent*]
7

8 R: Do you want to test it or?
9

10 B: Its working, I tested it before...
11

12 R: Are you sure?
13

14 B: Yeah, I'll just keep an eye on it because I've not changed the batteries but I've got
15 some spare ones there, so if you see that red light go out let me know [laughter]. Ok,
16 first of all, what's new? What's happened since our last interview? I know I've seen
17 you since but I've not really spoken to you about your work. I know you were
18 working for that legal company, whereby you were using a database to insert
19 documents or document types for lawyers to be able to see in court and access in court
20 and things like that. So I understand you've changed jobs now?
21

22 R: Yeah.
23

24 B: So what are you doing now?
25

26 R: Currently I'm working for Newham council and my job title is IT Support/
27 Monitoring and Reporting Officer. And what we do is help people to place them to
28 work in jobs... to find them jobs, for Newham council, and not only in Newham but
29 London in general, and our main employers are within Stratford and specifically in
30 the construction area for 2012 Olympics. So what we do is we have several sites. We
31 have 2012 Olympic village at Stratford. And we do Canning Town regeneration
32 project within the council and some other projects. I can't remember the exact names.
33 And what we do is we, as an agency so to speak, obviously not as private, but as a
34 council, we work as an agency and register candidates/ people who look for jobs, and
35 we register employers and jobs and we match those candidates to the jobs and place
36 these people to work and especially... we've got several things... single candidates,
37 or people with children, more than two children, three children. Also what we do is,
38 we have a different department who specifically go after those candidates who have
39 been without a job for over six months. The reason why is because the people who are
40 on benefits longer than six months... For them it is harder for them to get back to
41 work, rather than those that have only recently lost their jobs. So yeah, this is just a
42 general outline of what we do and what I do within that environment.
43

44 B: Ok, so you're working with employers and your working with people to allocate
45 people jobs. Is that right?
46

47 R: Not personally me. As I said I'm an IT Support and Monitoring/ Reporting Officer.
48 My job is really to go through all the data that is stored electronically in the database
49 or databases. So I'm going through their personal details, personal documents, their
50 ID's, proof of addresses, national insurance numbers. If they are alright, if they are

51 correct, and if they are eligible to work in the UK or not and so on. And sometimes
52 yes I do interact with candidates. For example if candidate administrator, who
53 registers new candidates, for example has some questions about eligibility, that
54 particular candidate who he is registering it at the time, can't make a decision, calls
55 me and in order to go downstairs and check that passport or whatever it is. It's ok to
56 register that candidate..... or that document is not viable.

57
58 B: So you have a database of peoples details?

59
60 R: Of course yes. Of all the candidates who register and I can say that there are more
61 than ten thousand candidates who we've already registered within our work place. In
62 fact it's called 'Workplace'. With a capital W. And we also register employers. So we
63 have this database system that we incorporate since April this year, last year sorry. A
64 new system. So within this database system we register all the candidates we have
65 registered. We have data about employers, the names of all the employers, the
66 organisation names, company names. We register contacts, such as manger and
67 human resources, or whoever the manager is in human resources, and so on. And we
68 have all this incorporated within one system, and it's called Microdeck, if you are
69 interested. Microdeck profile. And yeah, it's a very big database, and it has a front end
70 as well where all the staff in the workplace can use it. They can register the people,
71 can retrieve the data in the front end, they can change headed data and so on, and so
72 on.

73
74 B: Right. So you say front end. Are you then back office, back end, is that right?

75
76 R: My main job is in both, front end and back end as well.

77
78 B: Ok.

79
80 R: Well, am using... Yeah, fifty-fifty perhaps. Depending on what I'm doing. Well
81 probably more back end to be realistic because most of what I do is to retrieve data
82 from the database or to enter data. You know, to filter and to clean the data, or to put
83 in, insert in data or that.

84
85 B: So, on a typical day. So today for example. You went in to work say 9'o'clock?

86
87 R: Yes. Between 9 and 10am.

88
89 B: What would you do when you arrive into work?

90
91 R: Well it all depends because I'm doing two jobs, IT Support/ monitoring and
92 Reporting Officer.

93
94 B: So you have two jobs.

95
96 R: Yeah, IT Support, slash Monitoring and reporting officer. Now IT Support is
97 completely different from the monitoring job, because what I do for IT Support is
98 basically providing the IT infrastructure for the company. You know connections, if
99 they have problems, I have to trouble-shoot those problems. If the networks not

100 working or whatever it is, or if people can't log in, whatever it is. People can't log in
101 for example, or they have no access to a particular hard-drive or database.

102
103 B: Ok.

104
105 R: That's one thing. Sorry, you asked me for today. The reason I'm going through all
106 these details now is because I had to do both IT Support and Monitoring officer. So I
107 had a few queries about people who can't get things done and have some technical
108 problems so I had to go and fix those problems or *try* to fix those problems.

109
110 B: So what kind of problems?

111
112 R: Things like they can't do... They couldn't have network issues like this... but what
113 I'm getting to is that there *is* a boundary which is a slash between IT Support and
114 Monitoring and Reporting Officer, however sometimes because perhaps sometimes of
115 my background and my skills... for me personally they merge sometimes in one. The
116 reason why... is probably it will be good to give you today's example. One of the
117 managers, she had a problem to print and [cannot hear] merge documents within the
118 database. Now this database system provides the functionality to print a list of those
119 candidates for example, and [cannot hear] and things like this. And there was a
120 technical problem and so I had to sort of see this problem from different directions.
121 From the direction from the user's perspective, what she wants to do, for example.
122 And as a monitoring officer I could see those things and I was trained and I had the
123 training how this system should work, as an administrator, but also from an IT
124 background I had to see why this is happening. Is this the IT problem, or is this the
125 administrator's problem from the point of view of the monitoring and reporting. So
126 these kind of titles merge. And so this is the example... so I had to think... when I had
127 to make a decision of what it is, that is where I can see the clear difference. Is it IT or
128 is it the monitoring/ reporting. However, that's not my job really. I had to just think
129 what the problem is, so then I'll go and tackle it.

130
131 B: So when you're saying its people working on the front end. Are these people
132 working in your office or are they in the centres, the centre for...

133
134 R: We have the main office in Stratford. We have three floors: basement; we have two
135 rooms, different department within the workplace. There's SPA which stands for
136 Single Point of Access. So they go... those people working in the SPA team. I can't
137 remember, there's 15, or 20 maybe. They go within council - different places.
138 Libraries, schools, colleges and they register people such as parents who are on
139 benefits and they have their children's schools. So Single Point of Access. Then we
140 have a construction team who only specifically look at jobs and for people who are in
141 construction related jobs. On the ground floor there are accountant administrators.
142 Basically it is a recruiting team. What they do is they register contacts, so we have
143 about 40, sometimes over 50 candidates registering everyday and because we have
144 this large turnout we had to restrict registered accounts only within Newham council.
145 And then there's the first floor, that's where the managers are placed, and there is the
146 monitoring officers, and MEP, which stands for Mayor's Employment Pilot team.

147
148 B: Stands for what sorry?

149

150 R: Mayor's Employment Pilot team. And they also want to see those people who are
151 really disadvantaged people, who have been out of work for six months or even a year
152 or two. So that's what they are trying to do. To get people in the habit to go to work
153 basically. And even if they are there for a couple of months, it doesn't change
154 peoples' perception or attitude towards going to work in employment (*glasses of wine*
155 *are filled up*). Being in employment. And I think this is very important for us, so
156 because of this and other reasons we have this team called Mayors Employment Pilot
157 Scheme. So monitoring team we do... there's three of us in that. We oversee all this,
158 how they interact between the teams within the workplace. And we oversee the
159 general data within various... that is retrievable, and we can produce a report and so
160 on.

161
162 B: Ok, so you can see how the different teams communicate and work together in
163 your organisation?

164
165 R: Yeah.

166
167 B: And how do they communicate? And are they all sat in the same office? Are you
168 sat in the same office as them?

169
170 R: Yes they stand on the ground floor and on the first floor. So they are spread out on
171 them three floors. Now the teams don't really interact between them, because they've
172 got different agendas, different goals, objectives. But as a monitoring team and as a
173 monitoring officer, I had to look after all the teams' data and database. We all use one
174 database, a centralised database and most of the reports, 90% of the reports if not a
175 100% are produced based on all the teams within 'Workplace', whether it be for the
176 mayor or senior management or council, and so on. So yeah, I personally can see how
177 teams perform for example in terms of achieving their goals or objectives and so on,
178 because I have to produce some reports for the senior managers.

179
180 B: And when your dealing with... as the IT support person, and as the monitoring
181 officer, when your dealing with peoples problems or your looking at the teams
182 performance or how they are working together with other teams, are you speaking
183 with them face-to-face? How do you interact with them?

184
185 R: Well, most of this is face to face of course. I have to mention that the ICT
186 department in Newham council is very, very good in terms of technology. It's very
187 advanced. They trouble-shoot most of the problems on the network. However, there
188 needs to be someone within the place who is there to interact between people like in
189 the workplace [phone rings loudly]... sorry about that... and ICT. So, I'm in between
190 the users and ICT. So yes, I have to deal with people face-to-face in order to find what
191 the problem is. And if I can trouble-shoot the problem, I can trouble-shoot straight
192 away. If not then I'll contact ICT, and then I'll do it through ICT. The ICT is a
193 different department and different location completely. Centralised within Newham
194 council within one building.

195
196 B: And when you say 'troubleshoot' problems, what do you mean by troubleshoot?

197
198 R: Troubleshoot in IT problems such as networking or they can't log in, or whatever it
199 is.

200
201 B: So, like reporting?
202
203 R: No reporting is done from the managers.
204
205 B: Ok.
206
207 R: People using computers... what they need is that they can use is software that is
208 available [phone rings loudly again]... sorry Brian. I don't usually receive these
209 phone calls.
210
211 B: No that's ok, go on.
212
213 R: [*Respondent picks up phone, Dictaphone is stopped for a minute*].
214
215 B: Yeah, so you were saying...?
216
217 R: About interacting face-to-face with people.
218
219 B: Oh yeah, that's right, so you interact with people face-to-face?
220
221 R: That's right yes. Now, probably this is going to be very useful to note. The
222 structure is that there the ICT department within the council. The council is huge. For
223 example take Hackney council. So it's a huge council; and there is an ICT...
224 centralised IT department. Now what they do is they provide IT service. They provide
225 service to everyone working within Newham council. There is hundreds of
226 departments and hundreds of places and hundreds of physical locations, different
227 locations and the reason I said they've got this very good technology is because they
228 invested in it recently. And what they have... they can remotely do everything
229 really... troubleshoot your problems. And if they can't do it from the servers they can
230 access it to your computers to your local machine remotely and then they can fix it.
231 Now, even though the system is there, they still need someone within a local location
232 who knows and who speaks the computer language basically.
233
234 B: You mean someone on site.
235
236 R: On site. Not who knows computer language but who knows *their* language, who
237 are people really, working within IT.
238
239 B: What do you mean by *their* language?
240
241 R: What I mean is that we have about 80 or a hundred people in the work place. On a
242 daily basis, there are several problems, networking issues, log in issues, some other
243 problems, IT related problems. And there are one or two persons who deal between
244 the people and IT. Now dealing with IT is not with the system it's with people, but
245 they prefer having someone within the site so they can interact better when we talk
246 about hard drive, or we talk about networking, there's IP addresses and so on and so
247 on. For them it's much easier to have someone at the site, who can over the phone, tell
248 them 'ok I can see this, and do this, oh and you want me to do this, yeah, I can do
249 this'. Things like this – it makes it much, much easier. If they have phone calls, and

250 they probably receive thousands of phone calls per day, from ordinary users from all
251 these different locations within the council, then they wouldn't be able to support all
252 that because all these people are from different levels, backgrounds, different
253 knowledge, and they wouldn't be able to support because.... They could be managers,
254 they could be users, just ordinary users in reception, or it could be someone who is
255 very literate in IT. So they prefer to have someone who is an IT sort of person in
256 different locations, just one or two, you know, and then they can deal with them.
257 Although this person is just a mediator between the user and the IT department.

258
259 B: Ok, so they are a mediator between the ICT department and the people.

260
261 R: Exactly. The users.

262
263 B: Ok. Is that because the ICT people speak their own language?

264
265 R: That's one thing yes. Yes, speaking the language is the very general way to say it,
266 yes. For example you have a problem, and you are not ICT literate. You call the ICT
267 number and you say, 'oh I've got this problem'. They wouldn't understand that easy
268 unless you know what you're talking about. If I call them and I say this user has this,
269 this and this problem, because I'm coming from *their* point of view, how *they* can see
270 the problem. And it's better for them to understand, and it saves time, and they will
271 not be guessing what to troubleshoot, and then they will trouble shoot and then it's
272 done, the job will be done within 15 minutes. But if its going to take a user, an
273 ordinary user who doesn't know anything about computer, or knows a bit about
274 computers but needs to know how to play this or how to use excel, they will have
275 problems how to really explain because when I said there was different departments,
276 different locations there are also different staff right. One location, and one
277 department doing one thing, and in another location... Although they use mostly
278 excel, word and general things. However, they have different goals, different
279 objectives, different things... And also they operate from different servers. And it's
280 important I think for IT that they have their people from these departments who
281 knows about the sites, operation, and IT infrastructure, and that they know what the
282 users needs are and how they operate. And when they receive phone calls they have a
283 clear picture of what's the problem and what needs to be done.

284
285 B: Right, so the ICT people... Sorry, you in your job, you act as a mediator as you
286 described it.

287
288 R: That's right yeah.

289
290 B: Is that because you've got... both you understand the peoples jobs, what their
291 doing, that side of it, whereas the ICT people don't understand.

292
293 R: Exactly.

294
295 B: Plus you understand what the ICT people are doing.

296
297 R: Exactly.

298
299 B: And the people don't understand the technical side.

300

301 R: That's right, people don't understand the technical side, and also ICT side don't
302 understand what people do, because they have been receiving phone calls from
303 different departments, different departments different locations. They do completely
304 different things. At Workplace which I mentioned earlier, we create jobs. We offer
305 jobs to people, local jobs for people. We are looking for jobs for people, we help at
306 least. There are departments such as housing benefit which are also a department
307 within council. Now the housing benefit's needs are completely different from ours.
308 Social security or council tax even, could be in the same building have different
309 needs. Now moving towards education for example, Newham college, for example is
310 funded and is part of Newham council. Now the college needs for IT infrastructure, is
311 completely different, completely different needs, completely different direction. And
312 therefore it is important for ICT to have their own people, at least just as a mediator.
313 That's the very important thing. As a mediator as well rather than having the
314 department also within each of those ... no they just have mediators, and they all
315 troubleshoot from the centralised location, ICT location.

316

317 B: What do you think would happen if they didn't have those mediators there?

318

319 R: Well, if they didn't have the mediators, as I said, not just the users wouldn't speak
320 the ICT language, but ICT wouldn't understand the users' language because of all this
321 variety within the council.

322

323 B: I know you said you deal a lot with people face-to-face within the three floors of
324 your building. But say you're trying to help, or communicating a message from ICT
325 to one of the users. Typically, if they were on the floor below, would you email them
326 or would you phone them up?

327

328 R: Normally what happens for example, if someone has a problem they would give
329 me a call, so I am the first contact. What I do is I'm first line of support, basically. So
330 they'll tell me what's wrong with the computers and if I think that I have the time
331 myself and the problem needs to be done straight away because they can't move on
332 and they can't register candidates for example. So I put it in the criteria sort of thing.
333 So if it has to be done straight away, I will go down myself to the ground floor
334 basement and I will try to solve the problem straight away, which is face-to-face.
335 Usually I would ask the user, what was the problem, and I would try myself, and I
336 will see all the messages. So I will see what the problem is from the users perspective
337 and then I will sort of process in my brain, from the ICT perspective and then I will
338 put this all together and then I will call ICT and then I will tell them what is the
339 problem and what I think can be done and even how it can be done. Because in ICT
340 anyone can pick the phone up. And he is just speaking to Newham College and he has
341 no idea what this particular users objectives are, needs are, and why it's happened
342 and how it can be fixed.

343

344 B: Do you find it better going downstairs and seeing them face-to-face than perhaps
345 phoning them up?

346

347 R: Well, they phone me up and then I go downstairs to see what it is. Because I'm a
348 mediator really I have to... that's what I'm there for. To see what the problem is.

349

350 B: Can't you just go and look. What do you call it?
351
352 R: Remotely?
353
354 B: Yes, remotely, can't you just look at the problem remotely?
355
356 R: I can. Sometimes I do that as well. If it's not really an important issue... Even at
357 Workplace we have two different locations in fact. One is in Stratford and there's a
358 smaller group in Canning town so obviously I can't go to Canning Town (he chuckles)
359 and see what the problem is. 'Oh, why can't this particular user not log into this
360 particular machine'. So I have to log in remotely to see what the problem is. So
361 obviously because I'm not there I can't even do anything. But I will be able to see
362 what the problem is and how it can be fixed. So then I call ICT and tell them exactly
363 what the problem is and how it can be fixed.
364
365 B: Ok. How do you find this job? Because I know we spoke about the system you
366 used in your last job: the database system. How do you find using the database system
367 you have now? Do you have the same sorts of issues? Because one of the issues that
368 we talked about last time was, I said to you... We talked about there always being a
369 sort of need to automate processes.
370
371 R: Yeah.
372
373 B: And trying to automate as many processes as you can in an organisation. And you
374 spoke about some of things like cost and making things more efficient and you said
375 that could be good for organisations. Generally, or usually it's quite good. You said to
376 me last time about automating these processes, but you said that there's certain things
377 that at the present the computer can't do. So you said it can't recognise whether a
378 letter was a letter or an email was an email and that's why your role was so important
379 because you were there to specify if it was an email, if it was a letter, if it was a fax.
380 Do you have similar problems? Is there things that you think could be automated?
381 Could aspects of your job be automated?
382
383 R: Well yes of course. Of course it is because I think this kind of problem will come
384 up in every organisation really. On basically every level I think. I probably will start
385 with what I do as a monitoring officer. I do similar things. I clean the data within the
386 database. In fact, when I started with Workplace, my job was to just write data into
387 database. I was on temporary wages, you know. Then they made me permanent and
388 then they found out I had a degree in Computer science. The fact that I could do more
389 than just enter data into databases. Then they gave me the opportunity to do IT
390 support. Then they found out I can do programming and that's where the interesting
391 bit came in, for me personally and for them. Because, exactly to automate things
392 within the system. So there are the managers who want data or reports. And there is
393 data within the database, and somehow this data needs to be retrieved and presented.
394 Now our job in the monitoring team is to retrieve this data and present it to managers.
395 Now, my title is Monitoring Officer, within monitoring team. My line manager is
396 Senior Monitoring Officer. Now it just happened that my manager is not technical.
397 He's coming from law background. I'm coming from computer science background.
398 So I saw that my line manager would produce a report on a 'come and get' basis. So
399 the managers would come, with the query: 'Oh guys I would like to have a list of all

400 those candidates who started work between this and this date, who were on a benefit
401 longer than six months and who have children' and something else, for example. The
402 criterias. And they would like to see their details in terms of addresses, names and so
403 on and so on. And Gareth would make this report which might take an hour. And
404 sometimes it would take longer than a working day. And every time they would come
405 they would have slightly different but similar sort of query. And Gareth would go and
406 do it again and again. Now these queries are retrieved through Microsoft Access. Now
407 what Gareth then does is he copies all the data through Microsoft Excel then formats
408 that all manually. Every time a manager asks for that report he will do it manually and
409 then in the end he presents this report in Excel. So because I'm coming from technical
410 background, I had the idea straight away that all this can be automated. So why are we
411 using everyone's time, especially the mangers time. They have no time for this,
412 coming and explaining all this. And there is not much time within monitoring team as
413 well, creating all this, you know. It's going to be automated. And in fact, by
414 automation even managers don't need to move from their desk. They come to the
415 monitoring team and ask 'oh I would like this, this and this'. They spend another
416 fifteen minutes explaining what they want, going back... And after five hours or even
417 a whole day getting this data what they wanted initially. And all the time this is taking
418 their time, and monitoring teams' time, managers' time. So by automating all this the
419 managers can sit at their desk (more red wine is poured into glasses), open their excel
420 file and this excel file can open with up to date data within Excel, all formatted, all
421 automatically within a few seconds, it can all be there.

422

423 B: So you've automated some of the processes?

424

425 R: So I automated some of the processes and I think this is a big benefit. Efficiency
426 and everything. So, yeah, I've been automating all these things. I was writing a code
427 in Excel in Micros Visual Basic. And because all the data is stored in Microsoft Eskio
428 Server on a different ICT. So what we do, and what Gareth does, my line manager is
429 doing queries through access. Now even Access is a kind of mediator between us and
430 Microsoft Eskio Server. When I automate things, I get the data straight from
431 Microsoft Eskio Server and its much faster, much quicker. Yes it takes time to create
432 this, to write this. It might take a whole week for example. However wants it's done,
433 it only takes a few seconds for the user to click and it opens and its there, ready to use,
434 ready to read. So yeah, I've been doing this and I think it saves everyone's time.
435 However, having said that there are still problems. In fact I automated things and it
436 created the same problems. Especially for the senior manager, centre manager who
437 oversees, who I work with. Who is not technical, who is not quite technical. So that's
438 probably another issue (whispers about having some problems working with his line
439 manager).

440

441 B: (laughter). Well I was just going to ask. Because you spoke about making these
442 things automated. Same question as I asked you last time for the last job you did. Can
443 aspects of your job be automated?

444

445 R: What I do?

446

447 B: Yeah.

448

449 R: Yes, well I named things like Microsoft Excel and Micro and Visual Basic Editor
450 and I mentioned Microsoft Eskio Server.

451
452 B: Sorry, I'm thinking about you saying that you're just a mediator between the user
453 and the ICT guy.

454
455 R: Right.

456
457 B: Is it not possible that some of that is... Are you vital as a mediator or can't
458 processes be put in place whereby users can get the support directly, either from a
459 person from ICT or via their computer themselves.

460
461 R: They can do that yes, but as I said they are talking different languages. And its time
462 efficiency. The ICT guys are going to spend all their time wasting their time. And
463 users are going to waste their time because if they can't use the system obviously. If
464 something can be done in fifteen minutes then they can use the other forty-five
465 minutes to do their job. If however, this mediator is not there then this fifteen minutes
466 can take one hour, so forty-five minutes is wasted. Same thing happens with ICT. In
467 fact ICT can waste more than that because more than one person can be wasted
468 because they can re-direct the question to some networking department or application
469 support department and so on. So it's quite a complex thing, so I think it's really good
470 I'm there.

471
472 B: One of the things you said last time about your... because I remember you saying
473 about the job you did last time with the database. And you said at this present time, in
474 terms of the current way technology is, you said you are required to make sense or
475 interpret whether it's an email or a letter.

476
477 R: Oh yes, yes.

478
479 B: And I asked you how do you know if it's an email or a fax or a letter and you said
480 that 'you just know'.

481
482 R: You just know, don't you, because you are human. You can see in the writing or
483 printed email and you can say this is an email, because you can see the email address
484 on it, you can see the time, you can see this, and you can say straight away say 'oh
485 yes, this is an email'.

486
487 B: And a computer can't do that?

488
489 R: Computer probably can be programmed in order to read. Still however, its not...
490 The fact is there were no programs doing that, so therefore probably not yet.
491 Computer can do what the human programs. If the human is not programming
492 anything, then the computer won't do nothing. If you program a computer 'I want you
493 to add two and two, and this two and two will be four'. If you say this to a computer,
494 next time you ask him, he will give you answer (respondent clicks his fingers) just
495 like that. Right?

496
497 B: Yeah.

498

499 R: Or even a complicated question you ask the computer. You tell the computer what
500 the answer is. For example, 'two plus two, divided by eight, multiplied by a hundred
501 and so on and so on, the answer is this'. You say this to the computer once, so next
502 time you ask the computer what the answer is, for you or me or any human it's going
503 to take some time to calculate. More complicated equations. The computer will tell
504 you (clicks his fingers again) just like that, every time. So computer does what
505 humans tell the computer to do basically.

506
507 B: One of the things you said last time as well, was the idea that if the system was to
508 do your job, and again with your current job your saying that your vital as a mediator
509 with these two groups of people. And like last time you said, if there was a system
510 that could do your job, you said potentially it could be an expert system. Because a
511 system that's carrying out a certain amount of expertise, possibly a form of AI, a form
512 of Artificial intelligence. But what was really interesting that you also said that in the
513 future that if that happened in the future, and you said that was a real possibility that
514 you could see that in fifty times that the likely hood is that your job, your previous job
515 especially recognising whether it was an email or a letter and so on. You said that,
516 that would have been taken over by a system. You said perhaps in fifty years time, it
517 may not have been defined as an expert system. Can you expand on that?

518
519 R: Well, I'll give you an example. For example, when we had technology to fly
520 planes. It was late eighteenth century or early twentieth century or late nineteenth
521 century. People were flying small planes. So you could see where the technologies
522 going within just one hundred years. Last twenty years. I can't tell you exactly, but
523 roughly last twenty years, there are new planes that are flown without pilots. They are
524 computerised. So the computers are flying planes, controlled of course by humans.
525 But still, there is efficient information and programming in this pilot within these
526 drones, or whatever they are called, in military especially. And they observe the area,
527 they scan the area, they take the pictures, they send them back to base in real time,
528 and so on and so on. They can even fire weapons. And they can see where the targets
529 are. They can take the target out, and so on and so on, right. So we can see already it's
530 been computerised, these things, it's being done without humans. So yes, my answer
531 is almost everything will be computerised in our lives. The last twenty or thirty years
532 ago, there was a big thing about artificial intelligence and that everything will be done
533 by computers and so on. However it never happened then, but it is happening in some
534 ways. So that was the perception of the revolutionary vision, but it is happening in
535 revolutionary ways, because having these planes without... unmanned planes is
536 extraordinary, you know. So the computer in those planes or the computerised pilot in
537 those planes makes decisions and fires the targets and based on that knowledge,
538 whichever target, whether it be enemy targets or friendly or whoever it is, it fires.

539
540 B: Who's firing the targets if it's unmanned?

541
542 R: Well I don't know, I can't say those things because I'm not there. It could be sent
543 back to real time, sent data back to base. Then they say (clicks fingers) yes absolutely.
544 On the other hand it could be just anything, motor or anything: 'Ok it's a target, then
545 fire'. I'm just saying... normally if its not there to make a decision but he will be
546 there.
547

548 B: Quite interesting that. So say the enemy is sitting and seeing this plane coming
549 over and it's firing at them, what will they be saying? Will they say 'oh that will be
550 the pilot of, I don't know... America or Britain firing at us? How do they view it? If
551 they knew that the plane was unmanned, how would they view the attack?
552

553 R: No people wouldn't see. It wouldn't make a difference if it's manned or
554 unmanned. Man can probably see the difference by watching the television or screen.
555 You can see the design, they are smaller, and they are this. But you can tell already
556 they are producing bigger ones, more sophisticated ones and so on and so on. What I
557 am trying to get into is that technology is evolving and evolving, everyday it never
558 stops. And certain things are happening with data entry and what I was doing last year
559 in that job. So if that job wasn't been replaced by computer then, it will be replaced in
560 another five years, twenty years or fifteen years time. Because technology will be
561 there, it will be available. So everything is computerised, everything is computerised
562 and it will be computerised.
563

564 B: One of the examples you gave last time was about type writers and Microsoft
565 word. And how that revolutionised type writing. And you also gave the example of
566 TV. Because you were going back to this idea of expertise, expert systems, what's AI,
567 what's Artificial Intelligence. You said your granddad might have said fifty years ago,
568 'oh look at this, this is a TV, wow, wow, it's an expert system'.
569

570 R: Yes, exactly. We take for granted. Yes, exactly. My nephews who are younger than
571 me obviously. One is nineteen, one is twenty. When I was in Georgia, I took a laptop
572 to them and they sometimes connect to Sky and send me messages. And I can see
573 already that they are using Sky technology, you know, sending online chat, sending
574 these messages, whatever is available. They are using this, even though they have
575 never had a computer before, but for some reason I can see that they can use the
576 computer much, much easier than it was for me.
577

578 B: Why is that?
579

580 R: I don't know, I can't say. When I started learning computers it was harder for me, I
581 was scared, I was this... but for them it was easier. Probably because it's a main
582 stream computer, I don't know. But the fact is (clicks his fingers) they just picked it
583 up and they can do even more than I can. Not technically, but from the users
584 perspective.
585

586 B: That's interesting.
587

588 R: Now in terms of also using these things, computerised and all that. I mentioned
589 when I was automating processes or reports in my current job. And my senior
590 manager who has been replaced. Sorry my new senior manager, not that he didn't like
591 it. Because when I did it, every manager, five or six managers would spend thirty-two
592 hours per week to produce a focus report, so there would be different workbooks,
593 excel workbooks and every week they would spend two hours to run some queries
594 within the database, and manually insert that data into excel or whatever. Spending at
595 least two hours. So that's twelve hours, that's almost two days, two full days. You
596 only work five days a week. Now when I automated it, the system wasn't there yet,
597 but the computer could have been producing these within seconds. When he realised

598 that I was going to spend maybe two weeks, three weeks creating this automation. But
599 it's not just that, my senior manager complained that I was doing this rather than
600 something else. So they told my senior manager, my line manager sorry. So the senior
601 manager told him that that's his priority, he would rather... sorry I probably shouldn't
602 have mentioned that. My senior manager told me that he'd prefer team leaders, or
603 team managers would spend these two hours and produce them on their own. The
604 reason why is that they can see who is doing well, who is not doing well, where this
605 is, where the problems are and how it can be improved. If he is going to click and
606 within a few seconds its going to be there and he is going to go every week to
607 managers meetings, and he is going to say your team is not doing well, and your team
608 is not doing well because of this and this. The team managers wouldn't understand
609 why. They wouldn't see what's going on, you know. 'Oh my god, blah, blah, blah...'
610 But when they are creating themselves, they are running manually one-by-one, and
611 then they insert spending two hours doing it, they know they have a clear picture of
612 what is going on, so then they can manager their own teams much, much better, in
613 order to meet the goal for next week or the objectives...

614

615 B: So automation wouldn't pay off in that...

616

617 R: From this particular manager I guess, no. But I don't know I'm not the senior
618 manager, I can't really tell. I can't really tell, you know. I can't really give feedback
619 from that, but that's what I gathered.

620

621 B: So the system, by automating it would have been taking away something that...

622

623 R: Yeah, but on the other hand I'd say probably, that because of my line manager who
624 complained that I'm spending too much time on this automation... Because what I'm
625 trying to say is yes, it can be automated, yes this automation can take things away
626 from the team managers. However this can be replaced by something else, or by
627 another automation, or by the system. Not just the senior management run this
628 software but the team leaders, team managers run this software. Instead of spending
629 two hours... There is no necessity to spend two hours in order to see the performance
630 reviews. You can run within seconds. Personally I think that the automation was a
631 great thing, it's just how you use it. This is part of the general thing. How you use
632 technology.

633

634 B: And it needs to be used sensibly.... (short silence) Ok, one last question. It might
635 relate actually going back to what you were saying about the... You used the example
636 of planes, you know, fighter planes or whatever, or it might be firing bombs or
637 looking over an area. And one of the things you said was that they would be
638 controlled by someone at base. Potentially they are making some of the key decisions.
639 I'll ask you again about that, but I also want to ask you about the example you used
640 last time, was about getting decisions made by a system in a hospital. You used the
641 example of having cancer or some illness. And one of the things you said was that
642 these systems could be used ninety-nine percent of the time but you said if its
643 something serious then the ultimate words should go with the doctor and the
644 professor. Do you think that's the same with the fighter planes? Do you think that the
645 ultimate... Say you were able to program these planes to drop their own bombs.

646

647 Yeah, well in terms of finding the... well it's difficult to say... I'm not that air pilot...
648 I'm not in that field, but I can see where computers can make things more different...
649 For example if an unmanned plane is flying over the enemy territory and it has got
650 some view... and it's firing at some enemy relations or camps or something. For a
651 computer, or computerised pilot or unmanned plane, it would be much easier because
652 it will be quicker to... if there are five anti-missiles around it will be much faster to
653 just fire them, rather than for the human pilot who takes some time to make decisions
654 and so on, and so on. In terms of accuracy, of course, the pilot would make accurate
655 decisions I think because firstly you can see, you have a display in front of you what it
656 really looks like, its not just heat or anything. You can see what it looks like and you
657 can make a decision to fire or not fire.

658
659 B: So the pilot. Does he see it's the enemy rather than just a piece of heat?
660

661 R: Well, yes he can use his human sort of... like what we said about the email. The
662 human can see whether this is email or not. Because computers can't see the
663 difference between an email or a letter. It can't see. The email has the address. Email
664 has the date. Email has the recipient name and the senders name. And so has the letter.
665 However the computer can't differentiate between these two. Unless you put the
666 words 'this is email', 'this is letter'. So of course the email differentiates between
667 these two. The same thing happens in the air force.

668
669 B: Would that be the same as the doctor?
670

671 R: Well... the doctor thing... I wouldn't say the same but it's a similar thing because
672 everything goes again, with these pilots and the doctors, is artificial intelligence. You
673 give the computer all this information and based on that information it makes a
674 decision. Artificial intelligence: that's where it comes from. Based on that information
675 it can deduce something else as well. That's the artificial intelligence. In order to
676 work out all these things and to make it happen, then technology should be so
677 advanced that we know how our brains work. Until we know how our brains work we
678 can't be replaced by computers unfortunately... (gentle laughter).

679
680 B: Great. Right I'm going to stop it there.

681
682 R: (Respondent looks like he wants to add something).

683
684 B: Anything else you want to add? Well I guess I can come back to you if I want
685 anything else.

686
687 R: If you want. But I think there was about the use of reports.

688
689 B: Oh yeah go on.

690
691 R: About the senior manager. About this automation business. There is a problem. My
692 English is not my first language. I come from a technical background and I understand
693 computer language but I cannot explain to users how this can be beneficial. My line
694 manager who is in charge really is not coming from technical background. He is
695 coming from law background, and he is the best person who can tell you things, how
696 a computer can be good or bad for you. He is very good at explaining and talking and

697 so on. And so we recently... we didn't work closely very well. He saw my languages
698 of creating all this information and he didn't like that. However, my disadvantage was
699 that I couldn't sell this to the managers, to tell them how beneficial this can be.

700
701 B: Why couldn't you sell it?

702
703 R: Because of my English and I can't really translate this very well.

704
705 B: But you can do it.

706
707 R: I can create the system, I can create this but I can't really sell it.

708
709 B: You mean you can't explain how to do it?

710
711 R: Not how I do it, I mean I can't explain how beneficial this can be.

712
713 B: Can you explain what you are doing?

714
715 R: Yes, well I'm automating things, right. What I'm trying to say is managers... From
716 the humans like me but whose English is not the first language and I cannot really put
717 very well. It's not just the English but my brain is working more computer wise. I
718 cannot really put things in the right way and probably you can hear me today, but they
719 can hear only someone who is talking their language. I'm not on their level to talk to
720 them like this. 'Oh this system is this, and this' I cannot do that. And what I'm trying
721 to say is that there is a gap between the users such as managers and the systems and
722 technology that is there. And I can see from my job that most of the time in most of
723 the places the users don't use technology that is available. And they are wasting their
724 time, I think. They are wasting their resources and so on and so on. This can be all
725 changed...

726
727 B: You can't sell it to them. You can't express how useful it would be to do it.

728
729 R: Exactly. For example...

730
731 B: Even though you can see how useful it would be.

732
733 Exactly. For example in my previous job when we talked about the difference
734 between the email and letter... to insert data into computer based on what the
735 document is on the screen. And that was to insert the data. So I talked about how it
736 can it be automated. So the computer can read it and just make a decision. Now this is
737 the other way around. What I do is not to insert the data but to retrieve the data from
738 the database to the user for performance figures for example. Now there are 4
739 different managers, different departments. What they want is just the data from the
740 computer in the database. It lies somewhere in the memory in the server. They don't
741 know how to retrieve it. So it's up to the monitoring team or whoever is in charge of
742 doing the reports. Now this can be automated, that's what I'm saying. It can be
743 automated and it can be there within seconds or it can be done manually every time,
744 and every manager can spend two hours each to do this report. So there's two ways.
745 In the previous job was to automate things which go into computer and this kind of
746 job is to automate things to take out of computer.

747
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B: And to make sense of it?

R: Exactly. To take in computer was easier for me because it was computer, and from the computers perspective. But here... That's where it comes. It's a balance between a computer and the user. And especially when the users are senior managers. Most of the senior managers if you really think... The more senior manager he is as a person the less technical this person he is.

B: Ok, so the more they've got relationship skills maybe.

R: Exactly. Social skills, relationship skills and also not to forget that the computers are new things. It's only twenty years. If you take senior managers, they are in their late forties and fifties. They didn't have computers in schools. They didn't have computers in colleges. And they are still non technical people. Most senior managers are not technical. And therefore there is still problems. And I can see there are problems and I believe within another ten or twenty years time things will change dramatically. Technology will evolve and advance forever. And most importantly, people who will be in charge as senior managers in twenty years time, they will be more technical because they will be from their time, probably their school times and college times already used computers and are aware of what computers can do and can't do. So they will be more demanding from people like me and my line manager. Or I want to automate this and this, and I want to do this. There's a gap between the senior managers perspective of what computers can do. Not that they don't believe but they don't rely on computers so to speak.

B: I know you said the jobs have changed. You used to be inputting data and now you're retrieving data. But is it a similar thing where you were saying you can't sell it... you can see what needs to be done and you can do it in terms of automating it, but you can't sell it to the senior management. Is that similar in a way to you saying to me that you can see it's an email, a letter or whatever else but you can't express or tell... you can't communicate how you know it's an email or a fax. I mean you must have a grasp of computer science in the same way you've got a grasp, or humans have a grasp of whether it's an email or a letter. Do you think that's maybe to do with... Not that you're a bad communicator as you might think. But do you think that you have spent three or four years studying computer science and you have a practical grasp of your topic and your managers haven't got a practical grasp. But how can you explain what a practical grasp is?

It's not just that I'm not a good communicator. I cannot explain clearly basically. So one person can't do both very well, probably. I personally can't. So yeah, you are right. Well it's both really. Probably, it's not about me personally. I think in general yes the managers probably don't have the technical background, they can't see the benefits of it. For example this particular case when a manager found out that it can be done in a few seconds (wine glasses are filled up). And when my senior told him yes it can be done within few seconds. The team leader and team managers wouldn't have that grasp, wouldn't see the data and this and that, its better for them to do it. He straight away realised 'oh yes, yeah, yeah, yeah' because he starts thinking in old ways, the way he used to do for last twenty or thirty years he used be a manager. And he is fifty years old. Ninety-nine percent I'm sure that when he went to school there

797 was no computers around. This is thirty-five, forty years ago. I don't think there was
798 computers then (laughter). Not even in his college times, you know.
799

800 B: Going back to what you said. I think you said to me when we arranged this
801 interview, and you said you had some interesting issues relating to your job. And you
802 said basically, how could you explain to your line manager, how to do the computer
803 science aspect of the job, when you've spent five or six years...
804

805 R: Oh yes did I mention that to you? (gentle laughter)
806

807 B: Yes, you said.
808

809 R: I didn't want to go to my office politics... (gentle laughter).
810
811

812 B: No, because it's of interest. That's of much interest as anything else, because you
813 said to him... Well, I don't know, you tell me what you said.
814

815 R: Well, what happened was, he saw my potential of creating these things because I
816 come from a technical background. He saw this. And for some reason he saw it as a
817 threat to himself and to his position, I don't know, but that's what I felt anywhere.
818 Because he was saying to the senior manager that this is not really good. Although it
819 saves time and so on. That this was for me. That was wrong, especially as he is even
820 younger than me. He knows the benefits of it. He knows very well. It just was the case
821 that he couldn't produce it himself. So he knew from the law background, what the
822 fifty year old manager wanted to hear. So that is exactly what he did, and that's why I
823 saw that he felt that I was a threat. That's one thing. So he realised all this and then
824 one day he asked me to show him how I was doing the automation. Namely the
825 programming in Visual Basic, in Excel, in Micros, retrieving data and blah and blah
826 and blah and blah. So I had to tell him, I can show you what I'm doing but I can't
827 really show you how I'm doing all these things because these are concepts of
828 programming really. So then he said 'no worries, no worries, no worries' he didn't
829 even let me finish my conversation. He realised I had a point and that I had to explain
830 that point. He said 'no, no, no, let me show you in Excel some function'. There are
831 hundreds of building functions in Excel. So he showed me a function called Vidalcap.
832 I never used it before because I just never used Excel excessively before. So there was
833 me and another monitoring officer. So he showed us how to use Vidalcap function.
834 It's a building function, so its just tools, functions and...
835

836 B: So the manager showed two of you?
837

838 R: Yes, our line manager, Senior Monitoring Officer. How to use Vidalcap. It took us
839 about half an hour. Half an hour at least to show us how to use a build in function,
840 called a build in function. Then after this he says 'See! See how easy, I showed you
841 this and you can show me this'. So this was sort of like, you know, childish games
842 sort of thing. So that was in fact, it turns out it was against him, rather than for him.
843 And I said Gareth, you just showed us one of the hundreds of build in excel functions,
844 not how to create, how to use it. And it took us, I said, at least half an hour. And now
845 you want me to show you how I automate things in excel in which I'm using
846 programming language. Now its not that I'm using build in functions within not just

847 excel, in a higher level thing. But you are using programmatically those functions
848 within Visual Basic which is a programming language but also create functions out of
849 these functions. And I thought how would you expect me to show all this, when just
850 showing this, how to use some function in Excel has took you half an hour. I said, I
851 will have to teach you all programming concepts, you know, and it's just not possible,
852 it's not going to work, it's not realistic. And he said 'oh right' ... I said look, I studied
853 this I did blah, blah, blah, I did degree, I did that. It took me years and years, you
854 know, and it's not just (clicks fingers) like that. 'Oh, it's alright' he said, 'we've got
855 three years'. I said no I'm not teaching you. I'm not coming here to teach you
856 programming my friend. So I said I'm not doing this. So he wanted me to show him
857 this but its not possible, its not.

858
859 B: Is that because your understanding of what you do is more than just technical?
860

861 R: Yeah exactly. And another thing. When I said about senior managers, they don't
862 know. They are afraid, of course they are afraid. Even Gareth my line manager who is
863 younger than me, who is more technical than the senior managers, or more technology
864 friendly towards technology in general. He can see the fright, so what do you expect
865 from a senior manager who has never had a computer in school or college or most of
866 his career, he never used a computer, or some of his career, at least the beginning of
867 his career. What do expect. What I want is this, and this, that's it. So what I'm trying
868 to say is technology is there, however you still need to be a computerised person, a
869 technical person to create this automation within Excel. This involves knowing
870 programming language or learning programming language such as Visual Basic and
871 part of Microsoft package, Word, Excel or any Microsoft Word packages. So you can
872 automate things between all these applications, word, excel, access, anything, outlook,
873 you know. You can read emails in word, whatever. You can do all kinds of things,
874 However you need to know programming language such as Visual Basic, right. And
875 you need to know how to program them and so on and so on. So still it is quite
876 technical, and especially when it comes to senior managers. They just don't even
877 know much. Even here... Even for me it takes time. It's challenging thing to do all
878 those things. Depending on the level of course, of how deep you go and nice or more
879 functionalities you want and so on, and so on. So what I'm trying to say is that all of
880 the time after ten years, fifteen, twenty years, this technology will be there available
881 for non-technical guys, such as... If it's not for my line manager. Sorry, not senior
882 manager but for my line manager, who is not technical but he is friendly with
883 technology. Now, having said that, take the concept of after twenty years those senior
884 managers will be more technical because they will already have used in their younger
885 days and school days computers and technology within schools. All this combined
886 will make a huge difference within offices to use the technology that will be available
887 in twenty years time.

888
889 B: You think that it's going to be a lot different?
890

891 R: I think it will be a huge difference. Just those two things combined. The other
892 things as well perhaps.

893
894 B: Excellent, I'll stop it there (I switch off the Dictaphone).
895

896 R: (Respondent starts talking again so I switch Dictaphone back on)... managers,
897 senior managers, they are not technical, right. They are in their fifties and sixties, for
898 god sake. (laughter) they never had a computer in their younger days. And the other
899 thing about what I said, about doing this. I personally have to know this programming
900 in order to create this automation. Within twenty years the technology will be there.
901 Even you probably will be able to automate things, because it will be so easy. Right,
902 to automate things. Now these two combined, you can see how huge of a difference it
903 will make to offices. How big benefit it will give to companies. How they operate,
904 and so on and so on.

905

906 **Interview Ended**

907

1 **Appendix 2 - Interview Transcript 2: The Director**

2
3 Key

4 B: Brian

5 R: Respondent

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7
8 B: Describe a typical day and a typical job.

9
10 R: Okay, let me just first tell you very quickly what our company does and what I see as
11 our sort of mission, and then you'll see why we do certain things in a day, why we don't
12 do other things in a day. Essentially [this company] is here to create partnerships between
13 commercial companies - maybe in this country, maybe in other countries, maybe across
14 countries, very often across country borders. But our job is to make partnerships,
15 partnerships between companies. Those partnerships are, for our business, based on a
16 synergy of technological operation: technological content. We are looking for people who
17 need new technology or innovation; maybe invention... We are looking at people who
18 have that to offer but don't know quite where to place it. And we are bringing the two
19 together. So ours is a business of matchmaking, and you can relate it quite closely to an
20 old dating agency because the activities are very similar in many ways. We have a range
21 of clients: the blondes and brunettes, and we have a range of potential suitors. We can
22 only work for one side at a time, and most of our work, is based on working for the
23 seeking side. Those companies looking for something new, rather than those who have
24 got it. So we're working for one side, but we're seeking to make magic dates.

25
26 B: Can you give me an example, (phone rings) of a typical matching?

27
28 R: We have a client, in many ways a typical client. It's a manufacturer in the North of
29 England and its business is in paper and cardboard. We would know it as cardboard. Its a
30 manufacturer, it has a good market and it makes cardboard boxes amongst other things.
31 And it makes some very clever cardboard boxes which have very high properties. For
32 example, this company can make waterproof cardboard boxes, and the French use them
33 for shifting oysters amongst other things, in sea water, in the cardboard box. Quite clever,
34 and of course it has to be very economical. They've got a good technological base
35 themselves but they're looking... because it's an aggressive private company - they're
36 looking for new things. Our job is to introduce new things to them. A typical day working
37 for them would be to use all the contacts that we have built up over many years, around
38 the world, in our sort of business, and say hey look chaps we've got this very fine UK
39 company here who are looking for things in this general area of paper and cardboard and
40 hey, look, they're pretty clever at doing this and they've got a thumping good market for
41 each. They'd be a jolly valuable company to work with if you've got a new cardboard
42 something or other, for example. We don't know what we are looking for until we go out
43 and ask and we leave them to ask where the synergies lie. First off, we go out asking have
44 you got something interesting looking for a home? We also hunt the internet, we also
45 look through sources of companies and information published sources. All sorts of
46 publications can be used, and lead them to directories of companies. And we'll select

47 from those people who will be likely targets for this exercise, people who we would like
48 to talk to and see if their interested in partnering in some form within the UK, to get their
49 products into the UK market via our client, preferably with some manufacturing here in
50 the UK as well, making use of the facilities they've already got. That's research, that's an
51 ongoing job, but you can understand we've got quite a few clients so we can do this
52 research in bundles as it were, because we are talking to a guy in the USA who is in the
53 business of promoting technology from the USA. It's good to talk to him about [not just
54 about] not just the paper and cardboard industry but also our client in the Pharmacy
55 business, our client in the electronics business and cover a broad range with one hit. We
56 need to be very, very careful how we present our client. We need to think. We need to
57 understand the client in great depth. We need to understand the client in a way which we
58 can present them as a profile as an attractive profile of somebody to work with. And we
59 need also to stimulate the other people to come forward with things which they might not
60 think of first off. Its all very well to say we have a cardboard client... maybe paper mache
61 would be...

62
63 B: What would you do to stimulate?

64
65 R: That's... we would use our own brain power, such as it is. We need to talk to the client
66 in great detail and we would have always with the client almost a one day session at the
67 very beginning of the project, to kick off the whole program. And in this one-day session,
68 several of us from [our company] would sit down with the leaders of that company; all
69 branches: production, finance, sales, marketing and always the managing director. And
70 we'd sit down to them and we'd go through their thought processes. And we'd question
71 them on their company, their philosophy, their capabilities, strengths and weaknesses of
72 course. And we'd come to some sought of profile in our minds, as to where they're good,
73 where their dreams lie, where their no-go areas lie and we'd have a good impression of
74 the sort of things what might work. But we still don't know what products are out there
75 and going to fit the bill. We're only able to say that if it's made of wood it's not gonna fit;
76 if its made of paper its probably a bit too thin and not gonna fit. If it's made of cardboard
77 then interesting in this particular case, if it's made of solid cardboard. If it's made of
78 correlated cardboard it's less interesting because that's not their business. It's solid board.
79 But in solid board they really know what their doing. But we've gotta find something in
80 solid board. But the interesting part lies in the peripheral areas we need also not to... we
81 need to be alert, to possibilities. We call it papier mache but it's now called pulp, solid
82 pulp. And there's very clever technologies in taking waste board, pulping it and then
83 moulding the pulp, to what you'd understand to be an egg box, for example. But there's
84 very clever egg boxes with nicer very different finishes, and there's ways of making it
85 very much more attractive and giving it greater appeal to a wider number of customers.
86 This makes higher prices. This is good business but we need to know what's out there.

87
88 B: Going back to what you were saying earlier, you need to have good/ personal contact
89 with your clients?

90
91 R: We need to have a very deep understanding of our clients. Not just of their capabilities
92 which is fundamental of course. And their dreams, their aspirations. We need to

93 understand where the boundaries are going to lie, and we will probably have to test a few
94 of those but its quite clear that companies are run by people. And that people have
95 limitations in their capabilities. And however good a prospect that we bring to them, if
96 they haven't got the human skills, and the time and the desire, to make it work, it won't
97 work. We have to recognise how good the people are going to be at taking on something
98 new.

100 B: So, it's very much something that, do you think maybe... You say what you are doing
101 is matching?

102
103 R: Well of course, as a result of this work, we will have people coming to us. It's a very
104 attractive proposition, because what we are saying effectively we are shopping, please
105 come and sell us something. So people will come along, and they come along in quite
106 large numbers, with a lot of suggestions and a lot of possibilities. And at that point, we
107 have to start to assess them, try to recognise where the synergies lie, where the problems
108 lie, where the future may be a good one; where the barriers are likely to come along. This
109 is an assessment of the technology that's being submitted to us, starts to take place. So
110 now we have got this deep understanding of the client in the early stages untested; which
111 is quite important because as time goes by, there's nothing like a few realistic examples
112 to test our understanding of the client and the clients own understanding of its own
113 philosophy and strategy... But we need those examples. Our first job is to generate them;
114 put them into some sought of ranking as to their suitability for that client.

115
116 B: So...

117
118 R: You follow that?

119
120 B: Yeah. Yes.

121
122 I: So going back to the dating agency, the matching bit is that we can sit down with our
123 client. So if it's a guy saying that he wants a five foot six blond with blue eyes. We know
124 jolly well that the brunette with brown eyes is going to be worth looking at, as well. So
125 there's split specification.

126
127 B: So, are you just following rules?

128
129 R: This is the interesting bit, this is where the temptation comes. Even thirty years ago,
130 when computers were first invented they were just big main frames in a few large lucky
131 companies. The dating agency scenario was of course one of the first things they realised
132 a computer could do. You could feed it with a whole host of information about potential,
133 shall we say back to that crude example of the dating agency. You've got hundreds of
134 girls with all their hobbies and interests put in, and the temptation is that you come along
135 and you interview the guy and you get his wishes and desires and you plug it into the
136 computer and out comes six prospects. Does it work? It can work up to a point, but the
137 only thing that it will produce at that stage is a contact. At that point people have got to
138 meet, they've got to get round a table and they've got to have dinner and you've got to

139 start talking to each other and they've got to start building human chemistry. I don't
140 know a computer that's ever done that.

141
142 B: Comparing that example to what you do. Where would be the flaw/it not working,
143 when somebody asks for...?

144
145 R: There's two big areas of flaw. One is a purely commercial one, not a philosophical
146 one. Because if you operate a system like that, you've got to have volume, volume in
147 everything. You've got to keep the database full and it's got to be kept up to date. And
148 you've got to have lots of clients plugging in and lots of usage of it just to make it viable.
149 All that, costs dearly in housekeeping and the difficulties that people would have
150 operating these systems in our business, in the technological matching business. The
151 difficulties they have come across are have been largely due to the fact that they've been
152 very cost conscious on their house keeping, they've tried to make the people whose
153 information they hold responsible for keeping that information up to date. That just
154 simply doesn't work. You've got to keep on top of it and manage it internally. That's a
155 very costly exercise and people abduct that. So it's all down on the fact that the
156 information has been a little bit out of date, its not been met.

157
158 B: If for example, the volume was there and the cost was met, and you had all the
159 information that you needed. Even if you had all the most sophisticated... would it still
160 not work?

161
162 R: Absolutely, if we then say, take away the commercial restraints, if we throw lots of
163 money at it. That has been done both by public money, government money, European
164 Commission money for example. It's been done by private money, by civil corporations
165 which have thrown large sums of money at it. None of them have worked. That moves us
166 onto the second reason; the second flaw. So if you can cure the commercial aspects and
167 don't have to actually have to run a business and make it work for money... You have
168 just been paid to do it. You have to make it work for the actual result. And then the
169 difficulties lie in understanding where the matches are appropriate and where there's
170 going to be some difficulties. And in contributing to smoothing over the actual
171 matchmaking process. So you have identified your people you have kept all your
172 information up to date and you've paid enough people to be putting all this around and
173 playing with it and matching it, and then you give this to your client. What does he do
174 about it? Well, he probably puts it on the side. So somebody starts to get a bit agitated, a
175 bit cross that the system's not working because nobody is getting involved personally in
176 this interface bit. So, even if you've got all the information accurate, the match still needs
177 a lot of careful thought and an appreciation of the people who are involved and we are
178 talking about making commercial partnerships but actually its making relationships.

179
180 B: Are those relationships over the phone? Or are you in physical contact with people?

181
182 R: It starts of course, it starts probably with us. In our business it starts with us. We talk
183 to both sides and we start to understand where there's excitement and where there might

184 be disappointment. So we can warm the situation up. We can prepare the couple for their
185 dinner date. By saying look there's one downside to this guy, or this girls got...

186
187 B: You used the words interestingly enough warming them up, so are you stimulating
188 both?

189
190 We're starting to play an active role in building the relationship. The relationship, given
191 that that's our end result. We need to make a relationship between a client and somebody
192 else; that's a human relationship. Despite the logic, the financial logic, the technological
193 logic, and all the ingredients we would seek for a successful commercial deal can be
194 there, but if people can't hit it off, then it's a waste of time. And people don't hit it off all
195 the time.

196
197 B: Why?

198
199 R: There's no difference in commerce. Just because something looks financially correct,
200 looks technologically correct, it doesn't make it work.

201
202 B: Can you think of any examples?

203
204 R: There's an example in the paper client where we found an interesting product for
205 them. And we did all the comparative work and we stuck the two people together and
206 said get on with it, this is a match made in heaven. You've got a new product and your
207 looking for someone to launch it commercially. Here's the guys who can do it. But it
208 wouldn't happen. Because there was too big a gap between the understanding of each
209 party. And the expectations of each party. And it meant bringing them together, going
210 back to the warming up bit; talking to our clients and saying , don't be such a fool it will
211 never work this way and also talking to the other clients and saying you've to swallow a
212 bit hard as well, there's some downsides to it and it's a risk on your side. And you've got
213 to understand this is part of the real world. Then they start to get a little bit more
214 understanding of the whole situation and start to see the benefits of swallowing some of
215 their prejudices perhaps and starting to talk of the deal that might be in prospect. And we
216 did in that particular case bring them together and made a deal around this particular
217 table, as it happens. And we stage managed their discussions, their initial discussions in
218 which all their fears and expectations were brought out and carefully arranged and
219 orchestrated... No, not orchestrated, carefully reinforced so that nobody got upset by an
220 outrageous statement by the other guys. Slowly they began to see together, how the
221 future could work out for this particular project.

222
223 B: So, to start off you said it looked like a match-made in heaven?

224
225 R: The theory said a match-made in heaven.

226
227 B: But then it wasn't to be?

228

229 R: Well, we then could see that they are people. People are individuals. And they all think
230 and behave in different ways. And you have got to think, that I know how this guy is
231 going to react to that, and I know how this guy is going to react to his reaction. Just start
232 mapping it out.

233
234 B: Just stop you there, when you say you know when you say, you know how this guy is
235 going to react. How do you know?

236
237 R: Because we've spent a lot of time understanding him, not just his business, his
238 statistics and capabilities and how many square metres a second of cardboard he can
239 produce. That's irrelevant, to this guy sitting here with the new product, well not
240 irrelevant, but it's not his first concern; he wants to know if this guy is going to get off his
241 butt and sell them.

242
243 B: Could that information not be sort of, known through his mathematical history or
244 through his paper work or...?

245
246 R: How can you, how can you, how can you decide what, how can you predict
247 systematically, automatically, robotically any one individual's reaction. And even if you
248 could it would be completely different to the next persons' reaction. Maybe your thinking
249 that you could program in the parameter of behavioural characteristics, and that will lead
250 you to a result, but I just don't believe that its as simple as that, and who is going to
251 decide what those characteristics are; whose going to measure those? Back to the simple
252 housekeeping of even factual data. Factual data like a patterned status, the number of
253 years the guys been trying to do something. Fact is difficult to maintain. And then we
254 move away from that into subjective material. Trying to assess, you know, characteristics
255 of behaviour of individuals, woo! It just can't be done. Well, I don't think it can be done,
256 but with some intelligent people, you can do it.

257
258 B: You can't, your job, what you do... You use the analogy of a dating agency. You say
259 it can't be done on purely just using facts, even if you had all the rules/characteristics of
260 the people, you still wouldn't be able to...?

261
262 R: My guess is you'll always miss some characteristic which you never thought of. And I
263 think it would be a super human that could impassionedly categorise individuals and their
264 characteristics and come up with any sort of predictive analysis of an IF/THEN situation,
265 and then you've got to do the same thing for the other guy and you've got to play the two
266 together and see what the interaction is. It's going to go wrong too often (*interruption*).
267 I don't think expert systems are going to help our business... having seen many try, over
268 the years.

269
270 B: Okay, that's what I was going to ask you. Has, have you got an example where an
271 expert system has tried to do your job?

272
273 R: Erm, I think erm, the example... Thinking of one example is jolly difficult because
274 I've not been party to every intimate detail of a particular example, but I've known

275 people who have been involved themselves in some of these systems and I've been very
276 well aware of some of the systems themselves. And, indeed, I met only last week another
277 company who's starting up to do it all over again. A Swiss university this time who think
278 they've got the answer. And I think they're going to fall in the same trap all over again,
279 but that's something that experience brings to me, simply because I've knocked about in
280 the business for 30 years... Their fresh out of university, got lots of brand new ideas and
281 maybe they will make some inroads, but I think they are going to go the same way as
282 everyone else. I think it could be more successful today with the internet because of the
283 ease and fluency of information, exchange and access. But nobody's cracked it. In fact,
284 one went to the wall, not long ago.

285
286 B: Have there been any instances where expert systems have sort of, maybe, not done
287 your job, but taken part of your job away and been successful?

288
289 R: Yes, I think there's a place for information. Of course in our business we need lots of
290 information. But we need that information and we need to understand and draw our own
291 conclusions from that information and not take it all entirely at face value. We would get,
292 without going into enormous detail, but we would get people presenting projects to us
293 and part our assessment would be to verify the information that they give us and you find
294 that much of the information given us don't quite hang together. So, the next stage is to
295 test why these two bits of information don't quite match. And there's always, not always
296 but very often something that just doesn't sound right.

297
298 B: So, say you've got all this information, say all this knowledge. Is it more than
299 knowledge?

300
301 R: I think, I would say that the information level is something where the internet and
302 databases and systems, I'm not sure whether they're very expert, but systems, mechanical
303 systems are very useful, they have their part. You've got to apply some interpretation. If
304 you try and mechanise the interpretive function then I think you'll run into big troubles.
305 I'm not sure that anybody's tried to follow these interpretations.

306
307 B: Don't they just follow rules, or is it more than rules that an interpretive function would
308 do?

309
310 I: I think you've got to have a deeper understanding if something's going to work out.
311 The rules, yes - Of course there's a place for the rules. But we're also talking about new
312 ventures, that need qualities that are very difficult to measure or quantify: commercial
313 courage, bloody-mindedness, pioneering spirit.

314
315 B: Can you go back to bloody-mindedness. What do you mean by this?

316
317 R: I think that some of the successful projects have been very poor on their ingredients;
318 their traditional ingredients. The sort of things you'd look for as strengths in a project.

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320 B: You mean the rules, the matching rules?

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R: You talk about rules, I talk about facts. It's the facts which fit the questionnaire, if you like. Where the questionnaire comes over very strongly, it can sometimes fall down because the guys who are running it are weak. But you can have a weak set of answers to your questionnaire and you'd think oh god, this isn't going anywhere. But the guy is so convinced in his own rightness...after some discussion you can decide whether his conviction is well placed on experience and knowledge or whether it's just all on imagination. But a weak project with a strong guy, a bloody-minded guy who says I'm gonna make it work, is worth a lot more than the perfect questionnaire answers.

B: Would you say that it's instinctive, or what am I trying to say? Erm... when you said 'bloody-minded', do you mean he doesn't care about the facts? Do you think he's going to make it work regardless?

R: Yes, I think that's one aspect of bloody-mindedness - yes conviction. Conviction about analysis. And that's an important part of human chemistry. And it is an important part of making the deal work at the end of the day. If you go back to that weak questionnaire, on paper it will look like a weak project, but get the people together and you understand that this guy is really, really going to make it work and is going to really, really get his back into it.

B: So, what's this guy got, with his bloody-mindedness, and his conviction of analysis. What has he got that will over-ride all the poor facts?

R: It's his personality... Different people have different strengths. The bloody-mindedness has, you know, multi facet ways of coming over. You know, this is all part of the difficulty of trying to analyse every aspect of behaviour, as well as fact. The facts we don't doubt. We can analyse facts. We can play with them, and that's useful. But behaviour we can't. And we are talking about deals, matches, people getting married. That's relationship stuff.

B: Okay, so it's something to do with this guy. Something to do with his human qualities, rather than...?

R: Yes, yes, his human qualities will become more and more important as the relationship is explored, because the facts will start the thing rolling. After that its - do I like this? Is he going to support me? Is he going to work with me? Or, has he got his eye on something else? Does he just want to rip me off? How are you going to assess that?

B: You couldn't assess that, just using facts?

R: Indeed, if we're talking about one sort of commercial deal which means I sell my idea to you, who knows what the right price for my idea is? Who works that out? If I say to you oh, I want a million pounds for it, you can say up your back, you know, your stupid. Someone else might say, you're not far off there. But what we want to do is pay you the million pounds over a longer period and suss it out and earn some for ourselves. I don't

367 know how you assess the value of a project. Of course, there's a point in which you can
368 do market research, and you can start putting figures to costs and margins and sales and
369 expectations, and work out a business plan. You're not going to do that for all the
370 projects that you see.

371
372 B: Going back to, you know, you said 'how do you know their not going to rip you off.
373 Erm, is there something... could you test that using facts and rules? Or is that something
374 that you have developed through talking to the person or?

375
376 R: I think that's something... Let's go back to the dating scenario because the similarities
377 are quite strong. A fella doesn't ask a girl to fill in a questionnaire, but maybe he could
378 do. What good is that? He wants to talk to her doesn't he? Now, he's going to watch the
379 body language and he's going to watch the reactions. Whether the warmth builds,
380 whether she's on the same wave length. How do you assess that on a questionnaire?
381 Especially if you are not even looking at each other...

382
383 B: So, you think, obviously it's... for the dating agency example, it's obviously important
384 sort of, for the body language...

385
386 R: Yes body language is just one extension of behaviour and reactions and natural bodily
387 movements.

388
389 B: Would that be a flaw in expert systems? Obviously they have no body which...

390
391 R: I think in all relationships, one party is looking to see the reactions, of the other
392 party's. Looking to see not just how they come across in conversation, word exchanges,
393 but in - we can call it human chemistry, in sort of body language. That's important, that's
394 a conscious thing.

395
396 B: Why's that important?

397
398 I: Because it's what makes the relationship work. Just because you speak the same
399 language with somebody in terms of facts and statistics doesn't mean that you like them.
400 I don't know how you build all that together, and that's a complex procedure, but that's
401 very much what we're looking for here. We're looking for people who get on with each
402 other in a deep relationship - long term. It's not a trade transaction. It's a relationship we
403 are building. Trade transactions are fine. Put up the facts and you either want it or the
404 price, you don't. It's simple.

405
406 B: Right [name of the director], we're near to the end of this interview now. Obviously
407 we've been through your job and its matching system. If you can just go over one more
408 time whether you think an expert system can do your job for you, even an expert system
409 at the most sophisticated level.

410
411 R: My understanding of an expert system suggests very clearly that it can't do the job,
412 erm... First of all we must define what the job is, and our job is to make the relationship.

413 That's very difficult. The stages in making those relationships can be broken down but
414 only one of those stages is helped by an expert system and the more sophisticated that is
415 possibly the more difficult that it can be produced by it. But at its simplest level
416 information systems and the flow of information is very, very useful. But it needs
417 interpreting. It needs interpreting and it needs using and it needs presenting in a way in
418 which the recipient will also benefit from it. And that needs an understanding by the
419 person who is making that first introduction of parties.
420

421 B: Even if the expert system had the ability to interpret information?
422

423 R: I doubt that it would spot the real question; I doubt that it would ask all the questions.
424 When we conduct an interview over the phone for example, for the very first time with
425 the bit of cold information we see. We will talk to the guy. And we will say how did it all
426 start? Why did you do this? Why did you do that? Why this? How come that? And that's
427 jolly interesting and each answer will lead to another question and the sequence of
428 questions is never, ever the same. Never. And suddenly you find something really
429 interesting and I can't tell you what it might be because it will be different on every
430 occasion. If you find nothing of interest then there will be a bit of a downer on the whole
431 thing. That's like talking to a girl who behaves like a pound of lard.
432

433 B: There's not really a rule book for what's interesting?
434

435 R: No, no. It's like baking a cake. You know what the ingredients are, but you've got to
436 know how to stir them and treat them and, put them together. We can tell you the
437 fundamental questions which we need to know. Everybody can tell you what they need to
438 know in terms of fact. But every persons company's, history, capability, behaviour,
439 procedure is different. And unless you start talking to people, you'll never discover the
440 interesting bits. When you get to the interesting bits you've got to exploit that, and work
441 on it and that will lead you to some assessment; the beginnings of some assessment, in
442 addition to the pure facts. But this interpretive bit and the use and the presentation to the
443 other party interpreting how they are likely to receive it, is the interactive, complicated
444 interactive bit which is where humans get involved. And where I don't think machines
445 however sophisticated will do the job. They'll miss the vital element.
446

447 B: Okay, [director], I think that's brilliant, thank you for your time.
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2 **Appendix 2b - Interview Transcript 2b: The Director**
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4 Key

5 B: Brian

6 R: Respondent
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8

9 B: Yeah ok, the first thing is... I've still got the transcript from the last interview we
10 did. The first question is, well obviously, it's been about three years ago since the last
11 time we spoke about the type of work you do. I just thought the first question would
12 be what's new? Has anything changed in the last three years, since the last time we
13 met?
14

15 R: Understandable question. What's changed in those three years is quite a lot
16 regarding the company and personal circumstances within it, but that doesn't really
17 affect what we do and the sort of conversation we're having now. The differences are
18 only structural like we're now our own company again and not part of an American
19 corporation, but what we do is very much the same, or very similar to what we were
20 doing three years ago. So functionally, little has changed, and in terms of the business
21 model and our activities within that, very little has changed.
22

23 B: One of the things that came out of the last sort of conversation we had was about
24 the importance of people, and the people skills for what you actually do. Because I
25 suggested last time, was it possible to use some sort of system to do, what you called
26 matching or making 'magic dates'. You're connecting two clients together...
27

28 R: Yeah, and that's still what we do, and I think we've had every opportunity in those
29 three years with all the changes that have happened to look at alternatives and assess
30 whether we're doing it right, whether we do it at all, and whether we should continue
31 doing what we did in the past, and we have ended up still doing what we did in the
32 past because that worked quite well. Interestingly, the skills that were needed to do
33 that, we've re-employed, given that we had an open book, we could have recruited
34 different people. We had the opportunity to recruit people that we knew already, and I
35 guess they come plug and play so there's a lot of advantage in doing that, but actually
36 the skills that they have are plug and play, first day in and then they're back being
37 effective because they know what they're doing. But it was our choice to have a very
38 similar model and then put the people to it, not to invent any new model and recruit
39 new people or indeed to recruit new people and let them develop a new system. So we
40 deliberately recreated what we were doing because it worked.
41

42 B: And you said that part of the success of what you do, and making these
43 partnerships work. You, know, creating these 'magic dates' if you like, was that you
44 put a huge kind of emphasis on the human qualities, and you said that these are things
45 that you just can't assess and you can't put a value on.
46

47 R: It's very difficult to. One of the interesting things that's happened is that more
48 mechanised systems and schemes have come onto the market. In the last three years
49 you can understand that everybody but everybody's got more computer literate and
50 the schemes publicly supported or otherwise have increased. The number of people

51 providing partnering services to industry by computer has gone up. And many of
52 these services are free, but they miss out still on the people intervention and that's a
53 weakness of those systems. And I could tell you that one of the global, probably the
54 most important player that started out making computer dating, if we call it that, has
55 recently in the last eighteen months changed it's emphasis very much into human
56 intervention - Putting people back into the system to make things work. Not that their
57 computer system didn't work but it only provided a bit of the answer , not the whole
58 of the answer, it still needed people. They are hungry for people, but they can't find
59 the right people.

60
61 B: This is what I find quite interesting. The link between... I mean you said this
62 company have gone back to using people to intervene, where I guess it's the most
63 important or significant for their company. At what point... obviously... one of the
64 things you said in the last interview was that there's a place for information...

65
66 R: Absolutely.

67
68 B: There's a place for using... and there's a use of systems which might do this sort of
69 matching routine that we are talking about. But to what extent, or at what point do you
70 say 'right, that's enough, that's enough now', to stop using the system and start using
71 people. Can you put your finger on where the line is?

72
73 R: It's difficult to switch over the interface point. The threshold point varies according
74 to the circumstances which in reality means according to the project and that tracks
75 back to the client or people who you're working for, and it's their understanding and
76 their capabilities that come into the equation that determine what point there's a
77 transition between the value of the information and the value of the follow on, i.e. the
78 human input. Well I come back again to the fact that the company that was one of the
79 main global players in specifically organising, partnering industry, partnering
80 information, technology based information, has recognised that it can't fulfil the
81 whole function properly without human beings, whether they call them consultants or
82 what, doesn't matter, but they need people.

83
84 B: You talked about some of the qualities as being 'bloody mindedness', 'pioneering
85 spirit'...

86
87 R: Yes, it's still the same. Going back to this example, I'm just mentioning this
88 because it's, all be it a small company in terms of numbers of people, it's actually a
89 very important player well known to industry around the world - very active. They
90 have recognised precisely that. They have no difficulty whatsoever in hauling in a
91 consultant in this specialised area, that specialised are. They can pull in those
92 consultants on the hour, by the hour, use them, lose them. But that's not what they've
93 identified as being the problem. I mean, we found this out a long time ago. But they're
94 now telling us that we're right, and they need to start doing more of what we're doing.

95
96 B: (Laughter). Yeah. Yeah. Yeah. So you think that they've gone down the wrong
97 road, and now they're coming back?

98
99 R: They went down a road which didn't yield the sort of results they had expected,
100 that their original shareholders had expected. And the crusty old men in the business

101 that said to them 'ok, fine, but it won't work' have to a certain extent been proven
102 right. Having said that, they have a position - there is a need for information. That
103 remains something that came out last time. There is a need for information and they're
104 damn good at providing information, but they've realised that the information by itself
105 is of absolutely no use, unless there's somebody that can convert back to an activity
106 which eventually earns money for the parties concerned. That's difficult transition,
107 and that needs human beings.

108
109 B: And do you use any... In terms of there's a place for information... to what extent,
110 having changed over the last three years, have you used any systems, or used
111 information any more than you did three years ago?

112
113 R: Yeah, of course, we can't do our job without information, so we need the
114 information providers. And they are beginning to recognise that they need people like
115 us to make that information work. So they are a little more ready to work with us and
116 recognise the thresholds of responsibility, of capability. They are a little more ready to
117 work with us than they were years ago, when they believed they could do everything.

118
119 B: Do you think... One of the points you made last time again was related to...
120 talking about the dating agency scenario and your saying, your making these dates,
121 you said you are working for the seeking side - the people who want something rather
122 than the people who have got it - your still doing that?

123
124 R: We are still doing that. The reasons are quite straightforward. The seekers mostly
125 are corporates that need the injection of something new, whatever it is. And those
126 corporates have a purse, and you've got a business because you can charge money for
127 doing a job. Whereas if you work for the people who have the technology, and want
128 to promote it, they usually don't have much of a budget to do it surprisingly. They
129 don't do it particularly well, but they don't have any budget, any purse to put forward
130 for somebody else to do it. So if you want to run a business in this area you better get
131 your head around the root of the money. So that's the good way of... The other thing
132 of course is if you're working for the people who are offering technology to buy in the
133 pharmaceutical business, its eight years before you see any reward from that. That's a
134 hell of a long time to support a business before seeing any return. So we tend to have
135 a more justifiable short-term cash flow solution.

136
137 B: One of the other things you were saying about working for the seeking side and
138 going out looking was that sometimes you don't know what you're looking for.

139
140 R: It's a hugely more interesting job as well, because we don't know what we are
141 looking for. We do get criticised by the information providers who don't understand
142 the business so well. They will come back to us and say 'you haven't told us what you
143 want?' We say 'that's because we don't work on a pigeon-hole basis - we can't tell
144 you to look in that one, that one, and that one'. We are saying, 'we want to look in all
145 the pigeon holes in case there's something tucked away there that might be misfiled or
146 just might be transferable to one of the pigeon holes you didn't think of'. And we
147 want to encourage people to forward things that are perhaps wacky or marginal. And
148 that's part of the fun of the business, seeking those out.

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150 B: That's one of the things you said last time...

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R: You can't tell a computer to do that [laughter]. Because... by definition, you've got to look in those pigeon holes, I think we did that last time.

B: The interesting part lies in the peripheral areas where you need to be alert to possibilities.

R: Exactly that. Because the name of the game is that most people if they knew exactly what they were looking for, they'd go to the information systems and would Google it and up would come hundreds of possibilities for them. They then still have the need to inject some human intervention, start a dialogue, build some chemistry between them, personal chemistry between them (person enters room with cup of tea) thank you very much. The answer can more readily come if you know more exactly that you are looking for a left handed, bright orange, three inch high gizmo for this purpose then you can go for it and somebody will have it somewhere, or know where to go. But that's not the nature of most of our work. Most of our work says hopefully this is a repeat of last time that we've got a good foundation, we've got good capabilities, we need to build on those, but we don't know what near exciting thing out there might be. And we certainly can't specify it, but we need to look, and we need to find, and we need to discover.

B: So that's being alert not just to possibilities, well to possibilities and to the unknown to things that you might have never ever thought of.

R: Yeah, we can't dream up everything that might be out there, no, no. One of our jobs is to say hey that's not what we were thinking of, but it ticks all the boxes. I say ticking the boxes, that's not too systematic, just figurative speaking.

B: I like the pigeon-hole scenario of you know, you don't always know where to look, because... one thing is you say, is that you don't always know what you're looking for. You say you've got to be alert to a number of possibilities. But you said that someone could put something in a particular pigeon hole and then that could be transferred to another. Is this sort of transferring, would you say that would be the human quality, what you need the people for?

R: I think that's where the brain takes over from a computer and I think that's where any kind of mechanised system would probably fail. In our business there isn't a mechanised system which can do that. You've got to be able to spot something unusual, unexpected, undisciplined.

B: What do you think it is about people...?

R: Well it's the capacity of the human brain. When it's set up to think laterally, widely, openly, it's capable of spotting an opportunity and there after because of all the personal knowledge of the people concerned in the scenario, you can say that's a hugely wacky thing but I know that guys going to be interested. Equally well, you can say, well it will fit all the logic but he's not going to do it.

199 B: Again one of the points you made last time was you were talking about the
200 importance of building up relationships. I mean you said building partnerships is
201 building relationships.
202

203 R: Yes, I mean you can't do this without an understanding. And the mechanised
204 systems will seek to ask you questions about how many people you will employ and
205 all the parameters of the business, but it will never ever understand the thinking and
206 the people - what makes them tick. You can't write that down as a definition. And of
207 course the weaknesses - nobody will never ever tell you what their weaknesses are,
208 even if you try and get it out of them, they certainly won't answer a questionnaire
209 about weaknesses, not honestly anyway. But if you spend a lot of time with them, you
210 can tease that out of them for your own information. You don't have to embarrass
211 them or anything.
212

213 B: Can you give an example. Maybe a recent example, were you've had to sit down
214 with the client or you've had to suss out what the clients weaknesses are or their
215 strengths or their capabilities.
216

217 R: Well the one we have just been talking about, prior to your coming here. That's a
218 client that's a very large global operation, that knows they have to embrace new
219 technologies as a foundation for new businesses, growing the existent business. The
220 existing business is in a very good situation. They are dominant in their particular
221 market, and it's a big market, it's a global one. And the problem that they really have
222 is that they do not have a strategy or an internal procedure that will embrace new
223 things. They know they need them, they know they've got to look for them, they
224 know it's a sophisticated world, they've got to look for things with intellectual
225 property support. You can't just go off and do anything that somebody might
226 replicate, shed in India. Got to have a proper business structure. But they have no
227 established procedure to actually deal with what we do so we are talking to them, we
228 know it's their weakness. I think they would probably agree to it, but they're clients of
229 ours, we don't go around telling them what they're useless at. But we have an
230 understanding with them that they have a difficulty in doing their bit, when we've
231 done ours. So we're having to actually extend what we do, to help them a bit further
232 in that direction.
233

234 B: And in what ways do you help them, can you help them?
235

236 R: Because we investigate all the things that we look at. We are having to do rather
237 more investigation than we would normally do prior to the client taking a leading role
238 in the communications. So our lead in the communications at the front end of course
239 we do 100%, the client does nothing. At the end where they are at the point of doing a
240 deal, the client's doing everything, we aren't contributing very much at all by then.
241 That sort of two way graph, the point in which the slope of our involvement in that
242 particular case will be a lot shallower, so we are continuing to be involved a lot
243 longer. And the sort of things we're doing are rather more investigative things we
244 would normally do.
245

246 B: One of the things you said...
247

248 R: The investigative stuff is part of the evaluation of course. And the evaluation must
249 take into consideration what the client's weaknesses are in that particular case.

250
251 B: One of the things you said last time... and again you said you spend a lot of time
252 understanding the client. And it's not a case of ticking boxes saying how many people
253 they employ, or how much money they make or whatever else. It's about having an
254 understanding of them and understanding with them what their about. One of the
255 things you said was that, often that goes untested but then later on there's nothing like
256 a few realistic examples to test them.

257
258 R: That's right, that's precisely what we've just been talking about. When we first got
259 to know the client we could see where the weaknesses were going to be and that we'd
260 have to extend our contribution in the whole process and we've just had a discussion
261 which has highlighted that. But it's underwritten that the value of it. And I think we
262 all understand the difficulties. But one of the things that's happened between our first
263 encounter with the client and now, is that there are some examples on the table.

264
265 B: Right, I see.

266
267 R: So those examples on the table have illustrated to the client that he really, really,
268 really isn't quite sure what to do and he really, really does need more help in making
269 his decisions. That has teased out rather more parameters of his decision process, that
270 he would never ever put down on paper and probably wouldn't have thought of, even
271 if he'd been questioned. But suddenly other factors come into the conversation,
272 because he's seen some examples.

273
274 B: So it's a realisation not just for you...

275
276 R: And he's got somebody to talk to. He's got somebody now who can say 'oh the
277 problem with this is da da da da da da. And if you understand the da da da da da da
278 da. Yeah we understand that.

279
280 B: Ok so he never realised what all of weaknesses were until he got on with doing it.

281
282 R: This particular case is a highly intelligent guy. I think he realised his group has
283 weaknesses but he's not articulated them quite so carefully. He's come fairly new to
284 this activity and that's starting to make him think very carefully, but I'm not sure that
285 being computer fed. If we take the opposite example of just getting information, and
286 even less if he'd sat down in front of Google and tried to get some cold information,
287 I'm not sure that process would have happened. So he's learning. He's learning.

288
289 B: So he's learning himself. And you're obviously learning about...

290
291 R: We can't tell him you know, your doing it wrong, haven't you learnt a lot then
292 [laughter] to what you used to do. Of course not. But he's quietly saying, yeah I'm
293 beginning to get my head around this as well.

294
295 B: That's quite interesting as well, the point you've just raised about, you can't tell
296 him. Because I guess if you mapped out somebody's weaknesses on paper then
297 obviously as you said at the start they wouldn't admit to it.

298

299 R: Well you wouldn't get an accurate picture do you? Come on what do people say
300 when.. I suppose a good psychologist would find out but I'm sure they'd find out
301 much more in a conversation than he would from twenty pages of questionnaire. He
302 needs skills both ways too, but he wouldn't get it from a questionnaire.

303

304 B: And obviously, the practical example of just allowing him to get on and do it, and
305 you maybe sitting back and observing and him looking back and reflecting on what
306 he's done himself has given him more insight into maybe both his capabilities and his
307 weaknesses.

308

309 R: You're right it's a double-edged sword, because in one direction he's learning a
310 lot. He's gaining information. He's gaining knowledge about opportunities but he's
311 gaining also some testing, some real testing of his own abilities and capabilities. I say
312 his own, I mean his corporate own, and at the same time, we are learning what's going
313 to work for him, so it's very much a two-way trade.

314

315 B: From watching him for a while will you figure out all of his weaknesses and
316 strengths?

317

318 R: I think life moves, and probably after twelve months we would have figured it all
319 out. He would have figured it all out. But I wouldn't mind betting that some other
320 influence comes along. Other people in his company, the circumstances, he might go
321 bust. Simple things come along which will interfere with that, but given all other
322 things equal, and they never are, we'd find out.

323

324 B: So you can never say 100% this is... You can only say what's happening right
325 now.

326

327 R: I think you are right, but what we can say is that this is what we know now; this is
328 what he knows now. It's our responsibility to grow that, to know more all the time.
329 It's his responsibility to act more as well. But life has to happen and we have to do
330 things in light of the current knowledge and all we do is to seek to maximise our
331 understanding in order that we can maximise our contribution.

332

333 B: What you're learning from this situation with this particular client - can that be
334 used or transferred to understand other clients?

335

336 R: Oh yes, definitely, definitely, definitely. We come across scenarios or situations
337 and personalities and you find them replicated by coincidence. Once you've been
338 through all those procedures and experiences probably many times with different
339 clients. Then you go in next time, you've got all that built in, and you can apply that
340 in the very first conversations you have with the client and you can test the edges very
341 much more accurately, much more comprehensively than you could if you were new
342 to the game or working from some (*cannot hear*).

343

344 B: Giving an example of somebody who is new to the game, for example. Having
345 your experience of being in this business for however long, and using various
346 examples of clients, could you not map out how to. If someone was new to the
347 business, could you not map out to them, this is how to deal with x, y, or z?

348

349 R: I think there have been attempts to develop questionnaires, very complex
350 questionnaires. There has been attempts to script an interview, a meeting. There's
351 been attempts even to script telephone conversations with unknown parties and to my
352 knowledge they are excruciating failures. And against that we once employed a young
353 foreign student with no knowledge of the business and she had an immediate grasp of
354 all the niceties and the intricacies and complexities of what was going on. Simply
355 because she was alert to the people and attitudes. She had the confidence to put
356 forward her questions in her innocent manner. I guess too much experience, too much
357 caution, is counter productive sometimes. And she came at it from an innocent and
358 inexperienced background but a very, very agile mind and one that immediately built
359 relationships as well. She was a good communicator. She wouldn't have articulated
360 everything without a little more experience but she certainly knew what the overall
361 picture was. She'd got a grasp of the situation, far, far ahead of most people.

362

363 B: So you could have someone new to the business and you might be able to tell... a
364 certain amount of information.

365

366 R: Yeah one of her is worth twenty boring, key stroke addicts, because she could talk.
367 I don't mean that sillily, she could communicate.

368

369 B: So the premium is on, the value is on the person involved and their skills.

370

371 R: Yes, and the skill is not one that came from learning, it was just one that was there.

372

373 B: So it wasn't knowledge that she'd built up, it was just the way she was with
374 people.

375

376 R: It was the way she was – exactly that. And she had the ability, and she had the
377 charisma, and all these indefinable attributes. But she had the intellect as well to
378 marshall it all together into intelligent fashion and that led to a seriously good grasp of
379 what was going on.

380

381 B: Is it possible to, you know, some of these attributes she's got, some of the skills
382 that she's got, is it possible to write these out or...

383

384 R: I guess that would be the desire of a good interviewer for that sort of role and that
385 would include us. But by god it's not something I would particularly want to tick
386 boxes on a questionnaire. I don't think you could do it. You need to sit down and you
387 need to talk to her and then you get the impression that they're grasping what's going
388 on. They've got the communication skills, they've got the ability to actually suss out
389 the situation as well. They'd probably ask as many questions as the interviewer.

390

391 B: But it's not possible to kind of make some of these explicit and some of these skills
392 what she has. You know, what I'm saying is, could you not kind of find her... you
393 know, you've got this new worker she's absolutely fantastic...

394

395 R: Take her and clone her...

396

397 B: Yeah, is it not possible to kind of look at what she's got, get it down on paper and
398 then interview x amount of people to find someone who's got similar kind of ability
399 or can you not replicate some of the things that she's doing in a...?

400
401 R: I think that those particular skills and their particular relevance to our business, are
402 extremely rare and surprising to find. Very surprising to find. And in retrospect it
403 would be possible but difficult to draw up some sort of parameters that would be
404 looked for in a candidate, in retrospect. But they're such a rarity that its still a [*cannot*
405 *hear*]. No, give me an hours chat with them and you can suss it out a little bit better
406 then, but...

407
408 B: I mean that's one of the things you were saying about when you're doing your job
409 of matching two clients. One who wants a particular technology, and one who's got
410 this particular technology. And you've sat them down, and sometimes you've said...
411 well in the last interview you said that on paper it may not work, or on paper it looks
412 fantastic and you think this is a match-made heaven, but then in your experience this
413 hasn't always happened and its taken you to use the phrase 'stimulate' either party or
414 to 'warm the relationship up'.

415
416 R: Exactly. It takes our intervention to understand where the hurdles are going to
417 arise, and those hurdles arise from a weakness somewhere. They might be on either
418 side of the deal, but you've got to understand where those weaknesses are, as well as
419 the strengths and manipulate them.

420
421 B: When you're stimulating either party, what would you mean by 'stimulating' or
422 you're 'warming them up', what would you actually be doing?

423
424 R: It would be pointing out where the real strengths of the opportunity lie, of course.
425 We would accept the weaknesses and we'd put the whole thing in a perspective of
426 experience to say to the guy 'look, it doesn't answer all the questions and it's a little
427 weak in this particular area, but its something which your probably not going to find
428 any better and you need to do something and you must accept that nothing is perfect.
429 You can set up all the desirable criteria under the sun but you never ever meet them.
430 So you've got to put into perspective the ones aren't really met and how important
431 that deficiency might be, as against the prospects. And it takes a view I think in
432 addition to a coldly analytical one, it takes a view on the experience of looking at
433 alternatives and lots of other things, lots of other fears, because of the implications. If
434 everything was perfect it would be easy.

435
436 B: Just to kind of sum up, so you said at the very start that there's been a lot of
437 changes in sort of three years since we last spoke.

438
439 R: There's been significant ones.

440
441 B: But in terms of the principles or philosophy's of what you do and how you do it,
442 and their still the same and there's a place for information.

443
444 R: It seems so. There's definitely a place for information, but the fact that we've been
445 successful in restarting what we used to do shows us that we're not wrong in the
446 market place. People won't buy what they don't need.

447

448 B: And you said you need the people to...

449

450 R: And to make that work you need people, and you need people with these rather
451 rare skills. Not getting too bogged down in the technical analysis but putting the
452 whole thing in a perspective that allows them to take a view and to help in their
453 understanding of the guy and help his understanding of what it's all about in light of
454 his weaknesses, as well as his strengths.

455

456 B: Ok, well I think we'll stop it there [laughter].

457

458 R: Probably not moved on very much from the last...

459

460 **End of Interview**

461

462

463

464

1
2 **Appendix 3 - Interview Transcript 3: The Business Developer**

3
4 Key

5 B = Brian

6 R= Respondent

7
8
9 B: Ok, thank you very much for sparing some time... The first question is... just to
10 give me some general background in what you actually do, in terms of work. Do you
11 want to just give me a brief description maybe?

12
13 R: Yes, sure. I work for a company called [name of company]. They are an
14 engineering design consultancy, and I work in the rail sector. My job is business
15 development, so I'm tasked with bringing in new work and trying to keep the number
16 of projects going, consistent. My role is part relationship development with new
17 clients, potential clients and existing clients and also putting bid documents together
18 and do client attenders and enquiries from clients.

19
20 B: Right. So on a typical day... You know, you walk into work... Can you describe to
21 a typical day, what are the kind of things you'd do?

22
23 R: Yeah. About fifty per cent of my time is spent preparing bid documents for
24 opportunities that have already been identified, and we've already been contacted by
25 clients or we've already contacted the client. That could be either for a non-requested
26 bid, where we know there's an opportunity – for example a client maybe considering
27 designing a new rail line. So we would put in a non-requested bid to that client, saying
28 'this is what we can for you – are you interested?' That is quite rare that that happens.
29 Normally the client would officially tender through the European Union... the
30 procurement laws. So that's preparing bid documents. The other part of my job is to
31 trying to identify new business; develop relationships with potential clients or existing
32 clients for future work and do the commercial aspects of the job which is to monitor
33 our business development spend and to try and keep control of where are money is
34 going and make sure that we are getting a good return for our investment in business
35 development. The way that that can be done is monitoring how much is getting spent
36 against each individual prospect and then over a longer term monitoring how much is
37 getting spent on each client, potential client, and the actual return we are getting from
38 that client.

39
40 B: Ok, so you have got a number of clients who you work with...

41
42 R: Yeah, there's a high number of clients – we work internationally, so for example in
43 the UK, our biggest clients in rail are Network rail and Transport for London, and
44 through Transport for London, London Underground. They're our main clients. But
45 we would also do work for clients of Network Rail, or clients of London
46 Underground. There's been Metronet – they've been in the news quite recently – they
47 undertake quite a lot of work for London Underground, and they would appoint us to
48 design work for them.

49
50 B: Ok, so this company does design work?

51

52 R: Yes, if there's a new railway to be built, then that will go through a number of
53 stages. It will go through feasibility studies to see if it's feasible for the railway to
54 actually go through the area they want. Then there would be a forecast of demand to
55 see what the demand was for that railway. Our company can do all them from
56 different departments. When it gets to our stage its usually that they've decided they
57 want a railway, they've decided roughly where they want it to go and then they would
58 appoint us to do a number of stages of design which could be from, initial concept
59 design saying we want the railway to go from Liverpool to Manchester for example.
60 Then we would give them a number of options - quite high level designs, then as they
61 go through and say 'yes, this is what we want' or 'No, we want to do something
62 different' the design gets more and more refined and a lot more detailed.

63

64 B: Ok, you said before that you monitor your clients that you're working with. Is that
65 right?

66

67 R: Yes.

68

69 B: In what ways do you monitor your clients?

70

71 R: Our major clients such as Network Rail or Transport for London would have a
72 client account team allocated to them. That would be a number of senior people from
73 our company who would oversee the overall relationship with that client. But that
74 could be at quite a high level and normally either quite senior management or at
75 director level. On a day-to-day level we have a limited client contact database, where
76 when any of our engineers or business development people make contact with the
77 clients on a business development matter or a general relationship matter, then that
78 contact should be recorded. So the day of the contact, the general subject of it, and
79 who they actually make contact with.

80

81 B: Right, so where would you keep note of these contacts?

82

83 R: That system is on our internal network. The system is quite limited and it is not
84 used as much as it should be. In fact it's only used by a limited number of people. So
85 we're not getting the value out of it that we could do.

86

87 B: So you have... you monitor the relationship between your company and the
88 clients...

89

90 R: Yes.

91

92 B: And then you suggest maybe that one of your senior people has a meeting for
93 instance, or they phone up one of your clients. I don't know, lets take...Did you say
94 Metronet?

95

96 R: Yes.

97

98 B: Yes, so let's say they phone up someone from Metronet and they have a
99 conversation. Are you saying that that conversation should be noted on your internal
100 system?

101
102 R: Yes, it's not a hard and fast rule that all the conversations are noted. But the
103 inference is that, if it's a business development call, or it's something that is
104 furthering or repairing a relationship with a client, then that should be noted because it
105 could be of use to other people in the future.
106
107 B: Ok, so is that what it's there for – to refer back to in the future?
108
109 R: Yes, because the system is limited and it's not used to even its limited capacity at
110 the moment, then yeah the process seems to be, someone will review the contacts
111 made to that client. Someone out of the clients account team will review the contacts
112 made to that client at set intervals, possibly every quarter or biannually.
113
114 B: Ok, so say quarterly, say every few months someone will look at the contacts made
115 and sort of monitor how often you've been in contact, and what kinds of things that go
116 on, what kind of things that have been said or what kind of things have been done.
117
118 R: Yeah, that's the way the system should be used – yes.
119
120 B: Right, but you're saying 'it should be', so it doesn't get used quite as...
121
122 R: No – someone will review them, but because the calls aren't getting recorded –
123 then what they are reviewing is not a true reflection of the actual relationship with the
124 client and the number of contacts that have been made.
125
126 B: Right, why do you think that is – why do people log some calls but don't log others
127 onto the intranet, or the internal system?
128
129 R: I think there could be a number of reasons for it. First off, people are busy and they
130 might not think they've got the time to do this because they don't really see the value
131 in it. If it's an engineer working at operational level, they will not be able to
132 appreciate the bigger picture – the actual level of the relationship that we have with
133 the client and how we want to use that information that they have. Another reason
134 could be that people are not comfortable using the system. We have a lot of senior
135 engineers who've been in the rail industry for perhaps forty years and they've been in
136 the industry since before computers. Ok, the way that they work has changed, using
137 computer aided design, but a lot of them are still reluctant to embrace any new
138 systems that are outside of their direct job requirements. One of the reasons that
139 people will not want to record contact with the clients is if it's negative contact.
140 Because they feel that that could have an effect on how they are being perceived
141 within our own company.
142
143 B: Ok, going back to the engineer. Why... So one reason you said, was maybe that the
144 engineer has done something wrong or there is some negative contact with them so
145 you wouldn't do so. You also suggested maybe an engineer might feel uncomfortable
146 because they've never done it in the past, so they say 'well why should I do it now?'
147
148 R: Yeah.
149

150 B: Why else might an engineer not bother to... Can you give me examples where an
151 engineer might not or might record this data?
152

153 R: I think they would record it, if they'd been asked directly by their line manager or
154 one of the business development people, but they'd have to be instructed directly to
155 do that. A time that they may not is... If they do have a good relationship with one of
156 the clients representatives and they speak to that person quite often then a lot of the
157 engineers will keep that relationship for themselves. Whether it's because they want
158 to retain the power that that relationship can give... The power that that knowledge
159 can give or they just don't give it a second thought. They think: 'I speak to this person
160 once a week, I speak to this person once a month, I know what the contents of the
161 conversation was, I know when I need to call him next'. 'Why does anyone else need
162 to – this is my contact, so I really should be the only person dealing with him, or her
163 and no one else would need this information'. That's one of the major problems I find.
164

165 B: What's that?
166

167 R: That kind of attitude of: 'I know it, why would anyone else need to'. And the
168 nature of the industry that we work in – there's a lot of staff movement. Not necessary
169 people losing their jobs, but a lot of the engineers are contact based and when they
170 come to the end of their contract, whether it be for a fixed term or whether it be for a
171 project being completed, they'll move onto another company and they'll take that
172 knowledge with them.
173

174 B: Ok, so they learn stuff, [if you like]. They learn stuff here, and they have a lot of
175 knowledge from working for your company and then they leave and they, as you put
176 it, they take that knowledge with them. So you think this system is a way of keeping
177 hold of some of that knowledge.
178

179 R: Yeah, it's not operational knowledge of how to be a better engineer. It wouldn't
180 really be that information. It would be who we need to speak to, which client, when
181 did that clients managing director work with this person that we now have...
182

183 B: More factual...?
184

185 R: More to do with the soft relationship rather than the hard engineering side of it.
186

187 B: Ok.
188

189 R: So it's trying to...Even a real superficial example. Why did that person join that
190 company, or when was their birthday [for a really superficial example]. When was
191 that person's birthday? Because if you have that information then the next person that
192 comes along and speaks to that person, if it's round their birthday, then they can
193 mention it in passing. It's a throw away comment but its really good for building
194 relationships.
195

196 B: Ok, yeah. So, this system where you store this information. If it was used
197 successfully it could [looking at the bigger picture] help your company build a good
198 relationship with your clients.
199

200 R: Yeah

201

202 B: But you're saying it's not being used?

203

204 R: No, the system that is being used at the minute – it has limited capabilities to
205 record. You can record the type of contact, who the contact is, the client who they
206 work for and a couple of lines on the reason, the content. But if that was used to it's
207 full then it would be quite beneficial. But I still think it's a limited system.

208

209 B: Whys that?

210

211 R: There is no way to pre-empt what contacts should be made. There's no scheduling
212 available in the system. For example, we mentioned Metronet before. If nobody from
213 Metronet has been contacted in four weeks, then I think a system should flag that up,
214 and the client account team that we have for Metronet [if we have one for that client]
215 should be alerted about that so they can choose whether or not they should make a
216 call. Just a brief contact to keep up the relationship, to keep in contact with them. If
217 it's a smaller client, where we've only got one or two people at the client that we deal
218 with, and only one or two people from here, then there should be enough information
219 so that anyone new from here can make the initial contact and know who they're
220 going to speak with, what that person deals with, and who they are used to dealing
221 with here. Because if our main contact leaves, and goes on to other employment, then
222 we wouldn't know which person to call there for whatever issue.

223

224 B: What if you had a system that could do some of those things, so it could flag up
225 that you haven't contacted Metronet for instance in the last four weeks. So, you know,
226 the system pops up and says 'look you must contact Metronet'. Do you think that
227 would solve all your problems? Would that really benefit?

228

229 R: I don't think it would solve all the problems. I think it could be of benefit because
230 you're not... if you are maintaining a contact with a client, your not being forgotten.
231 And a lot of our work is through your relationship with the client. You'll never get
232 awarded a job in the UK, just because your friends with the client. There's guidelines
233 and procedures too strict for that. It's got to be quite a fair way of appointing people.
234 But if we look outside the UK, in some markets the relationship can be just as
235 important as your ability to do the job.

236

237 B: Ok. Why is it important to have a good relationship with your client, do you think?

238

239 R: A lot of our competitors can do a job to a similar level to us. Some are better, some
240 are worse. And depending on the different area, we may be the best in the industry, or
241 we may be top five, top ten. The way you keep in contact with your client and you
242 manage your relationship, your client can look favourably on you. The clients could
243 pick the top five consultancies in the UK, and be confident that every one of them five
244 can deliver their job for them. But they want to know, which one is going to give them
245 the most confidence. Which one is going to treat them the best. Give them the... The
246 client doesn't want to have to worry. They know we can deliver technically, but can
247 we deliver on a personal level. Because on a big job, we could have two hundred of
248 our people working on that job and maybe twenty to thirty of them dealing with
249 outside stakeholders, whether it be directly with the client, whether it be with local

250 councils or other members of the supply chain. So if the client has a good relationship
251 with you and trusts you then it's going to look more favourably on you, where it
252 comes to repeat work or increasing the amount of work they give you.

253
254 B: Ok. Just talking about this system that you've been using to keep people or keep
255 hold of information which you think should be shared information to maintain this
256 relationship, or help maintain rather, this relationship with your client. You mentioned
257 in a previous discussion we had about somebody who'd worked in the business for
258 quite a long time, and have, as you call it, a 'knowledge base', and you suggested it
259 could be possible to create, or put some of that knowledge into a system...

260
261 R: With that knowledge I was referring to there is about the client relationship and
262 again I just want to emphasise it's not the engineering knowledge that I'm trying to
263 get down in this system. It's who we should be contacting, why we should contacting
264 them – that kind of information. But we have people here who have been in this
265 company for thirty years, forty years maybe. They've built up a vast knowledge of the
266 industry. Where people are moving to and from, between different companies.
267 Whether someone who last year was working for a competitor is now working for a
268 client, or vice versa. If we had an excellent relationship with someone who works for
269 London Underground and now they go and work for a competitor, have we lost our
270 influence at London Underground or have we gained influence at that competitor
271 which may give us opportunities for partnering or joint venture in the future. That
272 engineer, the senior engineer, if he retires – that information's gone. There maybe
273 people who have the same knowledge to a lesser level. They may know of the person
274 whose moved from client to competitor but they may not know why, they may not
275 know what that individual intends on doing. A lot of time they intend to move for a
276 fixed job, and then move back, or move on. And if that information is available to us,
277 then it can help us pre-empt where our competitors maybe increasing their strength or
278 where they're likely to fall down in the future. And where our clients are likely to be
279 looking for increased knowledge. If they have one of their senior project directors
280 leave, then they need to replace that person. But more than that, they need reassurance
281 on their next job. Rather than replacing that person with one of our staff we'd rather
282 keep our knowledge base and our resource. But if we can address that weakness when
283 we contact the clients, when we tender for new work, then we'd be looked on more
284 favourably, because we know about the weakness in the clients organisation, we are
285 prepared to address it on our side and then the client would be more reassured by
286 appointing us, than appointing someone who wasn't prepared to address it or who
287 wasn't aware of the issue.

288
289 B: Do you think you could... You know, you've got this engineer who has a lot of
290 experience, has built up a lot of relationships with people. Do you think you can
291 replace that knowledge with a particular system? Do you think you could have some
292 sort of system that could replace him? To what extent could it replace him? Would it
293 just be some of the basics like: 'I know John or Jo from Metronet, or could it be more
294 sophisticated than that?

295
296 R: Am not sure it could replace the engineer completely because it's a very
297 relationship based industry and you need to have the personal relationship. I think you
298 can replace, the fact that its one engineer holding the knowledge with the knowledge
299 being held centrally and then anyone can access that. It's never going to be everything

300 that everyone knows about every client, and every contact there on the system and
301 available, because it's unlikely that we could record that, and it's unlikely that we'd
302 have the time to actually get everything down. You could ask people questions about
303 who they know – the different clients. But they'll never be able to give you everything
304 because it might not occur to them. But you could centralise a lot of that knowledge.
305 And it's not just about centralising the knowledge he has now. It's about recording
306 everything that he can get in the future.

307
308 B: Why can't you...? You said you can't record - it would be impossible to record all
309 that information. Why couldn't you record...? Couldn't a person set some time each
310 week to record various aspects of their relationship with people?

311
312 R: I think they could, but I think it's quite vague at the moment, on what we would be
313 after. It would have to be quite a clear criteria, on what was required from the
314 relationship, whereas the nature of a personal relationship – it's very intangible. It's
315 very difficult to say what is important on the soft side of it. Ok, we can record who the
316 contact is – their position in the company, hopefully their length of service there.
317 Maybe a bit of information about what they did in the past. But, it's harder to record
318 the more interpersonal level that would be built up from the relationship. That would
319 be the aim for anyone from our company to be able to phone anyone from our clients
320 company, and be able to speak to them, quite openly. And have the knowledge there
321 to discuss what they needed to with them. But the nature of human relationships mean
322 that a lot of people are guarded with new comers. If they don't recognise the name,
323 the face, the voice, then they are a lot more reluctant to give out information than they
324 would to a friend or a colleague.

325
326 B: So you are saying that these people could... You know you could have... You
327 know you gave an example... If you set some time aside each week, you said you
328 could have a set criteria whereby they said 'yeah, I spoke to John or Jo from
329 Metronet, on Thursday and this was the gist of the conversation'. But you're saying
330 that you can't actually replace the person. So, you're saying if someone phones up
331 from your company to Metronet and they realise this isn't the usual guy who I usually
332 speak to, do you think that's going to have... I mean even though that guy [the guy
333 from your company] knows all the background of the relationship, do you think it
334 wouldn't be the same relationship, or?

335
336 R: Yeah, I think that's right. I don't think it would be the same, but the more
337 information that that new contact can have and the more background they know, then
338 the more quicker it will be to reach a good level in the relationship where the ideas
339 can be exchanged freely. If they phone up and the conversation goes along the lines
340 of: 'Hello my names Joe Bloggs, I've been asked to call you'. And their response is:
341 'Why'. 'Ermm I'm not sure, hang on a minute'. And then they're trying to, like
342 stumble through it.

343
344 B: Yeah, I see.

345
346 R: Then the people their speaking to - the clients - will have less confidence in them.
347 If you've got a way of giving that person the information they need before they make
348 the call, then it's going to be a lot easier.

349

350 B: Are you saying that, your example of this guy on the phone whose looking up
351 information – are you saying that its better not to have the system at all, or are you
352 saying that you should revise well before he phones up?
353

354 R: I don't think it's a case of revising. It would be a couple of minutes to see when the
355 last calls were made and what were they made about, and who made them. So for
356 example, if Alan had called last week regarding the same topic you want to speak to
357 the client about then you say 'further to Alan's call last week - he's not around today'.
358 So you can justify why Alan isn't making the follow-up and your reassuring the client
359 that you know all about what's gone on previously, so they are more comfortable
360 speaking with you. I think the technical information, the basics of who was called,
361 why they were called is important. You could expand that a little bit with a bit more
362 personal information, but you got to be careful on infringing on peoples rights of
363 privacy and data protection. But I think in a working relationship there's room there to
364 have this.
365

366 B: Do you think if say, someone's worked here for quite a long time and they've been
367 speaking over the phone, say to Metronet, for quite a long time. And then one day
368 someone calls Metronet from your company and it's not this same guy. Do you think
369 even if they had this system with all this information of all previous... and they said
370 'further to your enquiry' or whatever it may be... Do think that would be as good as
371 having that person who's been there for a while.
372

373 R: Probably not at first, but I think that the situation that we as a company need to get
374 away from is having one contact for a client and having the same contact for twenty
375 years for a client. Which is brilliant whilst we have that contact, because the level of
376 the relationship which they build up is outstanding and the client is comfortable with
377 them. But, when they leave, or if they're unavailable, then our relationship starts from
378 scratch. So, we need to be able to have information available and I think we as a
379 company need to move towards having more than one contact for a client so when
380 there is a staff turnover, we don't lose everything. Ok, it maybe a senior person who is
381 the main contact but there should be a number of junior people or midlevel people
382 who know the client, who know the culture of the client, and are able to make the
383 contact, so that the client is not dealing with a stranger.
384

385 B: So when you said to start off with it would be... maybe first of all it would be
386 somewhat problematic if... what did you mean by that? Why would it start off as a
387 problem or an issue?
388

389 R: Well, one thing would be a lot of clients being contacted by a lot of people and
390 trying to record this information when it would be a new system and not everyone
391 would be conversing with the system. Yet, it would be a learning curve. Some people
392 in the client's organisation would be reluctant because they have their one contact and
393 they're happy with that which again is the nature of the industry – it's a lot of senior
394 engineers who have been there for years and they've moved from one company to
395 another but it's a case of the usual suspects. There's a lot of people in the industry in
396 senior positions who have all worked with one another at different times but we need
397 to make sure that we don't lose the relationship with client as a whole just because
398 one person has moved on, or our contact with the client has moved on. So the client

399 maybe reluctant to invest that time themselves into the relationship, even if we are
400 prepared to. We'd have to ensure that they can see the value in it themselves.

401
402 [a short silence]

403
404 B: Ok... Ok... Do you use any other systems, apart from this one which you think can
405 be improved, do you use any other systems in where you work?

406
407 R: We record potential prospects. Whether we hear about them through word of
408 mouth or whether it's through official notification of up and coming work, we record
409 them on an excel spreadsheet. The information recorded is the location of the
410 prospect, the nature of the work, the client, the potential fees, the duration of the job,
411 and the possible success rate if we were to bid for that work. And that can be based on
412 a number of criteria if we know how many people are bidding for it, how many
413 competitors are bidding for it, that would affect it. If we know the clients and we
414 know we have a very good relationship with the clients and we've delivered good
415 levels of work for them in the past that may improve our potential success rate. This is
416 all recorded on an excel spreadsheet at the moment.

417
418 B: Do you need that? Do you need to have that on a spreadsheet, is that crucial?

419
420 R: We need to have it recorded, because that's how we work out our potential pipeline
421 of work. So if we can see that there are four jobs coming up in October and they're all
422 worth approximately the same amount of money, different clients, different locations
423 then we can say, if we think if we've got a 25% chance on each of them then the
424 likely-hood is that we would win one out of those four jobs if we to bid for all of
425 them. So that's how we can see how much work we are likely to bring in, over the
426 next period, whether it be a quarter or a year, or two years. We do need to have that
427 information recorded, but I don't think it necessarily needs to be in a spreadsheet.

428
429 B: Do you think... Just going back to the system that you use when you keep... at the
430 moment you say people aren't using this system, and you say that one of the reasons
431 was you know, they feel uncomfortable or they've never used it before so why should
432 they use it now, or it's because of negative contact. If you have a system that was
433 better, if you had a system that could be improved... what other ways...you
434 mentioned one way could be to flag up when contact hasn't been made. Can you think
435 of any... Are there any other ways if you had a system that could improve what you
436 have already or it could, you know, help with this problem of having people in your
437 company for twenty or thirty years, who've developed a relationship with your client
438 and your saying this information needs to be passed around...

439
440 R: Yeah.

441
442 B: Is there any other things or any other systems even that you could have that could
443 actually do some of this...?

444
445 R: I think with the system which we've spoken about, another aspect of it is that we
446 could record what potential work is coming from which client. It could be monitored
447 through the bidding process, and then record wins and losses. It could be as simple as
448 that. This year we have bid for ten jobs through Metronet and we've won five.

449 Personally I would want a much more sophisticated version than that where we can
450 see how we've won, and hopefully feed back from the client on why we've won or
451 lost. Because if we've got that information. If the client has three different people
452 working in their procurement office and each one of them makes different
453 appointments. If we see that one of their procurement officers has appointed [us]
454 twice and the other two haven't appointed [us] at all, then we maybe able to
455 investigate further and find out why.

456
457 B: What kind of reasons would be... what kind of things might you find?

458
459 R: It could be that they just have a preference with one of our competitors. It could be
460 that we didn't put a sufficiently competent bid in. If we have that information we can
461 address it, whether it be, if they have a preference for the competitor we need to find
462 out why, and if we find that information out, then we can take steps to address that.
463 Improve our company in the areas that are perceived as being weak. Or trying negate
464 the clients fears on certain areas where they may perceive us as being weak in one
465 area whereas we are actually quite strong, and it's only the perception which is letting
466 us down. If we've put in an incompetent bid then we need to know why. We need to
467 know where it was weak, did we interpret the clients request incorrectly. Or did we
468 not put in a sufficient resource. Were we too expensive? Because a lot of the jobs are
469 won and lost on price. And if we are too expensive, we can then take a decision on
470 whether we cut our prices or we try and re-position our offering as a premium offering
471 rather than the midlevel. We try and justify our higher level of cost with added value.

472
473 B: Do you think you could have a system... Would the system be finding that out or
474 would it be people finding that out?

475
476 R: I think people would have to input the results, but a system with enough
477 information going in there and over a long enough period of time, then you should be
478 able to data mine and find trends. I'd expect that you could flag up a client that's not
479 appointing you quite easily, but if you had why you lost this job, why you lost the
480 second job, why you lost the third job, you should be able to identify trends.

481
482 B: I see, so you could... Do you think a system could, by looking at a particular
483 client... or looking at a lot of clients it could find maybe some client that's typical of a
484 particular trend, and that might result in... I don't know... giving x, y or z reasons...

485
486 R: Yeah, I think there are systems there that would be able to do that, but it's all based
487 on the information that goes into the system. If the information is sporadic, if it's
488 patchy, if its just incorrect then your not going to the results out that you would expect
489 or are hoping for...

490
491 B: Do you think you could have a system that... going back to this guy who's worked
492 here for twenty or thirty years, do you think a system could replace what he does or
493 do you think it couldn't replace him, but it just assists people?

494
495 R: Yeah, I think it would be very difficult to replace what he does because the clients
496 want that human contact, they want to see people, they want to talk to people rather
497 than just filling in an automated questionnaire. I think there is definite room there for
498 it to assist him, and I just said there questionnaires... If that person administers a

499 questionnaire, or gives the client a questionnaire for them to fill in, and then does a
500 short interview. I'm talking about why we lost work now, because that's part of the
501 job. Your trying to get feedback from the clients, you're trying to find out why. And
502 you'd be able to get not only the qualitative information which comes from
503 interviewing someone and the general discussion, you'd have hard quantitative data.
504 That could be analysed quite easily by a system, and then you just need to be careful
505 how you entered the qualitative information.

506
507 B: Why would you need to be careful about that?

508
509 R: Because of the nature of it. Qualitative – it's about people's opinions or feelings,
510 then it's open to interpretation. But the person whose doing the interview, whose
511 doing the client contact is inexperienced then they may infer things from what a client
512 has said, that someone else wouldn't infer from it. They may get the wrong end of the
513 stick. They may put their own personal feelings into it. The information you're getting
514 back could become biased. Where it's unlikely that you would get biased data from a
515 simple multi-choice questionnaire. It's a lot easier to control that information. So I
516 think they would complement each other, and you could get a system to analyse both
517 sets, but the quality of the information going in there has to be monitored.

518
519 B: So you think it's important to have that person there.

520
521 R: Yeah.

522
523 B: And as you said have that human contact... Ok [respondents name], there's some
524 really interesting points that you raised and hopefully in the near future I'll come back
525 and ask if I can pick your brains some more.

526
527 R: Yeah, no worries.

528
529 B: Great.

530
531 **End of Interview**

532
533
534
535
536

Appendix 3b - Interview Transcript 3b: The Business Developer

Key

B = Brian

R = Respondent

B: If I just stick that there. A bit closer to you would be better. Well, first thing is just how's things? I know you've had a stressful week this week. There's a few things you cannot talk about obviously because of what we were speaking about earlier. How's things generally, because it's been a while... 12 months nearly, something like that, since the last interview?

R: Yeah, since the last interview a few changes in work. I've been given a bit more responsibility. I've now got a development team... we've got one person who's come in to be a marketing assistant and were looking to probably expand the team further in 2009, depending on the economic climate of course. But as far as the systems that we use for undertaking day-to-day business, there haven't been any changes on that.

B: So, one of the things you spoke about last time was the monitoring system that you used.

R: Yeah, Monitoring clients.

B: Yes, monitoring clients. Has that changed?

R: No we still have the basic system but it's not used very much. We were looking at getting a client management system in but that hasn't gone any further. There's been a couple of issues with budgets but also it's been seen as less as a priority or the work has been taken priority. We are bidding a number of major contracts at the moment and their taking my time up completely and a number of other people in the department. Their time is taken up by these jobs, so the client management system is less of a priority at the moment.

B: So going back to what you said last time about the system. You said it's very limited. You said it's got limited capabilities. And the other problem was that people just don't use it.

R: Yeah, and I think it's more of the same. There has been a re-structure in our company so that the people who deal with the clients, some of the faces may have changed. And I know that there has been some difficulty getting the new people from our side in to see the clients and making sure they are sufficiently briefed on what they need to know, who they need to know, who they need to speak to, and what issues they need to speak to, because that information is tending to be passed anecdotally. It's passed word of mouth and only when you speak to the right person, so it's not necessarily recorded centrally like it should be. The system we now have doesn't lend itself to that anyway, and the systems not used anyway, but it doesn't lend itself to that kind of information management.

50 B: That's interesting, so the information is passed by word of mouth, and your saying
51 that ideally that should be centralised, that data. So can you give me an example of
52 something being passed word of mouth.

53
54 R: Yes. One of our major clients. Sorry I can't give you the actual name of the client,
55 but one of our major clients... The Operations Director there who our company has
56 dealings with and is a main stakeholder when we are bidding for work – he has
57 worked for one of our competitors but its not widely known, so if any of our more
58 junior people are wanting to contact him or his subordinates regarding potential work
59 then they should know his back ground, and its not ... more senior people in our
60 company may know, more senior people in our department may know but those who
61 haven't been in the industry as long – their memory stretching that far back. They
62 don't know this particular individuals background so they may not approach him in
63 the right way. Our company may have issues with his previous employer. In this
64 instance that is the case. We have worked together on a project and there was some
65 issues on the project so before anyone contacts that individual they need to be aware
66 of this. And right now that information isn't held anywhere other than in people's
67 heads. I think that kind of key information needs to be available whether it's in a
68 briefing paper or whether it's held in a data base where we keep information about our
69 clients and our contacts.

70
71 B: So is it a matter of getting this information out of people's heads and putting it into
72 the system?

73
74 R: Yes, I think so but it's important to be able to know what's the information we
75 need to record rather than trying to record everything. Because you could sit down
76 with one of our senior engineers. Sit him down for five days and transcribe everything
77 he can tell you and put it all in the system, but that's not necessarily going to be any
78 help because then someone's going to take five days to read it (laughter). We need
79 some kind of sense check which couldn't be done just by recording pages and pages
80 of gigabytes and gigabytes of information. It needs a sense check of someone with the
81 industry knowledge. They need to make that judgement on what's the key
82 information. On which people we need this information on. To make sure that that's
83 recorded and that it's recorded in enough detail rather than, to go back to that
84 example, rather than just 'this Operators Director works for one of our competitors'.
85 Yes that's more than we knew but that's not enough to give us the edge that we need
86 when we are going to deal with this individual. We need to know about the past
87 relationship, rather than that there just *was* a relationship.

88
89 B: How easy is it to ... how would you or in what way would you create a better
90 system? You talked about the problems with your old system. If you had more time
91 on your hands could you use some of that time to investigate, and maybe the company
92 purchase a new system. So if you had a system that could centralise people's
93 knowledge, how would it work? How would you decipher what was important and
94 what was not important?

95
96 R: I think it would be an iterative process and it would be an ongoing learning curve
97 to be able to do that, but I think that the senior people with the knowledge – we need
98 to make sure that they input into it. But its not just a lets capture everything that we
99 know now and make sure that's available. It's a lets capture what we know now and

100 continue to update it, so we'd have to on day one make sure that the people who've
101 got these relationships are the people who made these contacts and have dealings with
102 our clients and other stake holders and government agencies that we deal with. The
103 key people with those relationships are using the system and are recording the
104 information that they are learning on a daily or weekly basis, and then you augment
105 that with the knowledge from our senior people who have the past relationships, and
106 then you can record what the past relationship was and then continually update it for
107 the present and ongoing relationship and possibly you could do a bit of trend analysis
108 on that. It depends on what kind of information you're recording . If it is just a contact
109 and how many contracts have been let by this person, who've they gone to, then I
110 think that would lend itself well to trend analysis. If it's more qualitative information
111 on 'this person expresses a preference for more environmental awareness in your bid'
112 or 'this person expresses a preference for engineering excellence', then that's not
113 something you can quantify as easily but its important information to record.

114
115 B: Isn't it also in what context the information is used because for example last time
116 we spoke you gave the example of knowing when it was someone's birthday.

117
118 R: Yeah

119
120 B: So you say to someone you've got this information down and its just around their
121 birthday so you say that there can be a passing comment or a throw away comment,
122 'happy birthday', but you said in that context when your with that client, that it could
123 be of crucial importance to build up the relationship.

124
125 R: Exactly, a lot of this information that we would record, I don't see it directly going
126 to give us the edge. A lot of it would be soft information. It wouldn't necessarily be
127 competitively vital to know this. But the information to enable you to develop a better
128 relationship, build a stronger relationship. Then, whenever it comes to the having your
129 tender assessed against a competitors, then the *better* your relationship... even though
130 they have their set criteria to score against... you may get twenty marks for
131 engineering then the competitor could put in similar information to you but if that
132 client thinks of you more fondly, if that client has a better relationship, its human
133 nature to favour one over the other. And to be able to build those relationships takes
134 time but the more information that you have to start with, the quicker you can go.

135
136 B: So you say its human nature to favour one over the other, do you mean favour the
137 client?

138
139 BD: Well if our client is going to make a decision between our company and one of
140 our competitors and we are about equal on a technical score, then they need to...
141 because the industry we work in, the scoring is very strict, normally quite transparent
142 and the higher score wins, but its human nature to increase the score of the person
143 you've got more confidence in. Not consciously, but if they've got ten criteria that
144 they need to tick off on that tender and they've ticked eight, or they've ticked nine,
145 and the last criteria your answer doesn't necessarily give them the answer they want,
146 but its nearly there, then you will get the tick because they've got confidence in you
147 on a personal and professional level, whereas if there's no relationship there they may
148 be more doubtful, they may have some doubts, and they may not edge towards giving
149 you the tick, they edge on the side of caution, so having that relationship is not going

150 to give you extra points technically, but it might help you get a point that could have
151 gone either way. If a competitor scores ten marks higher than you and you've got a
152 better relationship then tough, they've scored far and away higher, and they deserve to
153 get the job, but if its very close then the client might air on the side of caution where
154 they don't have that relationship or they may think well I'm confident in them
155 because of that relationship.

156
157 B: So the relationships aspects very important for your industry.

158
159 BD: Yeah, definitely. Definitely. Yeah our industry, yeah.

160
161 B: So lets say they sit down and they are looking at a criteria and they've got two or
162 three companies what have made bids for a piece of work, and your company's one of
163 those companies who have made the bid. There's all what you call the technical
164 criteria, so that's things like cost, pricing.

165
166 BD: Yes, technical ability, quality of staff, yeah.

167
168 B: And then you say that they are the kind of formal ones on paper but then you say
169 there's an added one there...

170
171 BD: No, sorry I might not have explained that clearly. All the technical criteria are
172 there and it may be a hundred items and on one item you may not have expressed your
173 bid as clearly, or your capability as clearly as you could have, so it's a choice between
174 them giving you zero or one, but if they already have that confidence in you, they may
175 tend towards giving you one rather than the zero. So one point is unlikely to make the
176 difference between a win and a loss, but if that happens two or three times, and they
177 have, because of the relationship, and because they have confidence in you that may
178 push them towards favouring your score. There are number of ways that you can do
179 that on a tender but that is one of them. If the client has confidence in you they are
180 more likely to say 'oh well, we know what they were trying to get across there, we'll
181 give them the point'. I think a basic analogy could be positive and negative marking
182 in an exam, in an academic exam. In some academic institutions they positive mark. If
183 they can see that the idea was there then you get a point, if they can see that you have
184 got far enough along in your workings you get a point, or if you missed it completely
185 you get a zero. Negative marking you can lose points, so if you miss it completely you
186 just get the zero or it may affect how they perceive other answers.

187
188 B: So it's like... So is it something else your company's aware of when they are
189 looking at bids they think 'we've got a really good relationship with these guys so
190 we've got an advantage on our other competitors'?

191
192 BD: Yeah, it's something we try and do all the time. We try and work out who's
193 going to be evaluating the bids. And then we try and work out how we can get the
194 messages in that they like. I mentioned earlier, we know for one of our clients a
195 number of people evaluate their bids, and we know that some of them are very
196 concerned with the environmental impacts of engineering so we will try and make
197 sure in our bids that we address them and we get key messages in there to hit their hot
198 buttons. This is one of the terms we use. There's certain hot buttons you've got to
199 push to get the right response from the evaluator and if we have the relationship and

200 we know what their hot buttons are we can target our response to make sure it's well
201 received by them.

202
203 B: How do you know... so working out these hot buttons, working out what are the
204 right buttons to press, how do you go about... again coming to the question of how do
205 you work that out? Do you sit down with people?

206
207 BD: Yeah, that's the relationship. Our senior people will meet with these individuals
208 on a... whether we are working on a project together or maybe just as a catch up or
209 informal, and you try to get this information out of them: 'what's most important to
210 you on a job?' We also do formal surveys... feedback surveys... We commissioned
211 one recently. And that was for an ongoing job, for a client that we are bidding for
212 work for again. So from that survey we found out that certain people were more
213 concerned with some aspects of the job than others, and then when we put our next
214 bid in, we will try and gage that accordingly, we will try to get them messages in. But
215 the problem we have is making sure that information is recorded and retained and
216 then built on. We have the survey that we did, so we have the report back from the
217 independent market research company, but that sits on a desk now and it's not
218 necessarily available to everyone. So there could be information in there that could be
219 useful to others who may not have access to it.

220
221 B: So are you still relying on peoples' just word of mouth. People who know...

222
223 BD: Yeah or people coming and asking the question. They are going to see individual
224 'A', 'what can you tell me about him?' Which I think is vital, it's important, but I
225 think if they have a brief to start from, then they could get the basic information and
226 say 'I'm going to see individual 'A' and I want to know if he's concerned with project
227 safety'. So that might be in the brief or they could get the background information on
228 him and then they could go and speak to individuals. Because we could also... one of
229 the things I would wish to record using this system, is *who* has the information on
230 each of these people? So if someone's got the relationship and speaks to this person
231 once a month and records: 'Spoke with individual A; no new work coming up; he's
232 asked to call back next month'. And then that is repeated and repeated and whatever
233 new information is received in that phone call is put in there, so maybe: 'very happy
234 with progress on our other job', or 'problem on our other job', then that information is
235 there and then that can be disseminated down to other people but the fact that that
236 person is making the contact. If I wanted to find out about individual 'A' I would be
237 able to see who contacted him and I could go round and ask him. Rather than asking
238 round who deals with this person, 'did you deal with him?', 'did you deal; with him?'
239 I could see who made the contacts and it could save a lot of time.

240
241 B: So ideally you'd want a system that centralises all the knowledge that people have.
242 Important knowledge, factual knowledge but also the qualitative... you know you said
243 the hard data and the soft data, so the quantitative stuff, like how many contracts they
244 have had with them, when's their birthdays, things like that. But then you'd also want
245 the qualitative stuff like, you know, finding out any information that could be relevant
246 to your business, relations with people.

247
248 BD: Yeah.

249

250 B: So if your systems not working at the moment, as effectively as it should be at
251 maintaining some sort of knowledge about the relationships, what works at the
252 moment? How do you build relationships and maintain relationships at the minute?
253

254 BD: Well, people at manger or director level do have meetings with these people
255 whether it's on a project or outside of a project and some of it's quite informal. It
256 might be lunch meetings, but it's on a one-to-one basis. And the problem we have in
257 this industry is that there is a high turnover because it's the nature of the industry.
258 People might work with one company for the duration of a project and then move on.
259 So if that person had the relationship and had the information and they've now moved
260 on, you're starting from scratch with this individual. If the information, and I'm not
261 trying to record every thought and scrap of information about an individual. But if we
262 had the basics. If we had how he thought on certain aspects of the industry. What he
263 thought about previous projects we've done for them. Then that's there and even a
264 new person who's never met him before can be armed with that information before
265 they go into the first meeting.
266

267 B: I see so it's about sharing information and making use of that information to retain
268 those relationships.
269

270 BD: Yeah, but it's not just about recording. I don't think its good enough to just
271 record everything. It does need someone to look through and have that sanity check
272 and sense check. Because the person recording the information might not have
273 understood everything correctly so they need someone to just review it rather than
274 record everything and take it as gospel. Take it as 'yes this is everything that this
275 person believes truly deeply'. And 'that's how we focus our business from now on'.
276 Because they might have misinterpreted something so it's not just enough to record
277 the information available, it needs to be reviewed.
278

279 B: Seriously though if you have all this information in the database. So you have got a
280 couple of directors/ senior managers or whatever else working with your clients and
281 their working with your clients and working with their senior managers/ directors or
282 whatever. And then you lose one of your senior managers due to high turnover – you
283 lose a couple of them. Someone new comes along and they say to you 'I'm going to
284 see such and such a person next week, can I look up about them on this database?'.
285 Do you think a new person on the job just knowing all these facts about this other
286 company... do you think that would immediately establish a good relationship with
287 them?
288

289 BD: No, it wouldn't immediately, but it's a better starting point. Your starting off
290 further along than you are from 'hello am Kevin, how are you?' Because you get to
291 know issues that this person has had in the past, so you can avoid raising things that
292 may set them off or aggravate them. Or you can bring up areas that you know that
293 they've been positive about in the past. And it's very subjective but it's arming them
294 with information. As long as its quality information, it allows them to have a better
295 chance of establishing the relationship in a shorter amount of time. That's been my
296 experience.
297

298 B: Ok (office phone rings loudly in background). Just going back to what you said
299 about confidence, talking about these relationships you have with your clients and

300 then you getting your bid favoured perhaps because you've got a good relationship
301 because... last time you spoke about trust and them trusting you...

302
303 BD: Yeah...

304
305 B: And you trusting them, and there being an understanding about that trust. This
306 might be a difficult question but how can you... Can you define those elements of that
307 trust? Or the elements of that confidence? If you're trying to put that into a... Again,
308 take that out of someone's head, as we've used before and try to put it into a system...
309 is that possible? And, how would you attempt to do so?

310
311 BD: With our industry it's about providing a client with confidence that you are going
312 to deliver their project. They can trust you to deliver their project to the scope that
313 they have required, to the time to they've given and to the budget that they've given.
314 So, if we have a client where we have not delivered then there is going to be a lack of
315 trust there in the future, so that can be recorded. The result... if we done some work
316 for a transportation department in one country and we had it delivered, the next time
317 we go for a job with them; the next time we try and win a job there, then their not
318 going to look at our bid favourably because they've had a bad experience. Conversely,
319 if we have had success then they are going to look at our bid favourably. The way that
320 the information needs to be recorded is: 'who are we are dealing with?'; 'what the
321 issues where?'; if we had a bad experience 'why did we have a bad experience?' And
322 then as long as that information is recorded, then when we go to do the next bid... for
323 example, if a project was delayed, why was it delayed? Was it our fault? Was it
324 something that we did or something we didn't do, or was it someone else's fault?
325 Should we have been able to monitor that? That kind of thing. And that can be
326 recorded in a couple of paragraphs. It doesn't need to be very detailed. If we'd had
327 success then why did we have success? What did we do differently here than we did
328 in another project? And then play on that. If that information is there, then when we
329 bid with that transportation department again, if there were issues, then we can
330 address them in our bid. We try and make it positive so if we've had the problem then
331 we wouldn't necessarily come out and say 'last time we did a job for you it was
332 delayed by three months because we missed a consent'. We would probably say, 'we
333 have experience here and understand that there can be problems with consents'. 'We
334 have experience solving these and understand the issues'. So that's taking something
335 we have struggled on and we know that there's a problem and they know there is a
336 problem but we are saying we have got the experience, we know how to solve it now.
337 So the information about why it went wrong could be held, and that's where you can
338 build the trust from.

339
340 B: I see, so some of this information is then quite valuable. But don't directors or
341 senior managers, don't they just go out with clients for some meals, for a pint, don't
342 they just build relationships from all that sort of...

343
344 BD: Yeah, there is social and [*cannot hear*] aspects of the relationship.

345
346 B: How important is that do you think?

347
348 BD: I think it *is* important and I would, if any issues were raised in a social
349 environment as long as it was not off the record. If it was in the pub, and a client said

350 'oh we have had a problem with one of your competitors because their design was
351 wrong in this area', or 'we've had problems managing the traffic around Paddington',
352 them kind of issues could be recorded because it's all valuable information. We now
353 know that they have issues with traffic at Paddington for example, so next time we
354 approach them we highlight the experience we have got in solving problems like that.
355

356 B: Ok. The other thing I wanted to ask you about. One of the things you said last time
357 about... when I asked you why don't people use the system, you gave a number of
358 reasons and you said they'd use it if their manager directly asked them to use it but,
359 you know, they might not use it because they might think that that's taken their power
360 away or sharing something that they know, that its their relationship...
361

362 BD: Yeah
363

364 B: 'Why do other people need to know?' 'Why does anyone else need to know...?'
365 That was one reason you gave. And the other reason, another reason you gave, was if
366 some of the engineers on the ground level haven't, or might not have used the
367 technology because they've never used it in their life. Is that still the case?
368

369 BD: Yeah, I think so, there is still an aspect of 'knowledge is power', and 'if I have
370 the relationship, I have the power'. Fine, but that is in my opinion a small minded
371 view. It might help you individually for a certain amount. It might help you to achieve
372 a certain level but its not in the best interests of the company and the way I look at it,
373 the bigger the company gets, the better the company does, if I'm good at what I do,
374 the bigger and better I'm going to get. I'm not worried about trying to protect my own
375 interests. Everyone is to a certain degree, but not to the point of, 'I'm going to put
376 myself in a silo, and cut myself off from everyone else, so I'm indispensable to the
377 company because I'm the one with this knowledge because no-one is indispensable.
378 There's no one person who could leave and the company would close. It just might
379 make it a little bit more difficult for some people for a short amount of time. But by
380 sharing that information more people have the relationship. They might be able to
381 bring some other knowledge or cement the knowledge that you've got. You become
382 greater than the sum of your parts.
383

384 B: The other thing you said, was that the question of what's important, because you
385 said, ok so someone has a conversation with one of the clients an engineer or senior
386 manager and then they go and sit down with the system, what do they write in? Ok
387 they might obviously try to identify key aspects but how do they know that something
388 that the guy from the other end said is important? Do they know what's important?
389

390 BD: They should know the key issues but there may be some bits and pieces that they
391 don't consider important but other people would. So I think for a lot of the meetings
392 we have with clients and stake holders, you could summarise the talking points in just
393 ten bullet points and it's noted that these issues were discussed. Maybe if there's
394 something one thinks is important, one could expand on it, but I don't think it.. I think
395 it would require training for someone to be able to do this, and practice, they need to
396 do it, they need to repeat it. By doing that... by going through the steps repeatedly
397 they'd be able to learn themselves what kind of information is useful to record,
398 because the same people who are imputing into this, I envisage they are going to be
399 some of the key users, so they'll be able to look up somebody else and see what

400 information is available and think, 'I wish I would have recorded A, B and C, rather
401 than just X, Y and Z'. 'So next time I have a meeting I'll make sure that I record A, B
402 and C, and X, Y and Z'. So just by using it they become more ok with the system,
403 they become more familiar with it and the quality of the input increases which directly
404 increases the quality of the output.

405
406 B: Ok, so something you might think is important might not initially be picked up on
407 by someone else.

408
409 BD: Yeah

410
411 B: And then you come along and you identify the important parts or find out about
412 them and get that information.

413
414 BD: Yeah

415
416 B: And then you've the information that you can then share with other people in your
417 company?

418
419 BD: Yeah, and I think... I don't see this system being able to cut out the personal
420 interaction that we have internally. The 'me going to another manager and asking a
421 question because I know they've got a relationship with a key individual'. It's not
422 going to cut that out completely. But it might reduce the amount of time you have to
423 spend doing that. You may be able to get some information straight off the system.
424 And then if you think you need more, a quick phone call, or just go and see them. And
425 they don't have to relay their entire meeting to you. You know what's being recorded,
426 and you could just go quick query of 'was this covered?' Or 'could you expand on
427 this?' Otherwise it could end up... if this was taken to an extreme, a transcript of
428 every meeting is available on the system and that is not going to be used. People are
429 not going to find that useful. It needs to be clear, concise information. And as long as
430 that's there then you can go and get the detail.

431
432 B: If people sit down at this system and they look at all these bullet points. Is that
433 likely to match up when they get there and they think: 'this is one of our best clients
434 and the guys really friendly, he's got loads of kids or whatever the case may be...'

435
436 BD: Yeah, yeah...

437
438 B: And you turn up and you think to yourself, 'god he's not that great, he's not that
439 friendly...' or... Do you think all of those points will always match up?

440
441 BD: No because we've got humans making a judgement call on what they think an
442 individual is like. So it's always going to be varied from person to person, and just
443 because one person has a good relationship... their two personalities may click and
444 they do have that good working relationship, whereas someone else might go in and
445 they may be like chalk and cheese. So that needs to be appreciated that there can be
446 variants between what one person thinks. But if we try... That will come across in any
447 qualitative description of a person. Whereas we would have quantitative information
448 of 'if there was a problem on a job it was caused by this, this and this'. 'This person

449 dealt with it'. That information is black and white. That's there and it's useful. The
450 qualitative can be more useful but it's more subjective as well.

451
452 B: Just one more thing I wanted to go back to was what you were saying last time was
453 you gave the example of an engineer who might be in his fifties and sixties. He never
454 grew up with computer systems or whatever. Doesn't want to get involved. He
455 doesn't want to record onto a computer or a system. Why do you think that's the case?
456 Why do you think younger engineers are recording stuff and older engineers are
457 refusing to...

458
459 BD: I wouldn't put it as distinctly as younger and older because I think there can be a
460 barrier with computer literacy and being comfortable using systems but...

461
462 B: Ok so some people might be used to it and some people might not?

463
464 BD: Yeah, but also some people don't really understand why it's needed so it's about
465 educating them. Plus it's not something they do at the minute so it's going to be a
466 change to their working environment. So you have got to manage that change and
467 make sure you get buy in from them.

468
469 B: What do you mean by 'buy in'?

470
471 BD: That they are prepared to do it, that they understand the reasons behind it. They
472 appreciate it. They understand that your not just trying to create additional work for
473 them, because that's not what the systems are for, the systems are to try and make
474 their life easier to make them more productive, to help them develop their
475 relationships to help them build the relationship with the client. That's why it would
476 be there. And from that, ultimately its to get more work, to make the company more
477 successful. And on a very, very basic level to get them more money personally.
478 Because if the company does better, we get paid more (laughter). That's as basic as
479 I've put it to some people, on using a new system or using a system in a different way.

480
481 B: Does it take them a while getting used to a new system?

482
483 BD: It varies from person to person...

484
485 B: So some people just get onto it straight away?

486
487 BD: Yeah, there can be some people who just pick it up. Pick up why its needed
488 which I think is a bigger barrier for actually using a system. It's the understanding of
489 *why* they should use it and if they get that then people tend to make the effort to learn
490 top use it, to become comfortable and confident using a system because they
491 understand why and they see that they are getting something out of it. Rather than
492 using a system because you've been told to.

493
494 B: Why is that important, why is it important to be comfortable and confident in using
495 the system?

496
497 BD: Because it just becomes another thing that you do rather than I have my job
498 which involves ten things per day, now I've got to do eleven things per day and

499 they're not giving me any more time, so I've got to do more in the same amount of
500 time. It just becomes... 'I've got to do ten things today and that's helped me to do a
501 couple of them'. That system works as part of them ten things, it's not a separate
502 thing. Its part of your job rather than an addition to your job.

503
504 B: Ok, that makes sense. So, once your used to it its part of the everyday stuff that you
505 do?

506
507 BD: Yeah, something as basic as a time sheet. Some people would... well in the past
508 people would fill in a time sheet on a piece of paper and hand it to a secretary. In our
509 company now we submit our time sheets on a computer. We have to log on to the
510 time keeping system, fill it in, submit it and then that's processed. But to start with, it
511 would take people longer to do that because they've found it much easier to scribble
512 some numbers on a piece of paper and hand it to the secretary. *Then* they saw filling
513 in a electronic timesheet electronically as a burden and as an inconvenience because it
514 was easier for them to do it. And for the company it's easier to have it done
515 electronically because the last people needed to process it. For a company of
516 thousands and thousands of people, processing all the paper timesheets...

517
518 B: Sorry, those people who have the piece of paper, and were writing the hours down
519 on a piece of paper and giving to the secretary. Are they now using the system?

520
521 BD: Yeah.

522
523 B: And are they... do they now see it as time consuming?

524
525 BD: No.

526
527 B: Why is that?

528
529 BD: Because they're more used to using it. It takes them less time than when they first
530 started. And because it's seen as just part of your job. It's not extra.

531
532 B: Using that example and going back to the monitoring system. Do you think that at
533 the minute the monitoring system is seen as the eleventh task?

534
535 BD: Yes, definitely. And it's partly that but it's also that the monitoring system isn't
536 necessarily fit for purpose. The one we have. So you can't record all the information
537 you would want to and therefore you can't get out all the information you'd want to.
538 So it's a combination of, its not as good as it needs to be, so its not really worth me
539 using it, and even if I do use it (*office phone rings loudly, cannot hear what*
540 *respondent is saying*)... Because you're not going to get the quality of information out
541 that you want so it's not seen as a worthwhile task. If the system allowed that
542 information to be recorded and retrieved then you could make the argument that it's a
543 worthwhile task. Then you have to deal with the problem of getting people to do it,
544 which they will see as an addition to their existing work. So you need to educate them
545 and explain that it's not in addition, it's *part of it*. It should be part of a client meeting.
546 It involves travelling to the meeting, having the meeting, travelling back, recording
547 the key pieces of information. That's a client meeting. Not just turning up, having a
548 meeting and that's it.

549

550 B: That's got to become part of your job if you like...

551

552 BD: Yes, exactly, and if people used to take two hours for a client meeting and now
553 they need to take two and a half hours, then that's fine, because they are doing
554 something extra than they were before, but they need to understand that it has to be
555 done. Conversely, the meetings may be shorter. Because if you go and your not going
556 over the same points time after time because you already know them. You're not
557 asking the client the same questions that the client was asked last week. So your
558 meeting is shorter you gain time back that way.

559

560 B: So using your analogy of having ten things to do, and people seeing using systems
561 as like an eleventh task beyond what they are suppose to be doing. That's the way you
562 see that system at the moment, or that's the way some of your employees see that
563 system?

564

565 BD: Yeah.

566

567 B: It's the eleventh task, it's the extra thing that we've got to do, we don't really want
568 to do it. And what your saying it what you want is a system... Again if you had the
569 time and resources to invest in a new system, you'd want a system which actually
570 fitted in with those ten things or supported those ten things?

571

572 BD: Yeah. People have things that they do every day. And there's no point in bringing
573 in a system that creates more work because there's going to be resistance. If you're at
574 home and you're doing your washing, you use the washing machine, there would be
575 no point bringing in an old fashioned grill and mangle because it takes more time.
576 You get the same result but it takes more time. So any system that you bring in needs
577 to be time saving or improved quality. It doesn't necessarily have to do both but the
578 likely-hood is if it does one it will help with the other. Any new system that we bring
579 in here, people have to understand how it's helping them, and then when we do that,
580 they'll want to use it. They need to understand that it will save them time in an area or
581 it will improve the quality in another area. By having a client management system,
582 and having this information available it means that your not starting from scratch with
583 clients, which means that your hour meeting might be able to get down to half an
584 hour. Your client will be happy with that because they're busy, they don't want to
585 spend a full hour with you going over the same thing every month. So if that
586 information's there it's saving you time and its saving them time. And the more
587 information, the quality information you have available to you, it allows you to read
588 up before hand, not annoy the client, but you can educate yourself and then speak with
589 the client rather than let the client educate you.

590

591 B: So you want a system that fits in with peoples everyday work and everyday jobs,
592 don't you?

593

594 BD: Yeah.

595

596 B: That they *will* use?

597

598 BD: Yes.

599

600 B: And that's not the same as an additional... as an added thing. They don't think am
601 going into work today I've got to use that system. They just think I'm going into
602 work today, end of story.

603

604 BD: For example, if we had a system that let you record client complaints, and you
605 received a complaint by a client by an email and it listed ten points that you got wrong
606 on a job, and you wanted to record that in the system and you had to type that ten
607 points out, then that's a pain. It's annoying to do and it's taking time. If your system
608 can copy straight from the email then that's not a big deal to you. You've recorded it.
609 So that's the kind of system that people would use because you've got to tell them
610 you've got to record the complaint but this will help you do it quicker.

611

612 B: Yeah, so that would be your ideal solution to your monitoring client's problem.

613

614 BD: Yeah and there's always going to be some inputs additionally, otherwise you
615 might as well just save the email as a file in a folder. It's not as simple as that. But
616 you save the content of the email in the additional fields that you need, whatever they
617 may be, but make it as easy as possible. The system has to be easy to use. The system
618 can't be a challenge, or it shouldn't be. People are going to feel it's a challenge
619 whenever they have to use something new, but as long as it's not hard to use with
620 training. As long as it's not a burden to use people use it.

621

622 B: Is that better all around then? Once they're using it are they happier?

623

624 BD: I think people get used to using it and then with the client management and I seen
625 one in a previous job, a client management system. And it does get to the point where
626 you go from the initial resistance to use the system to acceptance that we've got to.
627 Then to actually actively using the system where the quality of the information you're
628 putting in is better because you can see an end result from this. You can see the
629 information you need is going to be there because other people are doing it. And you
630 get to the point where it just becomes second nature to use the system. And if the
631 systems not there then you think, well, I miss it.

632

633 B: So then you get to a point that you are so used to it that when its not there you start
634 looking around for it, thinking what am I going to do now.

635

636 BD: Yeah, yeah. But its not where you get to the point where you are completely
637 dependent on it, but the fact that its there and you expect to use it and you expect to be
638 able to use it and you expect to be able to get the information from it but if its not
639 there, you want it to be there, you want it to be fixed, available and online for you.

640

641 B: Yeah, that's interesting. I think we'll leave it there, that's just about an hour.
642 There's loads of stuff there, but if I do need another 20 minutes or half an hour...

643

644 BD: Definitely mate, just let me know. Hope some of that was useful, am not sure
645 if...

646

647 **End of Interview**

648

1
2 **Appendix 4 – Interview Transcript 4: The Project Manager**
3

4 Key

5 B = Brian

6 R= Respondent
7

8 B: Ok, excellent, rightSo yeah just a brief... How do you want to do it... Basically
9 just tell me bit about what you do.
10

11 R: Ok, well I work in the investment bank and I'm a project manager there, and I've
12 been doing that for about nine years. So basically what my group does is we're a sort
13 of a interface between the operations people who do the actual work and the
14 technology people who develop the systems, and so what we have to do is kind of
15 look at the business requirements from the operations perspective and get all that back
16 drafted up, and then explain that to the technology people in order for them to deliver
17 a technical solution. And then organise all of the testing and all that kind of thing.
18 Most of the system development is to improve things like straight-through processing.
19 So it's to, eventually, virtually all of them, the main aim will be, or one of the main
20 aims will be to get rid of people in the operations department [laughter]. Because what
21 they are always trying to do is automate processes that were manual. So as technology
22 moves on or things become, you know, you're able to become more kind of creative
23 with what you can develop, you can do things that were beforehand, it would have
24 gone into a kind of an exception kind of processing thing, whereas now you kind of
25 develop those things with the right kind of rules and things in technology systems.
26 You can develop those things and say well, if a transaction's got all these different
27 types of conditions then it will go straight through and it won't need anyone to touch
28 it. So, the idea of this is that it gets rid of all the kind of mundane jobs in those kinds
29 of organisations. And the way they sell this to the staff is that, this will be better for
30 you because it will give you a more interesting job. But in fact it always inevitably
31 leads to some kind of staff cuts, attrition or whatever. So that's kind of in a nutshell
32 what it is. The main area that I work in is the foreign exchange business so in banking
33 that's a huge kind of money maker for them. I mean, we'll probably see about...
34 they'll probably do something like... anywhere between twenty five thousand and
35 forty-thousand transactions on a daily basis, so its really high volume and they're high
36 value as well, so if anything goes wrong, it can cost a fortune 'cos they've got like,
37 you know they'll do like deals of half a billion dollars size sort of thing. So you can
38 easily have billions and billions of dollars of turnover everyday, so it's important to
39 get the technology right and that you haven't missed anything in terms of how you
40 test it and that kind of thing.
41

42 B: Right, So, you're like, as you describe, some sort of interface between what the
43 people are doing and what the people who manage the systems are doing. So do you
44 have to kind of communicate between...
45

46 R: Yes, yeah. So I have to represent the operations situation, so if they say to me in
47 order to alternate this we are going to need a system to do x, y and z, we kind of
48 translate that into the language that the technology people will understand, in terms of
49 business requirements and then work with them to make sure that they are developing
50 the right thing. Because it's very easy for... you know, if someone's not used to

51 explaining what they want a system to do, often they won't be thinking through the
52 implications of what they've asked for. You know, like that's all very well, but
53 suppose you get something in a slightly different condition, what do you want to
54 happen with that. So we sort of make sure that all the I's are dotted and the T's are
55 crossed, and then work with the technology people to deliver what we think the
56 operations people ask for, and make sure it's tested and then we also manage the kind
57 of implementation level as well, so we'll have like a project plan that has all of the
58 tasks that the operations and technology groups need to do to make sure all of that's
59 covered whenever we do an implementation.

60
61 B: So, I don't know... on a kind of typical day, what do you do... I know this might
62 be...

63
64 R: Well, on a typical day I'll probably have five or six meetings. So that's what...
65 Because I'm project manager, a major part of my job is communication and making
66 sure that everyone understands exactly where the project is. That if we find any
67 issues, to get the group together to work through what the issues are, and why its
68 happened and what we can do to fix it, that kind of thing. So a lot of my job is in
69 managing the communication aspect of it I suppose. And making sure there's no
70 ambiguity and that everything's clear and escalating problems if we find things that
71 come up as kind of road blocks that might delay us.

72
73 B: Do you find there is a lot of road blocks or problems?
74

75 R: Hundreds of them. Hundreds of them. I mean I'm working on a project at the
76 moment that we've now delayed five times this year, because it's got a lot of
77 dependencies on development working for different systems. So because of that it
78 means that... and there's a dependency for everything to be ready at once, and one of
79 the teams in particularly are very bad in estimating how long they are going to do
80 stuff. They don't analyse things properly. And they'll say it will be ready in two
81 weeks and in six weeks later we're still waiting for it – that kind of thing. So this has
82 just been completely fraught with problems and there's a lot of politics involved as
83 well because when something like that happens, they don't want to be blamed, so
84 there's all kinds of excuses that come up then that will be thrown back at us – your
85 requirements weren't clear, for example. And obviously we are saying 'yes, our
86 requirements are very clear, from that document you can tell you should be doing this,
87 that, and the other'. But there is often a lot of kind of grey areas where they will say
88 we haven't made the requirements clear, and our view would be 'well, you are
89 technology analysts as well, if it wasn't clear then you should have come and asked us
90 in the first place' you know, it should have been clear when you read the document
91 and that should have been questioned then, not in six weeks time when you say you
92 haven't delivered it or have delivered the wrong thing. So there's quite a lot of
93 relationship management involved [laughter].

94
95 B: So are these people... sorry... are these people the technology guys...?
96

97 R: Yeah.
98

99 B: So is it those you have the major problems with?
100

101 R: Yeah.
102
103 B: Ok, so you get the message from the people...
104
105 R: The operations people, yeah...
106
107 B: And then you have the problems with the kind of...
108
109 R: The developers, yeah.
110
111 B: Software developers?
112
113 R: Yeah. Yeah.
114
115 B: Ok, so talking about this particular example of these guys who said... It is suppose
116 to be done in two weeks, for instance. What kind of things do they come up with? I
117 know you mentioned one of them, they kind of turned it on its head....
118
119 R: Yeah, they'll say that. And there will also be valid reasons why they haven't been
120 able to resource it properly, like for example... like unfortunately the way its set up
121 there is that the team that are supporting this development also deal with a lot of the
122 production kind of problems. So, for the systems that are already live, if they get a
123 problem or an outage or something like that, they have to forget what they are doing
124 on the project, and jump across and do anything on production. Because you can
125 imagine if you've got twenty-five thousand deals coming through the system, and for
126 some reason they suddenly stop or something goes wrong or whatever, that's got to be
127 your primarily responsibility because those deals have got to get paid and all that kind
128 of thing, otherwise your going to get interest claims and things like that if they all go
129 wrong. So...I think they are badly set up, in that there should be a very clear line
130 between the people who are on production support and that are on the project.
131 Because inevitably whenever that happens the project will never take priority, so
132 that's one of the things that we're faced with. And everyone sort of recognises that
133 that's an issue, but it's a very difficult issue to deal with because they just don't have
134 the expertise to be able to have two separate teams. So that's one of the problems.
135 Other problems will be that they'll have had problems with the number of testing
136 environments that they need to do their own testing for example, that kind of thing.
137 Because it costs quite a lot to set one of these systems up, you know, like the
138 hardware you need to have an independent system for them to test it on. So, often
139 what will happen is they'll say they didn't have a separate environment to test it on
140 before they gave it to the users to test, and therefore when the users have got it to test,
141 it's all falling over and things are going wrong because they haven't done enough of
142 their own internal testing first. So we get a lot of that as well. What are the other
143 things they come up with... They have all kinds of excuses...
144
145 B: So, sorry... One of the first problems you said was between the production team...
146 and you said they should be working more closely...
147
148 R: Well, basically, you've got one team who are covering production support on a
149 system that's already live and also covering the development for the projects. You
150 know, for all the enhancements that we need for our system to go live. The problem is

151 that it's the same team covering both. So if you get an outage on the production
152 system, they all get hauled over across to do that and then my project doesn't get
153 worked on for a week, or two weeks, or even a day, that kind of thing. So there are
154 those problems. There's also problems I see because of the amount of outsourcing that
155 all these companies have done, in that the team aren't sitting together. So we've got
156 some of the technology people sitting in London, some of them are in Bangalore,
157 some are in Belfast, because a lot of them have been moved to lower cost locations,
158 which is what most company's have done with anything they think is a fairly standard
159 thing that they can outsource. So that causes problems as well. Because the
160 communication is just different, and often you're in a different time zone so its
161 difficult to get hold of people at certain times of the day.

162
163 B: Yeah, yeah. So the computer software people – this is the production...

164
165 R: That's the technology group yeah...

166
167 B: In terms of the technology group, are they aware of the issues or is it your job to
168 keep telling them what this is, or you've got to produce this piece of software, or
169 you've got to maintain this piece of software, otherwise you've got to refund... I
170 don't know, refund so many thousand people or...

171
172 R: Yeah, I mean they're aware of the situation and they know they are running
173 behind as well. So they are fully aware of everything they need to do. It is suppose to
174 be a very much a joint effort between, me the operations group, and the technology
175 group. But unfortunately, I personally feel that they haven't estimated their resources
176 properly and they don't have the right amount of people to actually do it. Plus the fact
177 that I don't think they do enough testing themselves. I feel the amount of testing that
178 needs to be done by them is far greater than they are prepared to do. So they code it,
179 they do a quick bit of testing or whatever and then they send it through to us to test,
180 and then everything falls over [chuckle, laughter].

181
182 B: You talked about at the start, that there's some situations whereby as technology
183 was improving, people would maybe lose their jobs or they'd become more
184 specialised and move onto something else. Is there any, and there might not be, that
185 you can think of, but are there any examples where that's happened?

186
187 R: Yeah, well I know that the department we're working with now used to have
188 something like forty people in it to manage about five thousand transactions a day,
189 and there are now about forty people in there managing twenty-five to forty thousand
190 transactions a day. So...and over time obviously that forty will have not stayed
191 current so it will have like... well they'll have decreased staff over a period of time
192 and then increase them a bit as volumes have gone up. But I suppose the idea of the
193 systems that we are putting in is to make the business, what they call as volume
194 insensitive as possible. So your volume goes up twenty-percent, you don't need to put
195 in an extra twenty-percent of staff. In the main you would be able to cover say
196 eighteen-percent of that without having to increase staff, yeah.

197
198 B: Do you think that's a.... good thing?

199

200 R: I think it's inevitable because it's the way all companies are going. I think the
201 problem it creates is that, and it's sort of the way education works as well these days
202 with everyone needing degrees where as they never used to. But what its doing, is its
203 not allowing... Because of all those jobs disappearing that's a kind of entry point into
204 things like banking – it is what I did for example because I left school just with
205 GCSEs. And it was a way of starting off, to see if you liked the kind of work, to see if
206 you were good at it, and to move on. And you're now losing that entry point. So for
207 example now they wouldn't look at taking anyone on without a degree, whereas
208 before there was the kind of jobs that as long as someone had reasonable, you know,
209 sort of GCSEs or A-Levels or whatever, you know, there was lots of things where you
210 could take people on and it would give them a way of getting on the ladder. So that's
211 why I personally think it's a bad thing because a lot of people would have no idea
212 whether they would like a job, and I don't know how people are going to decide these
213 days to be honest, whether they want to carry on doing something or not. You seem to
214 have to choose your career much earlier, I suppose now. Whereas I think where I was
215 at school certainly the idea was normally, try a couple of different companies out, see
216 what kind of work you like doing, and then make a decision rather than having to
217 decide at twenty-one or twenty-two or whatever, exactly what your going to do. So I
218 suppose that's the thing, I mean I don't think from a company's perspective it's got to
219 be a good thing because people are going to be one of the most expensive resources
220 that you've got, and also they can be unreliable can't they. They can go off sick or
221 they can leave or they can do this, that and the other. It's not as predicable if you are
222 relying on people as if you are relying on a system, at least a system that is tried and
223 tested and can do stuff automatically.

224
225 B: What do you see for the kind of future? Do you think this will just continue?

226
227 R: Yeah. Yeah, I think so... Yeah, I mean I can't see why it wouldn't.

228
229 B: How do you see your company in say five or ten year's time?

230
231 R: I think there will be more and more technology. They're looking at creating a
232 single processing centre as well, globally rather than having operations groups in
233 different locations. So for example, at the moment we've got an operations group in
234 London and one in New York. They would definitely be looking at doing things like
235 merging those two together to try and get what they call synergies between the two
236 and probably dump another twenty-percent of staff by doing that. So that's the way
237 things are going. And most of them won't be working in London. You know, they'll
238 be working in low cost locations, like we've got a big program at the moment where
239 we are moving a lot of people to Belfast. And there was one a few years ago where we
240 moved a lot of people to Dublin. But the thing is, what always seems to happen, is
241 that initially, because the government inevitably... well their doing this because they
242 get tax breaks and things like that and also because you can pay the employees a
243 much lower percentage of the UK salary. But as time goes on and as other companies
244 are doing the same thing, their salaries go up. So for example, now in Dublin I think
245 we are paying exactly the same in Dublin as we were in London [laughter]...you
246 know, when we started it off. Yeah, and in Belfast, I think they were saying that house
247 prices have gone up so much in Belfast over the last couple of years that virtually no-
248 one could afford to buy there. You know, so it's these kinds of things. So I suppose
249 from the company's point of view it's a matter of getting in early enough to steal,

250 even if it's not a huge saving forever, for that first five years be one of the first in to
251 make some money there, you know. Especially in a bank, they are always looking at
252 the bottom line, you know, how can you get everything done in the cheapest way.

253
254 B: Yeah, it's a good idea... When you said what you do on a day-to-day basis, you
255 have loads of meetings. If you kind of break that down, say in a particular meeting.
256 What kinds of things do you do, or would you have to say to...

257
258 R: Ok, so I suppose there's a daily status update meeting, so in that one someone
259 would be tracking all the issues so we would have a whole excel spreadsheet full of
260 issues which is quite big at the minute. And on that call, you would look at the highest
261 priority issue, go through each one, make sure that every single person is aware of
262 what their responsibility is to sort that out and what they need to do to, once they've
263 sorted that out to move it along and pass it on to the next person. So that kind of thing.
264 So it's often chairing meetings such as status calls, and making sure issues are
265 prioritised and resolved, and also looking forward to the next phase of the project so
266 once we get passed this testing cycle for example, there will be other testing. So you
267 have to start planning for them in parallel because you can't get to a point and then
268 no-ones got anything to do, so its planning them other streams as well, that are going
269 to be coming up afterwards.

270
271 B: Say you've got a list of issues, I guess you sort out who's got to deal with those
272 issues.

273
274 R: Yeah, yeah.

275
276 B: So they're part of your team?

277
278 R: No, they're part of the... I've got two business analysts working on this with me
279 who are part of my team, and then there is this whole technology group. So there's
280 these four different technology teams that are also responsible so they will come onto
281 all the calls. And the operations people will be on the calls as well in case there's
282 anything that needs clarification from their side. So it's a huge amount of time spent
283 in meetings, if you think about it, because each one of these calls will be an hour or
284 hour and a half, and will probably have twenty people having to dial in or attend in
285 person. But it's the only way that you can do it without risking something being
286 ambiguous and someone getting the wrong end of the stick. Because often these
287 things will require two systems to make a change. So if you find a problem it could
288 well be that one of the systems thought it had got to do it one way, and one thought it
289 was doing it the other, so you have got to get both of them on a call, you know, to
290 make sure that we understand which one has done it wrong and which one should
291 change, because we have had situations were, you know there was an option of
292 something could do it one way or the other, it didn't really matter as long as both did
293 it the same, and both ended up changing so we ended up with exactly the opposite
294 problem [laughter], that we had before. So it's that kind of thing. To make sure
295 everything is very clear.

296
297 B: So when your having these meetings your not always sat in front of people, but it's
298 via telephone.

299

300 R: Yeah, what we would normally do is we'd have a conference room, where some
301 people, like the people who were in the building or could get to the meeting would
302 come along face-to-face, because its more effective that way, I mean it definitely is,
303 than over the phone. But we've obviously got people in Belfast and Bangalore and all
304 these kinds of things, so all of those have to dial...

305
306 B: Is that an issue at all, the fact that you're not sitting there face-to-face with them?

307
308 R: Yes, it is, it's a big issue, and I think sometimes you know, what would actually
309 help, in terms of trying to get these problems sorted out and to make it very clear
310 upfront. If someone could actually sit with the technology guys doing the
311 programming so that as they are going through they can ask questions, which is what
312 we did have a few years ago when everyone was in the same building. It just makes it
313 clear, because their not having to make assumptions. Someone would say 'no, no, no,
314 I didn't mean that, what I meant was this or I should have also mentioned x, y, z
315 should happen as well, that kind of thing. Yeah, it does make a big difference not
316 having any face-to-face contact. And I think as well, because the success of a project
317 like this depends very much on the relationships you can maintain across the group,
318 which is slightly fraught at the moment because we've got all these delays. If you can
319 do it face-to-face, I think it helps to build those relationships. And with some of the
320 people we've never ever seen them, we've never met them personally and they have
321 no idea what we look like. And it does make it difficult. Because it's just not the
322 same. It's not the same as, you don't meet at the coffee machine and say good
323 morning or anything, so it does make it more difficult.

324
325 B: I did this once when I was working in retail, managing a store in Angel, and
326 everybody's phoning up saying hi Brian, hi John, hi Steve [laughter] – it's all a bit
327 weird, and you don't know when to talk because sometimes, you think, are they
328 finished yet or is there more. How many people is actually here...

329
330 R: I know, it's really difficult. And another thing is, and I think it's a really key thing,
331 is if you're using conference calls, you've got no idea of the body language going on,
332 on the other side, and that is really important. We have some meetings with our senior
333 managers. You know obviously this project is expected, so everyone wants to know if
334 my project is delayed again, because it costs about two-hundred and fifty dollars a
335 month every time we over run. So, you know, when I have conference calls like that,
336 as I know I've got the managing director in New York on the other end of the phone, I
337 would actually much prefer what he's looking like when I'm explaining this, because
338 you don't know whether he's going 'Oh my god' [respondents eyes roll up and down],
339 or whether he's listening calmly to you, you've got no idea and you would change
340 how you deliver the message if you could see how it was being received. So it's a big
341 problem, and it's a problem for these status calls as well. We did try video
342 conferencing a couple of times but I think that technology really needs to move on
343 because you get such a gap, I mean it's a lot more expensive anyway, and also you get
344 such a gap between, because we tend to do them from London to New York to
345 wherever. You've got a bit of a time delay in how that works, so it just doesn't flow.

346
347 B: Oh like what they are putting on the BBC about Iraq, and they say hi, and then they
348 sit there and look there and say....

349

350 R: Yeah, exactly, and so it doesn't work. And often what happens is that the person
351 doesn't realise that you've started so they carry on and then you interrupt them and
352 then no-one can hear what's going on, so yeah we just stick with conference calls now
353 but it's definitely not ideal.

354
355 B: Was there any reason they introduced or tried that out, do you know?

356
357 R: What, the video conferencing?

358
359 B: Yeah.

360
361 R: They thought that would introduce or bring back a bit more of the face-to-face
362 element. I mean that's why the video conference facilities were set up. But people
363 complained about them and said that they actually make things far worse and we'd
364 rather just stick to the phone, so that's what we're doing and the phones are a lot
365 cheaper anyway. I'm not quite sure how much, but I know they're a lot cheaper than
366 the videoing.

367
368 B: So a lot of your meetings and communication that you have on a daily basis, with a
369 lot of people, I guess it's via telephone.

370
371 R: It is and loads via email. I mean I probably get something like two-hundred emails
372 a day... something like that. I don't need to see all of them, but there's a bit of a cover
373 your arse that goes on in these organisations now because it's so easy to copy in
374 people. Because if you've copied someone they can't say that they didn't know about
375 something, everyone virtually copies everyone on every single problem now, that's
376 what I've found. And because I'm the project manager I need to kind of keep an eye
377 on what's going on so I end up getting loads and loads of stuff – a lot of its junk
378 because... you know, there's two individuals working this out between them and they
379 should be able to do that and not tell me about it, just tell me about it when it's done.
380 And other things where I do need to keep track of issues if there's kind of a debate
381 going on, on email. So it's used a lot for that.

382
383 B: So there's loads of stuff you get copied in?

384
385 R: Yes, tonnes.

386
387 B: Like, 'for your information'...?

388
389 R: Yeah, I reckon I delete seventy-five percent of emails I get everyday, only just
390 having a couple of minutes glance through... seventy-five percent of the emails I
391 don't need to see. And I think most people in the company, well in any kind of
392 operations department are in the same boat. Its difficult, because email has made
393 things a lot easier but its so unwieldy to kind of manage this rubbish and traffic, so
394 what they do is give us these blackberry things nowadays so you can do your emails
395 outside working hours basically [loud laughter].

396
397 B: So you work harder!

398

399 R: Yeah, [laughter] so when you're sitting on the train you can delete the seventy-five
400 emails you didn't need to see...

401
402 B: I'm glad I never emailed you my research brief [laughter].

403
404 R: Oh no [laughter... laughter...] that would have been ok...

405
406 B: So obviously a lot of your communication is via email, or conference calls, or I
407 guess using blackberry, or phone, mobile or landline phone. But just going back to,
408 you know... your sitting in a meeting, so you could be having a conference call
409 meeting...

410
411 R: Yes. Yes.

412
413 B: Plus you could have real people sitting there with you and you're giving out to the
414 guys from the technology team... You've got these issues... this might be difficult to
415 kind of explain, but what kind of problems or issues might you say 'look we need to
416 sort this out', or...

417
418 R: Ok, so things like... there will be things like a transaction flow that happens from
419 one system to another. So there's a system where the traders actually book the deal
420 when they've dealt these foreign exchange deals, and that deal has to come through
421 into the system I'm managing the implementation for, because that's your pricing
422 system where it will do things like [...cannot understand...] instructions on, so it will
423 know where all the bank accounts all that kind of thing. And it could well be that... I
424 mean we've had a few occasions where something's failed, so the deal that was dealt in
425 the first system hasn't got through to the second system but they haven't been able to
426 tell us why. So that kind of thing. So we then need them to go and track back on what
427 happened to that, why didn't it come through, because you can't afford for things not
428 to come through, and certainly there needs to be an early warning system if something
429 has failed so that as soon as that happens someone's going to check it out and find out
430 what the problem was. So I suppose that would be like a fairly straightforward
431 example...

432
433 B: Yeah, would that be a typical example?

434
435 R: Yeah, I mean it's fairly typical of what we've been seeing recently. I mean there
436 are other things where, they are producing a lot of reports for... to hand off into one
437 of the systems that does a lot of reconciliations and there's lots and lots of problems
438 with the data in those. So deals are missing, or deals are in there that shouldn't be in
439 there because in the specification we said don't include deals with these kinds of
440 specifications. Or the deals are there but some of the data's wrong in the deal, like the
441 value of the deal is incorrect, those kinds of things, and those would be sort of typical
442 kinds of issues.

443
444 B: If it is a sort of typical issue or standard problem, do you think there's room to
445 again, you know, thinking about improving your company, or the business...

446
447 R: Definitely...

448

449 B: Do you think you could say to the technology guys 'look, can't you put something
450 into this system that's going to deal with all these problems'...

451
452 R: Well, I think the problem is that they are still developing as they go, so the system
453 that they are developing is the one that needs all these things in that your suggesting
454 to stop it happening, but that's the whole point of this project is that the system isn't
455 live at the moment so we are finding all these issues out so that when it goes live we
456 are not going to have all those problems. So we are using a test environment where we
457 put mock transactions through to see what will happen. So that's how we do our
458 testing, is we pretend that the system... we pretend it is as it will be when it goes live,
459 and put the transaction through to see what would happen, to see what would happen
460 if that happens on a real day...

461
462 B: So, you describe it as developing it as they go along...?

463
464 R: Yeah, Yes.

465
466 B: Do you think you'll reach a time... well hopefully you'll reach a time when the
467 system's going to go live [laughter]...

468
469 R: [laughter] I've been working on it for nearly three years now...

470
471 B: Really? So you've had this mock system for three years...?

472
473 R: Yeah...

474
475 B: And you're waiting for it to...

476
477 R: Yeah, I mean, it sounds worse than it actually is. I mean we expected this project to
478 take eighteen months because it's a huge project, it requires loads of systems to make
479 changes and lots of testing with other systems and all that kind of thing. So we're
480 expecting the overall project to take about eighteen months but so far its taken...
481 actually its not three years, its two-and-a-half... and we think we've probably got
482 about another six months to go the way things are looking at the minute whereas it
483 should have gone live in November. We know were are not going to make November
484 now.

485
486 B: Was there some... six months into it did it become obvious that it was going to last
487 longer?

488
489 R: Yeah it did, yeah. We raised that with senior management and told them all about
490 it and explained the reasons why and they understood the reasons and said, well you
491 know, we need to put more people on the technology team, which they did, but they
492 still haven't put enough people on there to sort it out. So every month I have to go and
493 explain why it's over-running again and it's always the same old things.

494
495 B: Again, you might not be able to explain to me but what were some of the reasons
496 why it has taken longer?

497

498 R: Ok, well one reason was that the system that traders put their trades into... they
499 decided back in... at the end of last year... that instead of having one of those
500 systems, they wanted two: one for certain currencies and one for other currencies.
501 And this is a political thing because at the time the business was split into two
502 different teams, the traders were split into two different teams. And one team
503 preferred one system and one preferred another. So they said right were going to do
504 two systems. So that left us with a situation where, rather than just testing with one,
505 we had to test them both...

506
507 B: I see...

508
509 R: So... it didn't quite, but it almost doubled the work load. So you've got to test
510 every single thing with both situations. So that caused a big problem and obviously
511 that was not our fault because you cannot do anything other than extend that testing
512 time line and test both of them. And the interesting thing there is that the businesses
513 have now merged together and they've decided that next year they're going to get rid
514 of one. So after all this testing we know that one of them is going to be
515 decommissioned next year.

516
517 B: So you've been testing one for nothing [laughter].

518
519 R: Yes, exactly. And you often find... the problem is that because it's such a big
520 organisation and the systems are so big, you can never get anything in quickly, and
521 therefore the strategy changes all over the place. While you're merrily going away
522 trying to put this project in there could be three different changes in terms of the
523 politics or the strategy of the business, all that kind of thing, which will mean that
524 what you're doing isn't relevant any more. So you know we get a few [...cannot
525 hear...] like that.

526
527 B: So when this system's finally gone live, do you think all the problems will be
528 sorted?

529
530 R: No, I mean with an implementation like this big you would always expect to have a
531 good month of teething problems afterwards, so we always make sure that all of the
532 people that were doing the development and whatever, are completely focused on
533 looking at day-to-day issues that will come up when the thing goes live. It's bound to.
534 We are doing as much testing as we possibly can but you can't, especially when
535 you've got that many transactions going through, you can't test every single
536 combination of instances that might happen. Something is bound to be missed in the
537 testing, I mean you know that. So it's a matter of damage limitation really. So what
538 we do, as soon as the system goes live we set up for the first week and see whether
539 it's needed after that, we set up what's called like a command centre. So it will have
540 some experts from the operations team, the technology team, my project management
541 team, we'll put them in a meeting room somewhere where everyone knows where they
542 are. We have an open conference line so that whenever any problem is found,
543 someone can go through to that and let people know. And we have like one person
544 just managing, logging all the issues, making sure they are given prioritisation, and
545 sending them out to the various people who need to deal with them, because they are
546 big transactions, it could cost a fortune. And also if you happen to upset a particularly

547 sensitive client, you know who does lots of business with us, then that's obviously a
548 relationship issue, you could lose their business, so it's quite a critical issue.

549
550 B: So that's another major issue...

551
552 R: Yeah...

553
554 B: I know you said at the start about there's loads of like... you were talking about the
555 technology guys and you said there was loads of politics that goes on, so you know,
556 you say 'do this', and then they haven't done it, and you say 'why', and then they say
557 'it's your fault, you give us the wrong requirements'...

558
559 R: Yeah. Yeah.

560
561 B: And then also you've got this kind of... even if all the systems or the systems
562 running quite well, and there's a few problems, you might have clients say 'look, I'm
563 annoyed because of this'.

564
565 R: Exactly, because what can happen is, if you get a system failure, the payments
566 won't go out. So you could owe ten million dollars and you haven't paid them. And
567 they on the back of that, they've probably got some other obligation where they've
568 got to pay ten million dollars to someone else, so it's going to mean that they'll have
569 problems their side as well. So, yeah I mean if that happens more than once then their
570 obviously not going to be happy about it. And also you're going to get an interest
571 claim in. So in that kind of market it's typical that you would claim interest at
572 whatever the rate for the day is. So then that's an actual loss for the bank, so they've
573 got to pay out ten million plus, a day or two days, or however long it takes you to sort
574 it out.

575
576 B: With this system you've been working on for two-and-a-half years and you said
577 you ended up with two mock systems but one is going to kind of go, or one will be
578 pointless...

579
580 R: Two trading systems yes, yeah...

581
582 B: With the trading system you help to go live next month. You said there will be
583 loads of teething problems with it, but do you think there will ever be a time when
584 they will run smoothly?

585
586 R: Yeah, you would normally expect that to happen. I mean if the testings been done
587 reasonably well then you would expect that after about a month you would expect
588 things to be running fairly ok, but for every system we have a production support
589 team on the technology side that are always basically monitoring that the system is
590 running as it should and that transactions are running through and that there aren't any
591 stoppages and those kind of things to make sure that its running smoothly so that they
592 get a warning as soon as anything's a problem. And one of the things we always test
593 is a contingency plan, so if the system went down, what would you do, you know like,
594 if you couldn't get into the system what would you do. So we've got a whole
595 documented contingency plan of all kinds of reports you would need and things like
596 that to be able to go back to almost a kind of manual process, because at the end of the

597 day you can't not make payments on these deals. There are so many systems in scope
598 that you have to look at all kinds of situations. Like if a trading system fails for
599 example, or if the trading system doesn't fail but the system that does the settlement
600 of the trades or whatever fail, you know all those kind of things we have to...

601
602 B: That's interesting so you have sort of back up systems...?

603
604 R: Well back-up processes I would say not back-up systems unfortunately. You know
605 there is a way... what they would do is if they found there was a problem and they
606 had to restore a system then it would normally take them a couple of hours to recover,
607 so you have to work out what you've got to do for those couple hours to keep things
608 ticking over while your waiting to get the system back.

609
610 B: Do you know whose kind of idea... where this back-up process comes from? Are
611 the technology guys, for instance saying 'look this system doesn't work then you
612 should have your own?'

613
614 R: Basically yes, so it's up to me to make sure we've got back-up processes in place.
615 That's part of any project to make sure that you've got documented what would
616 happen if the system failed, I mean on the technology side what they'll do is that
617 they'll say that its our responsibility to get the system back to you as quickly as
618 possible and we'll give you a service level agreement that says we'll have all the
619 hardware and everything in place to make sure we get it back within two hours, but
620 you need to have processes which deal with that two hours whilst we are working on
621 it. So that's kind of how it works.

622
623 B: I see, so they're a little bit... well not too confident in their own systems?
624 [laughter]...

625
626 R: I suppose the thing is....

627
628 B: Or are they just covering themselves...

629
630 R: Well at the end of the day it's who owns the process and because it's the operations
631 team that have to make sure they don't get losses and things like that, we need to have
632 processes in place to make sure that what the technology team have said that they can
633 deal with, that we can cover the difference. Because its inevitable that you will get
634 systems going down, so in the service level agreement it will also say that you
635 wouldn't expect this to happen more than once every six months or once every three
636 months or something like that, and if it was happening more than that then there
637 would be all hell let lose and a big analysis done on why its happened and what can
638 you do to stop it happening again, that kind of thing. But yeah, as far as the operations
639 people are concerned, they need to know that if this happens they've got ways of
640 dealing with urgent things that come through in that next couple of hours that need
641 some action taken. I mean sometimes if your lucky it might mean that nothing needs
642 to be done and you can wait until the system comes back, because it very much
643 depends on what kinds of transactions are waiting to be booked or waiting to be paid
644 and those kinds of things.

645
646 B: Do you think you will also need the technology guys?

647

648 R: Yes, you will always need a production support group and there will always be
649 enhancements people want. You know, as clients come through with wanting different
650 processes or the market changes slightly. You always need development in the
651 systems, they never stand still. And one of the difficulties in the reason that this
652 project is taking so long is that the trading system that they are replacing has been in
653 place for twenty-two years so its really old technology and its not properly
654 documented because nowadays there's a lot of formality around documenting what
655 systems do and everything, but back in the seventies or eighties or whatever, there
656 wasn't anything like the stress put on that, and because no-one really understand the
657 code because its not even coded in the same language that people are using these
658 days. I mean I don't know what it is because I'm not a technical person but it means
659 that it's very difficult to understand what the systems doing today. Like people think
660 they know what its doing today but you'll find little quirks in it that people have
661 forgotten but there's probably two-thousand lines of code that does something really
662 weird, that is needed to be brought into the new system which is why... and that's
663 actually one of the other reasons why they are getting things wrong in having to redo
664 things because its very difficult trying to copy stuff from one system to another when
665 you don't really understand what the first ones been designed to do.

666

667 B: That's interesting, so this computer software stuff has become outdated?

668

669 R: Oh yeah, very, yeah...

670

671 B: And so the newly trained, I don't know the twenty-year olds who've just
672 graduated...

673

674 R: They would not know what the system does. They wouldn't be able to read the
675 codes or anything, no.

676

677 B: Does that scare you at all?

678

679 R: Oh yeah [laughter]... It scares the shit out of me. It's very... its concerning....

680

681 B: So you always have this technology team who just maintain the day-to day
682 running...

683

684 R: Yeah, the day-to-day running of the system and also developing any new
685 enhancements that are going to be requirements.

686

687 B: And do you think there will always be new enhancements?

688

689 R: Yeah, yeah, because either customers' will come in and say they want something
690 done differently or there will be some sort of market initiative that wants things done
691 differently. Or there will be another driver to automate processes or something like
692 that. So stuff we haven't built in now, maybe someone else will ask us to build which
693 hasn't already been.

694

695 B: Do you not think that you could somehow or one day produce something that will
696 cover all these issues?

697

698 R: The problem is that you don't know what all of them are. Because you don't know
699 like... customers will come up with new requirements because something's changed
700 in the market, so for example a couple of years ago something was developed called
701 continuous link settlement. And what it was, was a market initiative that was done by
702 the twelve biggest banks which basically netted all the settlements that they did with
703 each other rather than sending out millions of payments. So for example, City
704 probably deal with one of these big American banks JP Morgan. They probably do I
705 don't know, maybe a thousand transactions a day between the two of them. And so
706 there was a thousand payments we were paying them and a thousand payments they
707 were paying us. Different amounts and whatever. And then you've got Deutsche bank
708 who might be dealing with JP Morgan and City, so we'll do another thousand with
709 them and they'll do a thousand with JP Morgan or whatever. And they developed a
710 few years ago a system to handle across the major banks that kind of situation, so
711 instead of now us settling ten thousand with JP Morgan and ten thousand with
712 Deutsche bank, we all pay into the central clearing system, and they work out what
713 your obligation is to each member. So you just do one payment in each currency
714 everyday and then they pay the net out to all of the members which saves a fortune in
715 terms of payments... cos' it costs every time you send a payment message out. It costs
716 you to send that message. And also you've got all of the risks, because if you've got a
717 thousand payments, chances are two of them will go astray somewhere because some
718 bank down the chain has done something wrong with them. So those kinds of things,
719 that required a lot of system development for each of the banks to be able to handle
720 that, but its obviously well worth while because of the embeddedness that you get.

721

722 B: So that's a kind of example of a new development...

723

724 R: From a market initiative, yeah..

725

726 B: That you couldn't foresee coming...?

727

728 R: Yes, exactly. And for example things like when the Euro was born, every single
729 system in the banks had to change because of that. Because instead of having twelve
730 currencies you've now got one. And that was a huge project and wasn't anything
731 anyone would have envisaged before that. And a lot of that we had to wait for
732 directions from the regulators of the market before we knew how we had to build the
733 system.

734

735 B: Mmm, yeah. That's interesting. Well there's plenty there [laughter].

736

737 R: Ok. I hope it's been helpful.

738

739 B: Yeah, thank-you very much.

740

741 R: You're welcome.

742

743 B: Excellent.

744

745 **End of Interview.**

Appendix 4b - Interview Transcript 4b: The Project Manager

Key

B = Brian

R = Respondent

B: Yeah, just like last time really, first of all, how's things? (laughter)

R: (laughter) I'm just trying to think what that project was, I was working on. Oh yeah, well that one went live eventually.

B: Oh yeah, because you were working on it for quite a few years.

R: Ages, yeah, ages. And that finally went live in April last year (2008). So that happened and now they've made a decision that the foreign exchange trading system that went live at that time along with the one we were doing which was the back office system was going to be replaced, so they've since replaced that, which is really stupid. You know, these banks have no idea of getting their strategy right up front. And because the things they take so long to implement. You know, these are always at least a year project. People change at the top. Seniors change and they make different decisions on what systems they want left, right and centre. So the amount of money that must be wasted on putting these systems in and taking them out again I have no idea. But anyway yeah, so that one's been replaced, so the one that I'm working on now is to make sure that... They're looking at a global project where all of the trading for three different sites can be done on one system, so it has to cover time zones in the States, in London and in Sydney. So twenty-four hours. So the one that we're working on at the moment is to make sure that all of that trading can still happen even though you've got to have sort of down time for this system whilst it runs a batch every day to do certain things, to provide reports and this kind of thing. Like at the close of a certain time which will be like a kind of pseudo close of a business day even though trading will still happen twenty-four hours. So that's what I'm working on at the minute.

B: Right. So the one that you were working on when I last spoke to you, did that go ok in the end?

R: It was perfect. They reckon it was one of the most successful implementations they've had.

B: Yeah?

R: No that was really good. I think the thing was we had so long to work on it because it kept getting delayed because of other people. We had the chance to make sure it was perfect really so that was really good. Yeah.

B: I know you said you have so many sort of back up processes and you said the day it goes live you sort of have a centre.

51 R: A command centre.
52
53 B: Yeah.
54
55 R: Yeah, so we did that.
56
57 B: And that went...
58
59 R: Yeah, we had about five or six people sitting in the board room all with PCs like,
60 you know, in there so that people could email us problems or come in and see us or
61 whatever because most of the people were on one floor, although we had some remote
62 users around different countries and stuff like that. Yeah that went well. I mean, there
63 was a lot of stuff that was raised. We probably had something like a hundred or so
64 queries and problems and things that were raised, but because of the nature of them
65 none of them were that significant. They either got fixed quickly or they were things
66 that people, although they've done their training they sort of misunderstood how to do
67 certain things because it's such a big change for them, you know, a completely
68 different system. So we basically just logged everything and then made sure that
69 someone went out and either did more training with them or we got the technology
70 guy to fix it and that kind of thing. So yeah, no it was good. The way they kind of
71 measure these things in is whether it's disrupted anything as far as the customers see.
72 If you can manage all your problems internally, it's obviously a lot better than if
73 people in the outside world realise that you've done something that has completely
74 screwed up. And there wasn't anything that happened that any customers were aware
75 of at all. So that was obviously a big one.
76
77 B: You said that one of the problems with these systems is that the organisation is
78 always changing the requirements.
79
80 R: Yes, yeah.
81
82 B: And because of that the systems are always having to change constantly. Has there
83 been any amendments to that system since?
84
85 R: We've had a few small ones, just where people have come up with like 'this might
86 work better if we could do it like this. [Cannot hear] get used to the system but mainly
87 we've been waiting for this next release which is the one that I've been working on
88 now, so the main thing that has to happen after that, now we've got that up and
89 running is now how can we make it so it take twenty-four hours trading. That's going
90 to be the next big thing that the business wants to do, so that's what were working on
91 now.
92
93 B: So you just say to the technology guys can you make this do x, y and z sort of
94 thing?
95
96 R: Yeah, exactly, but it's a pretty complex change because they've had to divide the
97 system into two layers. So where it was like one layer before, they've had to kind of
98 divide it into a kind of work flow layer where we can continue working on it even
99 though what they call the daily batch flow process is running. And have the batch
100 processing in another layer of the system. So what we've had to do is called

101 regression testing. Everything what we do in the system, so to make sure that they put
102 that aspect in the right bit so that things we need to do we can still do twenty-four
103 hours a day while the batch is running, which has been quite a significant thing. And
104 what we've had to do is we've had to run a whole days work through a copy of the
105 system we've got now and the new system on a kind of a twenty-four hour basis and
106 make sure that all of the payments and things like that have come out exactly/
107 identical on both of the systems. And that sounds like a reasonably straightforward
108 thing to do but it's a nightmare trying to engineer that. And we've had one of the guys
109 just doing the final test on that this weekend. Because at the moment they are
110 probably doing about seventy or eight trades per day. So it's a lot of traffic going
111 through kind of thing. You obviously have to do those comparisons in an automated
112 way, you couldn't possibly manually check them, you know.

113
114 B: You also said one of the problems in terms of changes to the system is that some of
115 the systems you have are kind of like twenty years old.

116
117 R: Yeah, they've gone now.

118
119 B: Are they gone?

120
121 R: Yeah, they're the ones we replaced in April.

122
123 B: Because I remember you said they scared you.

124
125 R: Yeah exactly.

126
127 B: You were quite concerned in terms of you don't know. Or you have no idea...

128
129 R: Exactly, we've finally... That's what that problem was. It actually finally went
130 live, so we haven't got any of those, touch wood, any of those really, really old, what
131 they call legacy systems anymore. And I bet this won't last but because the systems
132 pretty new, we've got all the documentation that explains how everything works and
133 what the things you would need to do to change certain things and all that stuff. And
134 its different technology these days because rather than it being hard coded in a black
135 box, which is what we really had before, its, I mean I'm not a technical person, but its
136 much more table driven so you can track back why things are happening as they are.
137 Even as a user it's much easier to find out why there might be problems and things
138 like that. Whereas before if there was an issue you would just have to go to the
139 technology guys and say, 'we've got no idea why this is going wrong, you know you
140 sort it out'. You know it's much more intuitive, and I suppose that's the way
141 technology has gone over the last ten, or twenty years, if you look at things like Word,
142 Excel and all those things. They are just in a completely different league to twenty
143 years ago when you would have had to have done a computer science degree to even
144 type a letter up or something, I don't know (laughter).

145
146 B: So you found that with those systems when you didn't understand what they were
147 doing, that it was quite a worry for your organisation. And now they've gone, how do
148 you feel?

150 R: Oh people are much more confident on how the systems are working now
151 definitely. Because it's much newer technology. We've got all the documentation
152 there and so there isn't this sort of way were things are happening in a black box. And
153 its been really important to get that done because it wasn't just the software, the
154 previous system had limitations of how many trades you could process in a day and
155 because of all the chaos that happened in the markets at the end of the year with all
156 these banks collapsing and things like that. The previous system could only take in
157 ninety-nine thousand transactions in a day and we've never gone anywhere near that
158 before, but one day in October we did one-hundred and ninety-two thousand trades in
159 one day, and it would have just collapsed.

160
161 B: Wow.

162
163 R: So none of us had any kind of anticipation that this thing could happen. But we
164 would have been in serious trouble. We wouldn't have been able to process things, we
165 wouldn't have been able to make payments out. There would have been...

166
167 B: Yeah, because you said last time you do up to forty-thousand transactions a day.

168
169 R: Yes, now the volumes have just shot up. We are now doing about double that on an
170 average day and we had this peak day of about a hundred and ninety odd thousand. So
171 the new system can cope with that and that's one of the things we tested, to make
172 sure, we wouldn't have a limit on the number of transactions. Either during the whole
173 day and also if there was peak periods that it could take between thirty and fifty
174 thousand transactions in an hour if it needed to in terms of feeding through the kind of
175 pipes, if you like.

176
177 B: So how did you feel when you were taking those high volume transactions? Were
178 you worried about the system?

179
180 R: We were, because we had never tested it out... Although we had done testing on it,
181 nobody knew that would ever happen. And people were working late. It wasn't
182 perfectly smooth, but nothing fell over, nothing collapsed. There wasn't anything
183 where we didn't get any delays in making payments out or anything like that. So that
184 was a significant achievement really.

185
186 B: So were you relieved afterwards.

187
188 R: Yeah definitely, yep, yeah, yeah. Because obviously my reputation plus all the
189 team's was on this one (laughter) so it was quite important to do it (laughter).

190
191 B: One of the things you said last time was... the importance of your job as being a
192 communicator or translator between the operations team...

193
194 R: Yeah.

195
196 B: The operations people and the technology guys. Is that still the case?

197
198 R: Yeah, and that's always the role which we've played. You've got operations users
199 who want certain things to happen in the system, or they want an end result. They say

200 'we want this to do that', and we have to kind of put that into business requirements in
201 terms of understanding how the systems been built to do what its doing now and
202 discuss the best way to get the change made with technology. So we write up what's
203 called the business requirements documents. So we translate what the users want into
204 something that technology can understand and then they write up a functional
205 requirement document where they kind of play that back to us and say, 'right, we now
206 know what you are trying to achieve, and this is how we propose to achieve it. And
207 then we go through and we both sign off each others documents so that they say 'yes,
208 we know what you want', and we say 'yes, we know what your going to deliver'. And
209 that's how the process works.

210
211 B: And how important is that role. Say for instance your team is taken out of that and
212 you were left with the operations guys trying to communicate to the...

213
214 R: It's a critical role, its really critical because if you don't get that bit right then they
215 will go off and develop something that they think is what you need and the operations
216 users often aren't in a... They don't have the same analytical skills... they are doing
217 different jobs so they don't necessary have an understanding of the system and what it
218 does today in order to ratify what the technology people are saying they are going to
219 do so if they develop something that is wrong it takes far, far longer and is far more
220 costly for them to get that changed than it would for them to get the requirements
221 right first time. I think there was some estimate that said that they reckon it cost three
222 times as much to make a change as it does to get it right at the start, because the
223 problem is that whatever they're doing it might impact different bits of the system so
224 they've made changes all over the code, where sometimes they might not have needed
225 to touch some of it or they might have needed to make other changes. So, it's a really
226 critical role, yeah.

227
228 B: And one of the other things in terms of communication you were saying is that not
229 only you are a kind of mediator. Would you say you are a kind of mediator?

230
231 R: Yeah, yeah, yeah.

232
233 B: Not only are you a kind of mediator or translator... that's a term you used last
234 time... but also communicating not just between these two groups of people, groups
235 of guys if you like... but also a major part of your job is communicating to your team
236 on a kind of day-to-day basis and you said you have something like five or six
237 meetings a day.

238
239 R: Oh yeah.

240
241 B: Is that still the case?

242
243 R: Yeah, that's still the case. I think I had nine one day last week (laughter). I very
244 rarely have any free slots in my diary. Maybe an hour or an hour and a half a day
245 where I haven't actually got something specifically set up. And the project we are
246 working on now are across Sydney, London and New York as well so at the moment
247 I'm having to have meetings at seven o'clock in the morning from here, with Sydney
248 because they're eleven hours ahead because its their summer and our winter so there's
249 eleven hours time difference. We just can't find a time where we have Sydney, New

250 York and London all on the same call because Sydney are eleven hours ahead, New
251 York are five hours behind, you know, it just doesn't work so we have to agree... we
252 have a kind of round robin communication process where I do Sydney first thing in
253 the morning, then if New York needs to talk to them they'll talk to them later in their
254 day just when Sydney are starting in their morning, rather than the end of their
255 evening. It's pretty difficult.

256
257 B: So is that a problem?

258
259 R: Yeah it is, because the trouble is if people aren't doing things and one of things we
260 are doing as project managers is we have to make sure that everyone's taking care of
261 all the actions they're assigned, you know to make sure the project isn't going to go,
262 you know, the time lines are going to be met. So a lot of our communication is by
263 email, but you know, once you've emailed someone a couple of times and they
264 haven't come back you need to get onto the phone to them and say 'look what's the
265 problem, and do you understand what you have to do' and whatever, and if you've got
266 an eleven hour time difference then that's really difficult, so that is a bit difficult.

267
268 B: One of the other things you also said and you've related to obviously is having
269 people in New York, Sydney and wherever else is how you communicate. We had a
270 discussion about the video conferencing last time and you said that never worked out
271 the way your organisation would have hoped. Just going back to that... So now you do
272 the dial in, is that better?

273
274 R: I think to be honest. I mean we just don't have enough facilities to do the video
275 conferencing. So for a start you have to set it up so much in advance to book one of
276 these meeting rooms that have got video conferencing facilities and things like that.
277 We've probably only got two or three in the bank. And often our meetings are usually
278 set up on more of a ad hoc basis. So you'll find a problem and the way to resolve that
279 is to talk to half a dozen people about how to get that one resolved and you just can't
280 wait four days till the video conferencing rooms available or something like that, set
281 up. So we've just tended to do it using conference call numbers and stuff, and I would
282 say probably well over half the meetings that I have are not face-to-face they are
283 conference calls, particularly with New York.

284
285 B: How do you find that?

286
287 R: I'm used to it now. I mean it was weird at first, and it is still a little bit of a problem
288 in that you can't see the body language of the people on the other side. So you know,
289 if there are contentious things being discussed, its sometimes, well its always good to
290 be able to see that because you get a sense of how things are going, what people are
291 feeling about suggestions and things, whereas its obviously that sometimes what they
292 are doing is their putting their phone on mute... (Respondent looks at the dictaphone)
293 Is that still on?

294
295 B: Yeah it's ok.

296
297 R: Their putting their phone on mute and having a chat between themselves for a
298 minute. You know, you can tell sometimes when that's happening because the little
299 bit of background noise that you were hearing has just suddenly disappeared or

300 whatever and they're obviously having a private conversation themselves, whereas if
301 you had face-to-face or you know, video conferencing or your in a room with
302 someone that obviously doesn't happen. And people sometimes deliberately do it as
303 well. So you know, even in the building that I'm in, I mean it was a little bit different
304 before when we had lots of different sites, but everyone's in one building now, so it
305 really isn't that different to get from the 8th floor to the 5th floor for example or to
306 come and see me at a meeting, but people use the excuse that they are too busy to
307 come down so their going to dial in and not only does that mean that you don't get the
308 face-to-face but it also means that people often try to multi-task, so they are dialling in
309 on your conference call and their doing all their emails or working on their
310 spreadsheets or whatever at the same time but whenever you ask them a direct
311 question, nine times out of ten they'll say 'sorry I missed that' because they're not
312 actually listening to you. So it's definitely less efficient than having it face to face but
313 you know it's difficult.

314
315 B: And have you had any of those calls recently?

316
317 R: Yeah we have them all the time, we have them on a daily basis.

318
319 B: Have you had one this week?

320
321 R: What, where people have kind of said 'sorry what was that?' Oh yeah, yeah,
322 yeah... And this was one where we actually discussing some business requirements to
323 go into the next release so its pretty important that people are listening to the bit they
324 are responsible for.

325
326 B: Where they like putting you on mute?

327
328 R: No, it wasn't that so much, it was that you could tell that the person had been
329 distracted because we were talking about 'Right and this requirement is to do you x, y
330 and z' and the guy in New York was the one who had written it up because they're the
331 ones that lead the function. And we said to him 'well what's going to happen in this
332 situation?' and he said 'sorry I missed that' and he obviously hadn't been listening to
333 the conversation for the last five minutes so then you have to go over it all again and
334 its just difficult (respondent points to the curtain on the window) Shall I pull that
335 curtain across a little bit.

336
337 B: You can do, I'm ok.

338
339 R: (Respondent gets up and pulls the curtain across as the bright sun light is shining
340 through onto our eyes).

341
342 B: Yeah, so...

343
344 R: Yeah so that's frustrating.

345
346 B: Do you think that's just them being rude or is it just because the form of
347 communication that your using?

348

349 R: I don't think its people being rude, I think its people having too much to do and
350 thinking that the most effective way for them is rather than attending a whole hour or
351 half hour meeting if they know that the bits they need to talk about are only ten or
352 fifteen minutes then in effect although you know that their at the end of the phone
353 they are kind of almost waiting for you to say 'right this is your bit and now you need
354 to listen'. But often in these meetings even though that someone might not be fully
355 responsible for all the active things that are going on, its quite important to get an
356 overview of what's going on in the other things as well because things like business
357 requirements can be connected. So although this guy might have written only one of
358 them up its probably quite important for him to know what's happening with the other
359 three that we discussed before hand because it might have an impact on what he's
360 trying to do as well. I think people have just got used to this multitasking thing, and
361 email is just ridiculous. We get so overloaded with email that... I mean I must admit I
362 do this as well... what I'm moaning to you about I do it on other peoples meetings as
363 well. You know, if I know the majority that they are going to hear from me is point
364 seven on the agenda or whatever then up to point five or six I'm trying to get the last
365 forty emails that I got in the last couple of hours just to try and manage it. It's really
366 difficult.

367
368 B: That's right you said you've got like... you must delete 75% of the emails that you
369 get every day. Is that still the case?

370
371 R: Yeah. But you have to read them to know if you have to delete them or not. Yeah
372 so people are trying to cover their arse these days so they will try to copy everyone
373 that they think might have anything to do with the situation in the hope that someone
374 will sort it out, rather than having it properly targeted. It's quite... it's a bit difficult.

375
376 B: And when people are on these dial-ins or conference calls or whatever. Is a bit like.
377 It's a bit like... Because sometimes I feel quite rude when I'm getting on a bus or I'm
378 in a shop and someone phones me up and I'm thinking well if I'm being served
379 should I not answer the call... or

380
381 R: Right, yeah, yeah...

382
383 B: Kind of like.... Do you think that's the same as the conference calls? You can kind
384 of understand that their on the other end and they should be listening but at the same
385 time they could be sitting in an office with other people and someone's trying to draw
386 their attention or...

387
388 R: Yeah, they might, yeah...

389
390 B: Or they've got their computer screen with emails popping up.

391
392 R: Yeah, I mean that's definitely the case. As I said, I don't think its rudeness
393 although it is frustrating for the person who is chairing the call. Its people trying to get
394 through their days work really. I think people are definitely very much overworked in
395 the banking industry. I mean everyone says about the bonuses and all this kind of
396 thing, but they do long days. So the more you can get done while your on that
397 conference call the more chance you've got of being able to get out at a sensible time

398 and get home and have your dinner I suppose (Laughter). I suppose that's the way we
399 tend to think. But nowadays also we have these blackberry things.

400
401 B: Oh, you mentioned them last time.

402
403 R: Yeah, even in the evenings I look at it a couple of times just to kind of get some
404 emails read through so, for the following day so I don't end up with a load in my
405 inbox as soon as I get to work. You never switch off, you never switch off.

406
407 B: So is that kind of like... bringing one of those home, is that like bringing work
408 home with you?

409
410 R: Yeah, when I first had it I was really annoyed because I thought it's not ok for
411 someone to feel you're always contactable, but actually for me personally I've found
412 it very useful, because what it means is, when I used to take time off before like, even
413 just a long weekend, you go back to work on Tuesday morning or something after
414 being off Friday and Monday, and because there are so many emails. I mean I get well
415 over a hundred a day. So you're looking at a couple of hundred emails. The first few
416 hours of your day back, people are after seeing you anyway because you've been off
417 for a couple of days so you've got things that people need to query with you and that.
418 And you've got all this email traffic to manage as well. Whereas now what I do is I'll
419 be sitting there in a bar in the South of France, I'll take it with me and just flick
420 through and at least delete the ones that I know other people will be dealing with or
421 that aren't really mine so that when I get there I can see the wood from the trees. So I
422 don't respond to them when am on holiday but I kind of manage the stuff coming
423 through a little bit so it makes it a little bit easier when you go back. But I don't think
424 it's the right way to work (laughter), you know because you never feel like you've got
425 a proper break. So, yeah, it's quite difficult.

426
427 B: What about in terms of... putting aside using it when your meant to be on holiday
428 or whatever the case may be. Putting that aside, just in terms of like communicating.
429 Like today for instance, Sunday, you said when we arranged the interview with you
430 last week, you said you had some conference calls. Did you have any this morning?

431
432 R: No, this project that is supposed to go live this weekend, which isn't the one I've
433 been talking about. It's the one another one of my team are managing, got postponed
434 because they found an issue this week after they signed the testing off. They were
435 doing like a stress test with all the users logging in at the same time to make sure that
436 the systems performance was ok which is always the last thing we do and they found
437 that the screen kept freezing when they were doing certain things. So the technology
438 guys have had to go back to the drawing board to find out why that's happening
439 because it's just not workable for them they have to kind of log them out the system
440 and unfreeze them and log them back in again and it's just taking too much time. And
441 they couldn't predict when it was happening so it wasn't that they could say 'don't do
442 this in this order' or 'don't all this together' or something like that, they don't know
443 why it's happening yet. But if that had gone live this weekend then what I would have
444 done is used the blackberry to keep an eye on the emails that they would have been
445 exchanging that people would have been on site there doing the implementation and
446 doing the checkout. And that actually saves me having to go in because I need to keep
447 an eye on what's going on and it keeps me in contact. So from those points of view it

448 is useful. So sometimes it saves me from actually physically being in a place which is
449 good (laughter).

450
451 B: So if you'd have had that meeting today, that call. If you didn't have your facilities,
452 like your blackberry or phone or whatever, that would have meant you would have
453 had to go into work?

454
455 R: Yeah, yeah, yeah. Because at the end of the day, I'm the person. Although I've got
456 one of my guys who's managing this implementation, I'm ultimately responsible for
457 giving the sign off to say yeah we're fine you can go ahead with the implementation.
458 So yeah, I have to be able to get the information to be able to do that.

459
460 B: I know it's probably better for you being at home and working from home. But in
461 terms of getting the job done, do you think it's better for them that you're here.

462
463 R: I suppose the thing is... I 'm a kind of ... in this particular project we are talking
464 about, although I'm the overall team manager, I've got one of my guys who is
465 actually managing the implementation himself and that's something I delegated to
466 him ages ago. So from his point of view I think he prefers me not being there because
467 it gives him the authority and the responsibility, although I will be on the calls to say
468 'are you ok?' Am saying it's ok based on the information I'm getting from him.
469 Because you have to trust people and delegate this stuff down. You know, you can't
470 do it all yourself. I think in this situation its better for him that I'm not there because it
471 makes everyone realise that he's in control whereas if I was there they would tend to
472 come for me instead.

473
474 B: So your there in one sense because your communicating with them still.

475
476 R: Yeah, exactly.

477
478 B: But your not there in a kind of physical sense.

479
480 R: Yeah, so I'm there as an adviser so if he's got problems he can call me and say I'm
481 not quite sure what to do with this. Or he can check out with me, and say 'we found
482 this issue, am going to do this are you alright with that', so he'll kind of check back
483 with me, but it will be him kind of proposing the decisions and solutions and stuff and
484 I'll just kind of agree or disagree based on what the issue is.

485
486 B: So you're saying that your physical presence if you went into work would have an
487 impact on people seeing who is in charge, and who has the authority over the project.

488
489 R: Yeah, yeah, yeah.

490
491 B: And how do you think that impacts on the rest of the team.

492
493 R: I think that's good because it gives them the confidence. It shows that I'm
494 confident enough in them to let them get on with stuff. And I'm trying to bring,
495 particularly because I'm leaving this year, I'm trying to bring all them, I've got three
496 key people there, I'm trying to bring up the curve to give them more responsibility so
497 that their only using me as a safety net rather than me making all the decisions, which

498 is probably what I've been trying to do for the last six months because I've known
499 that it was probably going to be on the cards that I was going.

500
501 B: Because it was one of the things you were going on about last time. You know,
502 conference calls, working from home and communicating with people in different
503 countries and over the telephone or whatever else. And you were saying that it's just
504 not the same as being face-to-face or whatever.

505
506 R: No it isn't, it isn't. And that's why I'm particularly trying not to be face to face in
507 situations like this, that people will see... You know this guy Craig who is running
508 with this one for me. They'll see him as being the most senior person from the team
509 there. And that gives the signal that he's running the project. So obviously if I am
510 needed to be called in if there was a disaster I would go, but it's very unlikely in a
511 situation like that that I would have to.

512
513 B: So they see him as leading it because of your lack of presence?

514
515 R: Yeah.

516
517 B: And why is it different? You know, last time you said you just find it different. Do
518 you know why that is?

519
520 R: Find it different?

521
522 B: You used the example. You said you could be on the phone to your managing
523 Director in New York and you would much rather to want to look at his body
524 language and see the kind of faces he's pulling and things like that.

525
526 R: Yeah, and I suppose it depends on what kind of situation it is. I mean the one that
527 I'm talking about now is like everything's being tested, we are going for an
528 implementation and one of my team is responsible that that all goes smoothly.
529 Whereas there are lots of other calls where we are having to give a status update on a
530 project that's in a critical state when we've had delays and things like that. In those
531 situations where I'm having to give the information out and I'm having to explain its
532 all gone tits up, I would much rather see the body language of the people that I'm
533 giving that information to because it will depend on what you see happening how you
534 will articulate what's going on. And if they seem to be reasonably relaxed then you
535 don't feel like you need to start pulling the stops out in terms of why, or making...

536
537 B: Explaining yourself...

538
539 R: Explaining yourself, yeah, exactly, and blaming the other teams, which is what we
540 normally end up doing because it's normally the other peoples fault (laughter). So
541 yeah it's those kind of things which I think it would be much more useful to be face to
542 face, particularly where there is a bit of confrontation going on or likely to go on, it's
543 more important definitely.

544
545 B: Is that the same as. You were talking about outsourcing staff to different locations.

546
547 R: Yeah

548

549 B: Do you think that's the same? Do you think it would be better if people were in the
550 same place?

551

552 R: Yeah, we have lots of problems with this outsourcing, loads of it yeah. And we've
553 got loads more going on because of all this stuff happening in the last six months with
554 the banking crisis. So to save money they're all being outsourced to different
555 locations. And what's happening at the moment is that a lot of our operations teams
556 were outsourced to Belfast because it was a lower cost location.

557

558 B: I remember you saying that yeah.

559

560 R: They are now looking at changing that so instead of them being in Belfast they are
561 now looking at an Indian vender called Zeggreb, and you might need to blank that out,
562 to take over those operations functions because they can do it much more cheaply. But
563 this is going to be very, very difficult because this isn't just outsourcing your own
564 staff this is actually giving these functions to another company to do. And what
565 they're doing at the moment is that they're mapping out all of our processes and
566 getting us to sign off on them. I'm not part of this process but people have been telling
567 me what's going on. And if anything is missed in documenting these processes then
568 they won't be liable for the fact that it doesn't get done or it gets done wrong. And I
569 think that this is a huge risk for banks to be doing this because there are bound to be
570 situations that don't happen very often and people forget to document. You know you
571 might document 95% of what you do on a daily basis but there's going to be the odd
572 customer or something that rings up and always says we want to do it like this or
573 we've got a particular situation that we need you to help with or something like that.
574 And if this isn't documented then these guys in India won't be able to deal with it, and
575 then you're going to lose your customers, so these things are huge risks. It's bad
576 enough when it's through your own staff but they're in a different location. But when
577 you're sending it out to other companies, I think its ridiculous but they can do it so
578 much more cheaply. I think they were talking about something like \$20,000 a person
579 per year for this vender company and I think our fully loaded cost which is what they
580 have to count everything as which is a persons salary, their desk space, their PC, all of
581 the support things which they get from actually working on site in a building. In
582 Canary Wharf it's something like average \$160,000 per person which is what it costs.
583 Which is now probably... what's the dollar rate now... I mean I always do things in
584 dollars because it's American...

585

586 B: So the savings are huge?

587

588 R: Yeah, huge. So you can see why they are having to do it, bearing in mind all these
589 losses that have been declared over the last year or so.

590

591 B: Do you think that would cause a problem. I mean I guess Belfast isn't so far as
592 India or some of the Asian countries where you might do some of the outsourcing. Do
593 you think that will... In terms of communication... in terms of the first language
594 being different. Do you think that's going to cause any difficulties?

595

596 R: I just think it will. I just think... you know, your gut feeling is it must do. Their
597 saying they'll all work UK hours and they'll work on Indian holidays and things like

598 this but it's inevitable that... you know, we've had problems with the Belfast guys in
599 that sometimes we've realised some things we've realised that some things weren't
600 going too smoothly so we've sent a couple of people over on a flight. People who
601 were in the experience of the process before and are now doing other jobs, and we
602 sent them over there for a couple of days to go through the training again or to help
603 them out or something, but you can't suddenly sling someone over to Mumbai or
604 something. I mean apart from the cost, it's not feasible to do that. So it's bound to
605 cause problems. You are talking billions and billions of dollars here in terms of
606 payments. I'm talking about the number of transactions that I'm getting through a day
607 which is now like eighty thousand transactions. And the average value of one of them
608 is probably something like five to ten million dollars. And they can be huge. We have
609 payments of a billion dollars sometimes. And if you get that wrong (laughter), you
610 know you can lose huge amounts of money.

611
612 B: So are these people... are they working in call centres? Or are they?

613
614 R: Am not sure you'd call it a call centre.

615
616 B: Or an operating centre?

617
618 R: Yeah, it will be an operating centre out in Mumbai.

619
620 B: So they are putting through the deals or the...

621
622 R: Yeah, eventually they will be making all the payments and making sure that these
623 are all paid. But then you've got problems with... we haven't even thought about this
624 yet because it's obviously going to be a little bit down the road. I mean they've only
625 just investigating how they are going to do this. When we do these implementations
626 and we've got a few of them coming up, we need to get people to test the system. We
627 need to get the users to test it out. So we are going to have to get that tested remotely
628 by users over in Mumbai to monitor how they are doing and that is going to be a
629 logistical nightmare. At the moment what we are doing is we bring a couple of people
630 over from Belfast to do testing with us, or we send a couple of people over there to
631 help get the testing done. So we haven't worked out how we are going to do that yet
632 but it hasn't been thought through. So that's going to be interesting (laughter).

633
634 B: So you said... just to finish off really. You said you're going to leave this year?

635
636 R: Yeah.

637
638 B: What are you retiring, or?

639
640 R: Yeah, I'm retiring, hopefully May. If they force me to stay on another month then
641 June but I'm hoping by the end of May. It's such a depressing environment to work
642 in. I mean I've been there for 34 years and it was obviously a very different company
643 when I started there but everyone has lost all respect for the banking industry because
644 of what's happened over the last year. It's really depressing and I had to make two,
645 three people redundant in the last month out of eight, and two of them left on Friday.
646 And it's just really... you just feel that the company is not doing the right thing. They
647 are letting all these really good people go and they're outsourcing all this stuff to India

648 or whatever and it's just not the kind of environment that I ... I wanted to retire about
649 this time anyway but its been a bit really of the seal really for me what's been
650 happening over the last six months, a year. It's just a really depressing place to work,
651 terrible because everyone is fearful for their jobs. Because even if it hasn't been
652 announced. They're going to be outsourced, everyone knows it. It's pretty much on
653 the cards that whatever can go, will go. It's just a matter of timing. Because they can't
654 obviously risk doing everything at once, so they schedule different departments to go
655 at different times I suppose.

656
657 B: What are you going to do with yourself?

658
659 R: Sit in France for a little while! (laughter) No I mean I'm going to learn French
660 properly, but I'm also look at doing some voluntary work for some charities at some
661 point and maybe. Because project management has got some transferable skills,
662 really. It's not all around banking and stuff obviously. So I'll look to see what I can do
663 in terms of helping them out, but probably not this year, I'm having a bit of a break
664 this year. And probably look at doing something like that next year.

665
666 B: That will be good.

667
668 R: Yeah, it will be nice. See how it goes.

669
670 B: Super. Right I'm going to stop that there (lift the Dictaphone up and stop it, but
671 continue talking with respondent).

672
673
674 **End of Interview**

675
676
677

1
2
3 **Appendix 5 - Interview Transcript 5: The Commercial Aeroplane Pilot**
4

5 Key

6 B = Brian

7 R= Respondent
8

9 B: I think if I put that there, it will pick up fine. First of all, if you start off, by giving
10 me a brief description, if you like, what you do.
11

12 R: Indeed, I'm a pilot for Thompson Flyer, it used to be called Britannia airways.
13 Been with them since '76. About five years ago the company decided that a paperless
14 aeroplane was a way to go, and the first stage was to get a laptop. So that all the
15 manuals, of which there used to be about ten, quite large ones, some of them A4s, on
16 the aeroplane, quite heavy. By getting everything into computer it was obviously
17 going to save weight. It's also going to save library staff. So they went ahead and got
18 these computers, it took them a long time to get approval from the civil aviation
19 authority to actually have them on the aeroplane because they had to be both safe to
20 use and neutral not to affect the navigational systems. This was fine, however, it took
21 a long time for them to introduce them. When they issued them, my one for instance
22 was issued about April, so we are looking at about April to 2003. For the first six
23 months it was optional whether you used them or not and we never got a single day's
24 instruction on how to do it. There was also a major confusion because there was
25 somebody else with my initial, another A. Jones. When I tried to get onto the system
26 all I was getting was her emails, not that I knew very much what I was even doing
27 with the damn thing, let alone the emails. So I left it alone and after a period of time
28 they sort of started forcing us to use it and one part which they did want us to use was
29 the performance. Performance is very (*cannot hear*) for an aeroplane. You have a
30 given length of runway, you have given obstacles on it, you have given temperatures,
31 you have given winds, you have given weights of the aeroplane, and it all goes in, and
32 you come out with a performance, which the most important part is the so called V1 –
33 the critical speed. The aeroplane accelerates to the speed. At that speed is the decision,
34 to go or no-go. If something major goes wrong with the aeroplane up until V1 you can
35 stop it, and still have enough tarmac to come to an end. To come to the end of the
36 runway at a full stop and still be on the tarmac. Maybe the nose will be just a bit over
37 but you will come to an end, that's what the performances are predicated on. At V1
38 they say you've still got enough tarmac to continue to accelerate, even on one engine,
39 get airborne and fly, and avoid all the obstacles, be them mountains, masts, trees,
40 whatever. And that was very important, and it's actually the best part of the system.
41 It's very easy to get into it, it works very well, there are any number of combinations
42 you can put it. It also has a wonderful facility, which after three or four or five years
43 I've just discovered by pressing F3 you can go back to the previous performance. So
44 if you change something like having more flap for instance. You did it on flap fifteen
45 in the first one, the second one you did it on flap five, and it will hold those two
46 performances there for you so it's a very easy comparison, so you can make a
47 decision which one – which you are going to use and so forth. That works very well,
48 the rest of it doesn't. Quite often we get to work first thing in the morning, about four,
49 five o'clock in the morning and all you've got to do is get the information. Well the
50 thing you now get out of this machine which you didn't used to before because it was

51 properly given to you or was available in somewhere else, is the actual flight plan,
52 which is the route, how much fuel you need, that and the weather you have on route,
53 and the destination, so you can make decisions about how much fuel you can put on
54 the aeroplane. We normally land with something like three tonnes of minimal fuel but
55 if you've got thunderstorms at the destination, then you'll probably say 'well what I
56 want is four tonnes to make an approach with', because I may make an approach and
57 need to make another one. Maybe you don't like the first alternate because if you are
58 going to Corfu for instance, it's a rotten little airfield and the first diversion is in
59 Thessaloniki, but the most sensible destination is Brindsey, but Brindsey is not in
60 Greece and is across the Adriatic. Its closer, but they want you to go to Thessaloniki,
61 but Thessaloniki has its problems. One runway is closed because they are putting in
62 approach lights and there's a great big power drivers. So with one runway, the one
63 their using and the wind is not in the right direction, it's a northerly wind. And its not
64 a precision approach, you come at 50 over hills and make an approach dive for this
65 runway. If you're doing it as an alternate with bad weather, it's not a good idea, so
66 better to have brind easy weather and have brind easy fuel. And therefore it may over-
67 required a little bit more. These are the sorts of decisions you have to take first thing
68 of a morning and this machine (points to laptop) is not good. First thing in the
69 morning, because the main frame, I've just discovered has all these major programs
70 done by the accountants and other people and Thompsons and all this. It could take
71 you up to half an hour of your hour report time, to get the information out of it. You
72 don't have half an hour. You have about ten or fifteen minutes. I leave home
73 approximately an hour, three quarters to two hours before report time, before take off
74 time. Which allows half an hour's journey, twenty minutes to get from the car park to
75 the crew room, and an extra fifteen to twenty-five minutes because of this thing,
76 because it takes so long. You then rush from the crew room, with this information in
77 your hand, and rush to the aeroplane and it takes you something like forty-five
78 minutes to get the aeroplane prepared. Somebody has to do the walk around, the other
79 crew member will start loading up the computer on the air plane, getting the
80 information about the performance, and all the rest of it, so you are prepared at one
81 stage to come together and say 'right we'll open the laptops for performance page and
82 it will compare what we have'. So we have two laptops, we both load up the
83 information. Weather conditions and all the rest of and you come out with a set of
84 figures that you then agree. They compare that. Put that onto the machine, you load it
85 onto the instruments and you are then prepared to push back and off you go.
86 Meanwhile there's chaos going on, because passengers are loading, they're loading.
87 And there's invariably one, two or three or four who are still at the bar and think it's
88 just a taxi service and it will go when they're ready. It don't work that way. If they
89 don't turn up, we've got to get their bags off, and that can be a complicated business.
90 The pressure on us is incredible and at four or five o'clock in the morning its no fun.
91 So frustration levels, stress levels go up completely. It's partly because of the way
92 they set this machine up. They had a couple of pilots who were quite computer wise,
93 and they took it over. And they designed a system that to their way of thinking was
94 ideal – it wasn't. I think this machine should wake up to you in the morning. We have
95 very secure systems of which a password name and user-name is part of it , the other
96 part is that we have a key, key fob (*holds up a key*) with a changing number and that
97 is compared to the main frame and allows you to get into the system. Various
98 passwords, security levels are accepted. This machine will not go onto the internet
99 very easily. There's two parts of it. There's one part which is for the company side the
100 other part is called the administration, which is the individuals side. You can do things

101 on it, but it's very difficult to get anything to go on it. It won't... you can't plug it into
102 the back of it and get it to do very much because it won't accept broad band. In the
103 past a few years ago, I had a go when I actually used a telephone here to get it, but it
104 was so slow that you were taking all morning to even get one piece of paper out of it,
105 so just give up. So onto the computer part for getting the flight plans can take a long
106 time. This just adds to the frustration of it. Really what it should do is when you wake
107 it up, because its allocated to me that machine is mine and is allocated to me. Once
108 I've done an initial security part, what should come up is a straightforward (cannot
109 hear), saying 'Hello Anthony, I see your off to Corfu today, would you like your
110 flight plan? Would you like your voyage report?' – which is the form that we fill in
111 with all the crew and how much fuel we put on. What time you need to rest, and all
112 that sort of details, would you like the weather for the route and there are a number of
113 notices which you haven't read that you need to read before you go. Now if that came
114 up as a straight forward mask, you'd just say yes (cannot hear) Bang, bang, bang not a
115 problem.

116
117 B: But it doesn't do that?

118
119 R: It doesn't do that, it will... the first thing it will do is look for the mainframe and
120 say 'oh, he hasn't synchronised for at least two minutes therefore I'll do a
121 synchronisation which means it will go through the whole of the files, all the manuals,
122 everything it can possibly think of, and you could be sitting there waiting. Things are
123 coming up saying its synchronising this, its doing that its finding printers, its finding
124 mainframe, all this kind of stuff, and your sitting here at five o'clock in the morning, I
125 really don't want to be here and having to wait for this to do it. When it does come up,
126 you then get into the internet explorer which you do, which gets you straight to the
127 mainframe, and find where the flight plan is, and ask it to bring that up. Then you ask
128 it to print, and it will give you a whole bunch of choices when it knows damn well
129 you're at Luton, its not that daft. But it's asking you if you want it at Manchester, but
130 I'm at Luton, so you've got to go through that, find the right printer and get it to print.
131 Meanwhile the cabin staff are getting their stuff. There's only two printers there, so
132 can you get it to do it. No your sitting there waiting for all this forty odd, fifty pages to
133 churn out with all this information, and once that's done, you can go to the printer and
134 you can start going through it, and it needs to be gotten through because there are
135 things that change and you need to know. If you're going to Corfu, your first alternate
136 is Brindsey, but is the instrument landing system working. If it's not you need better
137 weather. And if that's not working you need further weather, so you need clear days,
138 if that's the case but that's not possible because you need another alternative on top of
139 that. It gets awfully complicated and frustration is going out of the window.
140 Meanwhile you're also trying to get the weather charts. Now, they want us not to
141 actually print the weather charts. They'd rather us we didn't print anything at all if we
142 could possibly do it, but the system is not clever enough. If you put it into there,
143 because we've got two batteries and really don't have a power source on the
144 aeroplane to recharge the batteries, you've got to hang onto them, because there are
145 only about two or three hour's worth at most. At most, because most of them are
146 about an hour, of using the machine before it runs out of battery. And you can't while
147 sticking around trying to charge it up, if you've got the right sockets even.

148
149 B: So obviously you've been flying for quite some time.
150

151 R: Yes, a long time, 86 I think I started.

152

153 B: At the point where they introduced this system and the laptops and whatever else,
154 did you think it improved your job.

155

156 R: I didn't no, I didn't know how to even turn the damn thing on, let alone how to get
157 the information out of it, it was just a complete un known. We had computers in the
158 crew room, and they were relatively simple, two or three buttons and you could get
159 your flight plan. It was all relatively simple, and all they did was transfer that straight
160 into this. And then they added everything else on top of it, and because they added
161 everything else on top of it, it just becomes overloaded. But they couldn't afford to get
162 decent laptops. Possibly laptops weren't even available at that time, so this particular
163 machine (*points to laptop on the table*) is the one they went for and then it took them
164 over two years to get approval.

165

166 B: Does it impact on your... Do you think it impacts on your job when you're flying,
167 in terms of your confidence or...

168

169 R: There is a relief of getting airborne is so palpable that both of us feel, once your
170 airborne, your in control, up until that moment your in Gods hands, and he's not
171 interested. These are programmers that have completely another agenda, they don't
172 have any idea of what we do and they're led by people who've got another agenda,
173 who are very smart with these computer systems but have no practical abilities.

174

175 B: So one of the reasons they are used is to get you off, for take off?

176

177 R: Yes, the take off performance, yes. That's really the main use, and that was the
178 prime driver, but they then decided that they can get the flight plan out of it, and the
179 weather out of it and all the rest of it, and it's a communication aid. We went up to
180 Manchester for instance last night, we needed to know what the numbers we dial to
181 get you into the crew room. Its all available there, cos' there is a Manchester brief,
182 there's a Luton brief, there's a Newcastle brief, there's everywhere we go to there's a
183 brief. Its all in there, it's very good to have it, but it's just not user friendly. We need
184 to have something that is more individually specific ID. Once it accepts that you are
185 there and bonified it should come up with the information because it knows what you
186 are doing, but instead we have to go searching for it. And the other thing that does
187 change with each aeroplane is the weight of the aeroplane. It's aircraft prepared for
188 service weight. It gives you... In there you can dial up the aircraft registration and it
189 will give you the weight. Whether you have no crew on board or two pilots and no
190 crew/ cabin craft or two pilots and six cabin crew, it will have it all there. But it takes
191 quite a lot of digging to find that information and once you've got that then you need
192 to find out the catering weights you have for that particular flight. But if it's Corfu,
193 it's catering A out and B back, and its different if its C and D, if you're going to the
194 Canaries because they have more duty free on board if you go to Canaries. This sort
195 of information is a struggle to get out of it. It's not user friendly and really it goes
196 back to the first thing. It knows which aeroplane is ours, it knows where you are
197 going, why doesn't it give you this information already.

198

199 B: So on a typical day, you'd arrive at, I don't know, Luton Airport?

200

201 R: Yes.

202

203 B: If you just sort of take me through a typical morning or...

204

205 R: Alright, say it's a six o'clock report, sorry a six o'clock departure for the
206 aeroplane. That will be six o'clock GMT or seven o'clock global, I would need to,
207 I'm required to be in the crew room an hour before, so it will be six o'clock global
208 report. It takes anything up from fifteen to half an hour to wait for the bus. We park a
209 long way away from the crew room. Park the car, as you go towards this car park you
210 go over the brow of the hill, you look towards the bus will be, and if its there you can
211 say, kiss it goodbye, because you'll never park the car, get out of it, lock it up, grab
212 your suitcase/ briefcase, and get to the bus before its gone, and it will go. If its not
213 there you think, your in with a fighting chance, so you come over the brow of the hill,
214 no bus, you rush down, park the car, get out, start running towards where the bus will
215 be, which I suppose is two or three hundred yards. Having to go through a gate you
216 have to swipe which doesn't necessarily open first time, so you're struggling away,
217 and you get to the bus and you wait and you wait and you wait. It could be up to
218 fifteen minutes until the next bus comes. You get that, and you get to the terminal. It
219 could be a long slow journey because everybody else is turning up at the same time,
220 and you've kissed another ten minutes away, then you rush all the way through the
221 terminal to where our check-in is for security. Now they want your jacket off,
222 possibly your shoes off, they probably want your laptop out of your bag, and then they
223 probably put it through the x-ray, they check your ID and possibly you'll have a bleep
224 go off, so they'll want a body search. The person knows in there is invariably a
225 female, so they've got to call a male over, but he's busy doing something else, so
226 you're standing there waiting for them to pat you down. You get passed that, there's
227 not very much room, there's everybody else around you trying to get their bags off the
228 conveyor belt, but eventually you get yours, get your jacket on, you walk a little way
229 and you swipe your ID again to get the door to open. Get the door open, and then you
230 walk all the way back through the terminal, but on their side, this side, to get to the
231 crew room. You go up the stairs, get into the crew-room open this computer up
232 (*points again to the laptop on the table*) plug in the power source because you
233 possibly want a charge of it and bingo it just don't want to work. And this thing has
234 been into the hospital any number of times to get it to do its bit, because I get
235 frustrated and possibly press the buttons too often – come on you swine open up, and
236 it doesn't and then it just says, I don't want to play anymore, and I've broken it
237 basically. Not so long ago I wanted to throw it across the room because nothing was
238 happening, and its now I've discovered why at that time of the morning it doesn't
239 work because of all these major programs running in the background in the main
240 frame. Having got all this information, time is running out, everybody wants to know,
241 you want to know how much fuel you're going to put on board, the cabin staff need to
242 know how long the flight is. Possibly got an air traffic control stop requirement which
243 may be not the most convenient moment.

244

245 B: So this gives you all this information, of how much fuel you need, the distance you
246 have to travel.

247

248 R: Indeed. And the route you have to fly... all that it comes out on these pieces of
249 paper... maybe forty pages of paper.

250

251 B: And who provides that information?

252

253 R: That all comes from the computer centre over in Germany, where our informations
254 centre is. And they are constantly updating it, and it in itself is a very good system.
255 You can ring them up and say, well we need to do a different route or a different
256 altitude, and you can get it back in minutes, providing there's a printer nearby. But
257 actually on the aeroplane there's no printer so we have to get our agents to do it. Well
258 they're busy that time of the morning and the last thing they want to do is having
259 people back to their printer getting this information and bringing back to the aeroplane
260 – they've got lots of other things to do. So it's a very complicated, stressful business,
261 and it doesn't help with this machine – it's not clever enough.

262

263 B: So you're at the crew room, did you say?

264

265 R: Yes.

266

267 B: And you've plugged it in... it's taking ages to work, you're being frustrated or
268 whatever...when you finally get onto the plane, you take the...

269

270 R: We shut it down, normally to a hibernation, and then we go onto the aeroplane, and
271 then really the next time, as long as nothing has changed. The aeroplane hasn't
272 changed the weights haven't changed very much, really the next thing you want is the
273 performance. And that relative is quite simple, you listen to the radio, there is
274 information that goes out which tells you what wind direction, temperature, which
275 runway it is, all those sort of.. whether its wet or not... all this sort of information
276 comes, and then you then transfer that straight into the performance, you are waiting
277 for the (cannot hear) sheet to come, which again comes from the agents. They come
278 forth. Having been giving the basic information from the crew, because you pick up
279 the telephone and say look it's a for Oscar, catering A, there's two and six of us, we
280 are wanting to take fourteen and a half tonnes, and our burn is R5. That's what they
281 have, they produce a load sheet which tells you the take off weight, the trim, the nose
282 is tail heavy whatever, your landing weight, all that sort of thing, it all comes out on a
283 piece of paper. Once you've got the take off weight you can put it into this and the
284 memory performance comes up. It goes through a series of pages. If you put 'wet' in
285 it goes onto the wet part of the manual, if you just put dry, it will go onto the dry part
286 of the manual and it will choose a flap setting which is optimum for the length of the
287 runway, and for the conditions of the day, and that's what you come out and what you
288 compare with your colleague on the flight deck. Once you've done that, you both
289 agree, make a note of the numbers, close down the laptop and really you don't need it
290 again. Not unless something goes seriously wrong when you need some information
291 about the aircraft systems.

292

293 B: So someone tells you the weight on board the plane that will help you... you might
294 put that into the system and that will give you the performance of... type of...

295

296 R: Yes, I think it might be best idea if I show you, how it works (*pulls laptop over*
297 *and switches it on*).

298

299 B: Yes.

300

301 R: Get it to start up. This actually works very well, when its not plugged into the
302 mainframe and its not got anything to do but to give you the two partitions and we
303 want flight decks and we want it to come up for that. It's resuming windows because I
304 must have hibernated it last night. What they do like you to do when you first start off
305 in the morning is they like you to come from a complete start, they like you to shut it
306 down because some of the updates needed to be shutdown before it starts or also to
307 know where the information is. And there's the performance [*points at laptop screen*].
308 For instance last night we did an R for Oscar, we are out off Manchester, there's the
309 mask saying 'ooh where's the synchronisation', its that particular runway which is
310 two-three left, and from tango point which is the beginning of the runway, it's the
311 Manchester, there's the elevation, its length of distance of the runway is in metres but
312 it knows that already because that's all come out of the database. We took off at
313 actually sixty-five/ sixty tonnes but the minimum weight we use in performance is
314 seventy tonnes, seventy thousand... seventy tonnes... yes whatever. There was no
315 wind last night, very little wind around. Pressure was fairly low, standard is ten/
316 thirteen milibars and the temperature was eleven degrees. Up here we chose flap five
317 because flap one was the optimum but we chose five because flap one is not very
318 much at all.

319
320 B: So what are the flaps?

321
322 R: You have a wing, designed for 550 miles per hour cruise, but we land at about 120
323 miles per hour, 130 miles per hour, something like that. You can't make a very thin
324 narrow wing do that because you'll fall out the sky, so what you do is you make it
325 bigger, so you stick things out of the front, and stick a lot out at the back and you
326 make the whole thing much much bigger, and it grows by about forty percent, it's a
327 heck of a lot, and if you do get on the aeroplane, sit over the wing and see as you take
328 off you have a little bit, but as you come into landing it just grows and grows and
329 grows.

330
331 B: So would that slow you down?

332
333 R: Because it's giving you more lift. Its' also giving you more drag, but you increase
334 the power and that offsets it. So you're coming in thrust against drag, but its under
335 control. So you can change that and then we came up with these speeds, their nautical
336 miles per hour, which is another ten percent on top of that so it would be about 130-
337 140 miles per hour. De-rate two is the power setting, we could go full power, we
338 could go De-rate one, De-rate two, and then De-rate three, we could also have a
339 reduction, and its de-rate two, because that's the maximum do, and with the zoom
340 temperature. By increasing the zoom temperature, what you're doing is saying to it,
341 well, just take more and more power off. The maximum we are allowed to reduce the
342 engines on take off is twenty-five percent of full-power. This is a great cost saving. I
343 mean going off at seventy-five percent of power, and it still performs like a rocket,
344 and that needs light weight, but even heavy weight, this aeroplane is very well served
345 with this amount of power, because very rarely do you actually do a full-power take
346 off. There's only one place we used do it from and that's Funchal, because of the
347 difficulty of the terrain and now they have said we are allowed to in fact de-rate, so
348 we don't do full-power take-offs, very rarely.

349

350 B: So this information on the screen that you used last night – this enables you to use
351 or operate the plane.

352
353 R: Absolutely.

354
355 R: We'll do a pretend here. Use the same aeroplane. We're going from Manchester,
356 and we know we are going to go much further. The aeroplane normally weighs about
357 sixty tonnes, aircraft prepared for service. We have a full load of about eighteen/
358 nineteen tonnes of people and bags, and we have fuel on top of that. So say we are
359 going for... If we are going to somewhere like Corfu, it would be about.... If I just put
360 one hundred tonnes in here, it wouldn't be an unreasonable weight. So there's a
361 hundred tonnes (Respondent enters data into laptop). Do I need another zero...

362
363 B: Yeah.

364
365 R: Yep, as you can see, we can leave the wind, leave the temperature and everything
366 else and we can say, we can go to optimum now because it's the same runway and
367 we're asking the computer to say which is the best flap setting and now we ask it to
368 do a calculation. Here's the pages, its looking through all the manuals, because that's
369 all it is, is manual pages, we used to have a great big book about that thick, and it had
370 just pages and pages. For every flap setting, for every airfield, for every runway you
371 use, and here we have. Well we're going for a hundred tonnes, same conditions but
372 it's a nice long runway, increased in speeds, still saying flap five and its still saying
373 de-rate two assume to thirty two, it was sixty eight before, but in fact you can't turn it
374 down to sixty-eight, it won't let you. We went off at about thirty-seven I think, so
375 there's an incredible amount of power still there.

376
377 B: So one of the key things is that you put the weight in...

378
379 R: Yes.

380
381 B: And then it works out everything else out for you?

382
383 R: And I did this F3 switch the other day, (*presses F3 button on laptop*) and this is the
384 previous one.

385
386 B: You've just recently worked this out (laughter).

387
388 R: There's lots of these things I have no idea about, but that's the main thing, because
389 this great big manual with all this crammed in pieces of paper, you'd lose sheets and
390 very difficult to keep clean, very difficult to keep tidy and very difficult to keep up to
391 date, whereas this is dead easy. If they have a change, they just shove it into the
392 database and up it comes. And nobody has any complaints about this whatsoever.

393
394 B: You said earlier about... obviously you've put all this information about, or you've
395 put this key information into the system and this has worked out everything else you
396 need to know to take off. You said about sort of feeling nervous until you're actually
397 up.

398

399 R: Oh yes, there's always going to be because that's the most stressful time – it's
400 when things can go wrong. You take a motor car, and you say right I'm going to go
401 maximum speed, and put my foot down. That will be the time when the motor car,
402 that's never failed before you in your life but it fails you then, because you are really
403 asking it to do so much, and exactly like that with an aeroplane. Better maintained
404 than a motor car, but you don't want it to go to the maximum stress on anything,
405 especially the engines, because your life is depending on it. That's why we try and go
406 for something that de-rates so it takes some power off the top. It's always available if
407 something goes wrong.

408
409 B: So what was better before you were using the system and you were doing it more
410 manually. What was better?

411
412 R: You could get the wrong piece of paper. Because each one would
413 have...Manchester, one runway would have all the flap settings as possible, which
414 would be flap one, flap five, flap fifteen, flap twenty. It would have them wet and dry.
415 It would have them with bleeds on and bleeds off, which is were you stop taking the
416 bleed from the engines for the air conditioning, so you would get airborne without any
417 pressurisation, without any cooling air in the aeroplane, it doesn't matter, you don't
418 need it. But it gives more performance out of the engine because it's not working as
419 hard doing that. So you could get all this maximum. And its neat, tidy and its
420 available. Providing this machine's working (taps on the laptop). Providing the other
421 chaps working. We all protocol that if one of them is not working, it's gone to
422 hospital for instance, the other chap has got to shut down completely and retype in
423 everything. And then compare the weights and the performance figures. If they
424 compare, you're prepared to go. If there's a discrepancy, you kind of resolve it.

425
426 B: Do you ever have any doubt that what comes up on the screen is...

427
428 R: Not at all because after a period of time, you get to know the figures. You think 'oh
429 year that sounds right'. We did have an experience a little while ago were we called
430 for flap five and I had a feeling in my head that I don't think it is flap five, I think its
431 got to be flap fifteen. And we had a discussion about it, got this out again while we
432 were (*cannot hear*), redid it and it was flap fifteen. It wouldn't have been a great deal
433 of difference, because flap five is so much out, flap fifteen is just a little bit more
434 out...

435
436 B: Ok.

437
438 R: And its only eight knots in it. We would have got airborne and we would have
439 been perfectly safe. It wouldn't have been comfortable but it wouldn't have been the
440 right thing to have done. And we would have been hauled over the coals for it and
441 told off. So we checked and it was fine and this is relatively easy because you notice
442 that when we started this up, this is the page that came back. I don't have to do
443 anything, this was the page that was already there, and that's what it was left at, and
444 that makes it very easy. This is the prime page. If we come out of this and exit, now
445 you see all this other information that's here. It's just... either you organise it because
446 this is where I come into work and ask it to synchronise. Once it's done that I go into
447 the internet explorer which won't work now because we are not connected... It will
448 tell us that we are not connected. But it has pages here and bits here that is an

449 incredible amount of information which will tell you your roster for instance and
450 notices and things like that. The flight deck viewer is the next one which is available
451 in flight... and this is all the manuals... (*continues to point to screen*) It takes a little
452 time for it to come through because there's an incredible amount of information and
453 therefore it's really searching away. Here it is for instance the notice book. And these
454 are all the notices. Tells you reduced runway. Well that would make a difference on
455 our performance page, if we were going from Gatwick. We would have to make a
456 change on the performance page saying there's less runway there... All that sort of
457 thing... It's just the notices we have. Information tends to be about other things that
458 are going on. We have been given information now with First Choice, so we are
459 becoming one airline, so you are going to get a chance to meet the board, so here's a
460 notice that comes up and tells you where they are going to be at the crew room.
461 They're going to be there this afternoon. I ain't gonna be there. I've just got to bed at
462 1.30 this morning. Do I feel like going to the crew room and spending all that time
463 trying to get through. But it just tells you where the board is going to be.... Other
464 information, for instance this one here (*points at screen*). This tells you all about the
465 aeroplane... Let me see what we've got. There's the Performance. All that
466 information we had on the performance page which was a separate part, is all in here,
467 if we wanted it. It's such a big thing, it takes forever to open up... Take off
468 performance... tells you how it's done... and do we just scroll down, will actually...
469 all the rules and regulations concerning it and just pages and pages of verbiage. And
470 what you have to do.... And this is how you update the performance book... And
471 quite frankly it's so complicated I'm not sure I'd even look at it.

472
473 B: So there's... obviously you've talked about the problems with the system in terms
474 like... you know, you got to get it up and running first of all, is one of your major
475 issues...

476
477 R: Yes. Indeed.

478
479 B: And the other major issue is... you know it could be a bit more user-friendly in
480 terms of providing you...

481
482 R: In how it produces information – very much so. That would be really would be
483 helpful, if we could come into the crew room, plug it up it. And it says 'yes, I've got
484 to synchronise, but I'll do it in the background – you carry on, there's enough capacity
485 for me to just synchronise and get on with the latest updates and you just get your
486 basic information. It also would be helpful if it actually said 'Hello Andrew, your off
487 to Palma, would you like dum, dum, dum, dum or would you like it printed it out, or
488 would you like it installed in the machine, and you'd be more inclined to say well I'll
489 stall it in the machine and we just need the basic information to get airborne, and
490 make a decision, but on your way down to Palma you really don't need to know that
491 (cannot hear) because there's lots of other places you go to. Its things like that, that
492 would be really helpful, but it's just the way they do it as a system.

493
494 B: But then on the other hand your saying when its working and you're sitting on the
495 plane and as you gave the example, you'd forgotten whether its flap five or fifteen,
496 you decided to get it out, and it was great...

497

498 R: That was actually fine, because if you put it into hibernation, it comes back to the
499 page you were before. Because it could be that the wind suddenly changes or they
500 change the runway, which if that's the case, then we don't actually need to change the
501 runway, but we'll take some performance off because we've got a tail wind now of
502 five dots. We are entitled to do so, but it means the figures will be different and the
503 flap will be different.

504
505 B: At what point does it go from something that's a pain in the backside to something
506 that's...

507
508 R: More or less once you're out of the crew room. Once you've got this thing and it's
509 not been talking to anything else and its not been updated by anything else then it
510 becomes a very useful little tool, that over a period of time I've got used to. It's taken
511 a long time, but I've got used to this now and its fine. It's quite heavy and it's got the
512 charger with it as well and the spare battery, so its a lot to carry around as well as all
513 the other junk we have to carry around. The idea is that we don't have paper. Well
514 that's not the case because things change and you still have some things that's it just
515 nice to have on a piece of paper. It is in there, but I find that a very awkward thing to
516 use on the aeroplane. There is not much room for us and on the seven-five we are
517 quite lucky we've got a lot of room, but on the seven-three, you can walk about things
518 around you, it's a damn nuisance. If it turbulences or things like that it would be a real
519 danger.

520
521 B: You said it took a while for you to get used to it.

522
523 R: Very much so. Self-taught.

524
525 B: At that sort of phase when you were getting used to using the system, did you lack
526 any confidence in your ability...?

527
528 R: Totally, didn't have any idea what I was doing. I learnt from watching other
529 people, I learnt from exploring myself. I learnt how to make strategies that would
530 make it order, and one them is putting these icons, so I put it in the order I want them
531 because that's the way its going to work for me and the last one is this B-control cop
532 which is the system for the Performance.

533
534 B: So you've gone from... so when you started using it it's been...

535
536 R: Totally hesitant. I mean I didn't even take it to work, I didn't even play it. I ruined
537 one battery because I didn't charge it. Six months it wasn't being used. My user name
538 was not correct and the key fob wasn't synchronised to it so gradually I kept calling
539 this helpdesk which costs a fortune apparently. It wasn't... originally it was done in
540 Luton, they got rid of those people and got another lot, and it starts in India. So when
541 you've got a problem you ring up this Indian number and you tell them at five o'clock
542 in the morning and you don't want to talk about it very much, you just want him to
543 solve, and he says 'Oh I must give you a number' and it gets very frustrating, and you
544 just lose your patience with them... their English is not that good, they don't really
545 understand what's going on. I don't blame them. But one thing they do do, is give you
546 this number which is a service number and they'll send a message to the people at the
547 headquarters who this thing is sent to and they normally sort it all out, normally in the

548 first go. The main thing is what they do is probably clean the whole thing out, and
549 then reload it and that seems to cure the problem. But if you're frustrated and your
550 wanting something to do, you keep on pressing the button, it will just say 'I don't
551 want to play anymore' and it becomes broken. So it means you've got to be very
552 patient and cool, calm and collective, [*in a loud voice he shouts*] and I'm not cool
553 calm and collective five o'clock in the morning! (laughter) And I just want
554 information because my colleague wants the information. Decisions have got to be
555 taken, whereas people asking for decisions, and this thing is not a tool of ease. This is
556 a tool of taunt. So the other pilot is flying with you is your colleague.

557
558 R: Yes, this is how it works. You do everything together, you give information, and
559 you assess the information. And it's an incredible amount of stuff that's coming in.

560
561 B: When you first started flying and you wasn't using a system and everything was
562 manual was there any issues then, or was there any problems then?

563
564 R: Yes, just finding the right page. We didn't have flight management computers
565 which are. And it's what you program in, and you program the route, you program the
566 altitude and the weight of the aeroplane and it just does hundreds of calculations. It's
567 quite primitive. It's actually designed for the space shuttle, world superseded. But its
568 sixties technologies put into seventies eighties aeroplanes, and we still use it. I mean
569 it's robust and it's cleared and it works. It's not as clever as the newer systems coming
570 up but your never going to get a retrofit....an aeroplane is an aeroplane. Once an
571 aeroplane is done, it stays done until the end of its life. Its ok, it does its job, and once
572 you get airborne you can press these two buttons, one of which is Elnav which means
573 it follows the magenta line. The magenta line is the flight plan which
574 you've put into it. And it will follow that until the very end. That's correct. The other
575 one V-Nav. Again it will follow a vertical path that you've put in. It will go up to the
576 altitude, you're cleared to. And eventually it will get up to cruise level and it will fly
577 at the speed you put into it, economy speed or whatever else, long range cruise or the
578 other alternatives that there are.

579
580 B: Sorry is this like an autopilot?

581
582 R: Yeah very much so. It actually runs through to the autopilot, so once you've got
583 the autopilot in, and you tell it V-Nav, lateral nav and vertical nav, it will tell the
584 autopilot what to do, and your hands off. Most of us don't really let it do very much,
585 certainly for the first few thousand feet, because we're pilots, we're not systems
586 operators yet. In the future we may well become systems operators, and the autopilot
587 will be able to cope with all emergencies and still stay hooked in. It hasn't happened
588 yet, and we have to demonstrate every six months that we have to fly the aeroplane.
589 Well to hell with that, if that's what we have to do, we will fly the aeroplane and
590 enjoy it. We do the same thing with approach. We fly it all the way down to the end of
591 the runway.

592
593 B: Why do you think it hasn't happened yet?

594
595 R: Because the systems aren't up to it. It can't cope with it. One of the things – if you
596 lost an engine just at V1, this magical speed. The first thing an aeroplane does is

597 yawn, because it's got two big engines quite a long way out the centre line. If one fails
598 the going one has got to make it churn.

599
600 B: Right so it turns.

601
602 R: So what you've got to do is put a boot full of rudder in and bit of aileron on to keep it
603 going straight, because otherwise you go straight off the side of the runway, and you're
604 still on the ground at this stage, so you've actually got to physically do that and
605 demonstrate it every six months. Once you get airborne, everything else changes
606 because you can't actually follow the original flight plan because you've only got one
607 engine as opposed to the two. So all sort of modifications come into it, and when you
608 come round, you can't do an auto landing for instance because you've got to have two
609 engines for auto landing because the autopilot not good enough to control the rudder.
610 Those conversations... but it's not certified to do it. So that's the case we are still
611 pilots – that's what we do. We are not systems operators yet. It may well happen in
612 the next... I don't know, ten, twenty years...

613
614 B: How would you feel about that if that does happen.

615
616 R: I'm so glad I'm coming up to retirement, I really am. I came into this business as a
617 pilot, I didn't come here as a systems operator. It's been forced onto me over a period
618 of time. I think I'm fairly flexible, I think I'm capable of learning, but it ain't half
619 frustrating, so, yeah in another five years, hopefully I'll be finished, if not before.

620
621 B: So you're not too keen on the idea of a...

622
623 R: I don't trust them, they drop out. They don't take all the information. There's three
624 autopilots in our aeroplane, and they're all predicated, and have all information coming
625 at them. Well there's some parts of the information if it doesn't come to it, one part
626 fails. You can take two failures before it gets desperate, but three failures and you
627 don't have an autopilot. But these systems don't fail very often, but the subtlety is that
628 some of them are such that you wouldn't know what pilots failed. All you're giving is
629 some information that one autopilot is not playing anymore. In fact, as usual,
630 performance back.

631
632 B: So if you were completely systems orientated you wouldn't know how to fly...
633 obviously you know how to fly....

634
635 R: You've actually got down to a very fundamental point. When I learnt to fly, you
636 went off and demonstrated to other people that you could actually physically move the
637 Chokky or Twinkermachie around the sky with very basic instrumentation, and you had to
638 physically do it on your own. Flying pretend clouds, which means you had screens up.
639 All you had was the instruments in front of you. You got airborne, you did a route,
640 you came into the approach, you did a missed approach, you went out, you had an
641 engine failure that was simulated on you, and you had to demonstrate you could fly
642 the aeroplane on one engine. You then finished that and you did a high precision
643 approach and at the end of that you finished that test. And that was called the
644 instrument rating test. And you didn't actually have to demonstrate you could land the
645 aeroplane, but that's neither here or there. That's the test you did, and that over a
646 period of time has gone away. You still have to do it in the simulator. Even on the

647 seven three in, on the seven six and the seven five, we used to do that every year –
648 they did this instrument rating. You had a bit of help from the other chap, but the
649 other chap was told, don't give any help except if he asks for a bit of flap ort the gear
650 down, or one or two other things he was allowed to do, but he wasn't allowed to
651 initiate anything. And you had to demonstrate you could fly around. You didn't have
652 the flight management computer, you just had basic instruments and you flew around.
653 Well, they started saying well that's getting a bit too difficult so we won't do that
654 anymore, we'll just demonstrate you can do an approach and you'll demonstrate you
655 can have various failures of six years, so over a period of six years you would have
656 every failure that's normally expected and that was demonstrated. Some of them
657 was...

658
659 B: So they've stopped doing that now...

660
661 R: Now the kids coming into the business are flying very sophisticated little
662 aeroplanes. They still have to demonstrate they can fly an aeroplane but it's got a
663 navigation system that makes what we have on the seven five look like the ark. It's
664 incredibly complicated, satellite based. And these lads come out and are taught to fly
665 as crew – there's two of them. They never have to do this instrument rating on their
666 own. Demonstrate flying their own aeroplane with no information. They are coming
667 in as systems operators. How they will actually cope when things go wrong is a major
668 question, and there's conferences and meetings that go on about it all the time. I can
669 only make my judgement and have a feeling. Not quite so happy, maybe e after ten
670 years of actually flying they will be able to demonstrate they can do I, physically fly
671 an aeroplane when it all goes to worms – I have my doubts.

672
673 B: How would you feel now if you've just typed in a program into your system and
674 you just kind of sat back... would you...

675
676 R: I wouldn't be comfortable. I would want to still physically fly my aeroplane.
677 Because that's what I am, I'm a pilot, not very good one but I'm a pilot. I'm not a
678 systems operator, and that's about it.

679
680 B: Yeah, I think that's...

681
682 R: Is that enough for you.

683
684 B: That's great yeah.

685
686 R: Really is that of help to you.

687
688 B: Yeah, that's brilliant, absolutely brilliant, excellent yeah...

689
690
691 **End of Interview**

692
693
694
695
696

1
2
3 **Appendix 6 - Interview Transcript 6: The Insurance Consultant**
4

5 Key

6 B: Brian

7 R: Respondent

8
9
10 B: Right we are on, we are going.

11
12 R: Ok.

13
14 B: I'll just leave that [placing the Dictaphone on the table] there, so... Yeah, so just
15 tell me about what you do.

16
17 R: Ok... Yeah, well for the last seven or eight years I've been running a training
18 company. By training company, I do most of the training but I involve other people in
19 doing things from time to time. So I commission people to do training for different
20 organisations. And having set that up, I went to a particular company. They invited
21 me after I'd been some compliance training for them – it's all in the insurance sector.
22 They invited me to become a Non-Executive Director and that's a major part of what I
23 do currently. I look after, not sure I look after their systems but I audit their systems
24 and audit the procedures they have and audit, not so much their finances but their
25 office procedures and make sure they're doing things in the way they are self
26 compliant. So that's a reasonable amount of what I do. I also get involved because I
27 used to work for Chartered Insurance Institute and run their examination programme.
28 I get involved with other institutes, notably the Irish Insurance institute and I act for
29 them as a sort of consultant, I develop question banks for them, for multiple choice
30 questions for various of their subjects and I go over there and do training... I go over
31 there for whole blocks a week at a time and deliver various training courses for them.
32 And that all arises really from previous job that I had... a series of jobs were I ran
33 college of insurance exams division and the distance learning element and prior to that
34 I was in the insurance industry itself for twenty years as an Underwriter so that is
35 really the pattern, so I've done three quite different things over a period of about forty
36 and a bit years.

37
38 B: Ok, when you said the question banks, what did you mean by question banks?
39

40 R: Well, for every one of the subjects that they examine as a professional body, they
41 set examinations and these used to be written examinations from the very earliest
42 subjects right through but we've been looking at some methods of trying to achieve
43 testing of more demanding topics by multiple choice questions and over time I spent
44 some time with a guy from Cambridge University on the setting of these and I went
45 over to America at one time to look at an outfit called LOMA. LOMA is the Life
46 Office Management Association and they test everything by multiple choice questions
47 right up to everything up to degree level programme. They've had means of doing
48 that, so I went over there to see how they did it, and I suppose a combination of those
49 various things has led us to the conclusion that provided that you are a reasonable
50 expert in the subject you can develop banks of questions that had demanding

51 distracters which is really the art to... it's easy to get the right answer, it's getting the
52 critical wrong one, it's difficult for that. So that's what I do for them for now. I think
53 it's about thirteen or fourteen subjects within their scheme. I have the text book and
54 the syllabus that they. They write a textbook for that. And then under each of the
55 syllabus items I develop a question bank for them and I do that using word. It's a very
56 simple system and we are just password protected so that as it travels back and forth
57 across the Irish Sea, it's not used by anyone else. So that's the basis of what I do
58 today. And that's grown as they have developed more and more. It suits them to use
59 those kinds of systems for testing really because once, although the initial outlay is far
60 more to set up a databank of questions, the maintenance of it is relatively straight
61 forward and you can do a lot more analysis of how students have performed and that's
62 the key to this really. They do quite a detailed analysis after each of the examination
63 sessions to identify particular styles of questions. And if the better candidates have
64 answered questions poorly then they ask me to review those particular questions
65 because they are not discriminating between the better and the poorer candidates, and
66 so on. So we do a whole analysis after, not each examination sitting but particular
67 examination sittings to see whether those things have worked. So we really started
68 from a pretty crude beginning which was just to develop a data bank of questions and
69 draw off a hundred of those for each question paper through to what is now much
70 more sophisticated system which is doing a lot more measuring of performance and
71 the effectiveness of questions in testing. And they've used an outside agency for the
72 actual testing so that it is independent of them, so that they can say that they are...
73 that there's some rigour to their system.

74
75 B: So when did you start. You said you started with just a database of questions...

76
77 R: Yes, I started that about six years ago I suppose which was the first time and over
78 that period of time the thing has developed into something a bit more sophisticated.

79
80 B: And so these students... are they in the UK, are they in America?

81
82 R: No they are all in Ireland. Those particular students are the students of the Irish
83 institute who are taking their... whatever it is... five exams but in different streams...
84 they have different streams for different types of insurers. The reason they have to do
85 it in that way and that it doesn't really occur quite the same way in the UK is because
86 of their regulator. Their regulator is much more demanding in terms of a particular
87 examination qualification which you must have if you are going to...

88
89 B: So what kind of levels are they studying at?

90
91 R: They would be... Now we've just moved into the level that probably would be, not
92 quite Diploma level... Certificate level rather than Diploma level, if you draw that
93 distinction really. Most of the Diploma level qualifications are actually still run by the
94 Chartered Insurance Institute in The UK and the Irish institute links into those, it's got
95 some of its own subjects but it links into those. But for the early ones up to Certificate
96 level, that would be...

97
98 B: And what's the actual subject?

99

100 R: Well it ranges from... there are a variety of things that are compulsory in this
101 scheme, so they have to do regulators of the insurance industry. They have to do the
102 insurance principles and then there are various practice type of examinations that bolt
103 onto that, depending what sector you're in. And I usually do the, not the full edit but
104 they usually ask me for an opinion on the books before they are produced so I tend to
105 go through those because they don't in Ireland. Like the Irish Insurance Institute is not
106 huge. But it hasn't got a huge number of qualified people really to, well certainly not
107 to publish... which you really need to do that bit of the job. So we have now got these
108 question banks. I'm just finishing off the last ones which are most demanding ones.
109 They're the ones we're not just looking at multiple choice questions but we are
110 looking at... The way we test the higher level studies is that we have a sort of case
111 study and then ask a series of multiple choice questions about the case study so that it
112 explores a bit more application skills.

113
114 B: Going back six years, what were they using before they started using... I assume
115 six years ago they didn't have any of these systems...

116
117 R: No it would have been a recent exam with a straightforward twenty questions that
118 were asked. In fact it might have been a bit more than six years, thinking about it. It's
119 probably about eight or ten years is probably right for that whole stretch because they
120 did have some initial go at the database of questions. And the reason that I was
121 brought in was because when we first tried it, it was not very successful, they were
122 getting a lot of complaints about the fact that the questions didn't test the things that
123 they'd been asked, so we did a bit of revising at that point. So yeah, it probably is
124 eight to ten years really. But prior to that it was all written examinations, so they
125 would typically get twenty short answer questions or something like that...

126
127 B: Why was there.... You mentioned the problems about the complaints about the
128 way the questions were worded or written... what were there... I know we are going
129 back a bit but...

130
131 R: Yeah, a lot of the issues were the fact that a lot of negative questions were being
132 asked and then there was a negative answer in one of the stems so you'd got to sort of
133 jump through mental hoops to see what it was you were really been asked. You know,
134 which of these does not do this. Is it not doing this, and that was quite difficult. They
135 weren't very well phrased and there wasn't much of a discipline about the setting of
136 them. There was no real rules that were being followed. It was just somebody's idea
137 of what might work in relation to a multi choice question. And because there was no
138 real sort of... Well, it wasn't just that there wasn't a discipline; there wasn't really a
139 testing mechanism afterwards. There was no second view taken by anybody. The
140 system now is that once I've done them they're reviewed and then I get a series of
141 queries about various things which is quite right, because these days your banks are
142 quite large. And so, you expect there to be a number where you've made certain
143 assumptions in the rising of questions. Well, that was never questioned at that time,
144 and so you used to get those sorts of anomalies. The other problem was... and I think
145 unless you are quite used to setting these, what you tend to do is to go for the
146 interesting facts regardless of how relevant they are to the actual syllabus. So you'd
147 find a little bit of information in the book that you felt you could test and then you
148 could develop a question on it. And then there would be the complaint that actually...
149 we don't really need to know this. You know, it's in there but it's not really

150 mainstream and so there's these nooks and crannies of the syllabus that would creep
151 in sometimes. So there are a real variety of things and some were simply worded in a
152 way that was ambiguous to some extent. Not totally, but some are more [cannot hear].
153 You could tell that by the way the questions were answered, the kind of answers that
154 you got. But because there was no formal method of checking it out. There was no
155 system as there is today about testing which questions worked and which ones don't,
156 it was all a bit ad hoc...

157
158 B: So what was the kind of...? I guess they wanted to use these systems because it
159 would improve...? Or why did they do it?

160
161 R: I have to sort of guess at that a bit. My guess would be that cost is a factor. The
162 initial setting up of these is I said is expensive but once you've got them then the
163 actual testing process and the method of developing question papers is much more
164 straightforward so overall the cost is probably less over time. Another thing is that
165 there is a move in the industry generally, I think in education generally for exams on
166 demand. That people are, certainly in the UK, if you looked at the UK equivalent you
167 would find that the CII, Chartered Insurance Institute doesn't offer some of its lower
168 level examinations except on demand. You just tell them when you want it and they
169 tell you where the centres are. You should go in and plug in and you get a unique exam
170 now, rather than, you know, the April exam, the May exam or whatever. And it lends
171 itself to the on demand type examination. And certainly the more frequent setting of
172 exams is very much easier. The process you have to go through otherwise of getting
173 an examiner to write an exam paper and the outline for answers and so on would be
174 very demanding if you had to do that and do it differently every two months or three
175 months or so. So it does lend itself to... and this would be part of the motivation
176 certainly the Irish Institute... because the regulator is saying you must be qualified. I
177 think they would find it very difficult if they were only offering the opportunity to get
178 qualified on a relatively frequent basis. So this allows for more flexibility.

179
180 B: And was there any sort of problem from that when you changed from papers to
181 systems. Was there any opposition or was there any major problems? I know you've
182 identified some of them.

183
184 R: Yeah there were. I think intellectually a number of the people who had been
185 examiners were questioning how could you possibly have the same degree of rigour in
186 this kind of exam as oppose to the one that we've got. So there was an intellectual
187 argument about whether it was right to test and whether you could test. And I know
188 they did have some of their examiners who were not happy about that. Well maybe
189 they had invested interest anyway because they got paid for certain exams. But it
190 wasn't just that. I think there continued to be a number of people who just think that
191 multi choice must be simple and since the right answer is in there somewhere it's a
192 much less demanding level of testing than asking someone to actually express their
193 views about something or to explain what would happen in a particular situation. So I
194 think there was a question about could application skills be properly tested in this
195 complex. And I think most people, certainly within that institute have come to the
196 conclusion that the answer is probably not as well but sufficiently to be able to test to
197 a certain level.

198
199 B: So there's much more focus on multiple choice than there was previously?

200

201 R: Absolutely, absolutely. They now have their first three levels of exam; their fourth
202 level is the Diploma level. But their first three levels of exam which would be a sort
203 of introductory Certificate through to their full Certificate level and that carries with it
204 the designatory title and all of that is now completed by multiple choice exams.

205

206 B: And because this is on computer, when they sit their exams, do they sit at home or
207 do they sit...?

208

209 R: No they don't know. They have to be in an exam situation because of the
210 possibility of open book. And especially for multi-choice because it would be one
211 thing having an open book exam where you were required to create an answer
212 yourself but were you are simply looking for the right answer then you almost certain
213 to find that set of words somewhere in the book, so you would fairly easily do that.
214 So, it always has to be under exam conditions. So what they do is, at the moment, in
215 Ireland they set them up for people to take them, not as a test on a computer but as a
216 written. There is a hundred question exam paper and they... I think they answer it on
217 a mark-reader type sheet basically... their answers, so that its machine read. The
218 equivalent in the UK has gone one stage further and said we don't do paper exams
219 now. If you want this exam you have got to do it on screen and that spoils some of my
220 sessions on how to pass exams [laughter]. And usually I like people to be able to see
221 the whole paper but you can't. On that basis you get one at a time. You can go and
222 review it again but it's not the same as having a whole paper.

223

224 B: Yeah. So how do you feel about that aspect?

225

226 R: I think its very unfortunate that... personally I think it's unfortunate when you
227 move to this screen based approach because although in technological terms it's much
228 better; it's easier to do, you can just pull off these things randomly, and as long as
229 you've got them from the different sections. And for each of these, I should have
230 explained that for each syllabus item they've identified the number of questions on
231 that topic so it's not just a random hundred questions. It needs to be spread across the
232 whole syllabus of material and so although that's nice and easy from a systems point
233 of view; I think the demands are different from the candidate. The candidate is not
234 given any sense of how this whole paper looks... or one of the things that was always
235 nice with multiple choice questions; you might sometimes get a clue from one
236 question from another because the distracters often gave you the negative, and if you
237 were positive... So there were lots of techniques that you could use for the paper
238 based exam that you can't really with the... So I'm not sure that it works terribly well
239 and it does mean that you don't as you would normally read through the whole of the
240 exam paper. My technique what I tell people for multiple choice exams, is only ever
241 read the stems, don't then read the answers, because if your then thinking about it for
242 a while you'll have three pieces of information that are wrong and one that's right in
243 amongst all this lot and you don't really want to persuade yourself that something's
244 right that isn't. So you only really want the bits at the beginning to get you thinking
245 about those topics. And then you back into the exam paper, but you can't do that on
246 screen, it doesn't work like that because you get the whole thing up. So personally I'm
247 not in ore of the system, but that's just a personal thing really. The fact that it being on
248 demand and in sectors that are easily set up is probably... you know, it probably out
249 weighs that. But in Ireland they haven't quite gone to that stage of on screen.

250

251 B: So the on screen version... I assume that when you've got the paper version you
252 can, I guess, look ahead at questions?

253

254 R: Absolutely yes.

255

256 B: And see what's coming up.

257

258 R: And you would yeah.

259

260 B: But on screen you can't do that.

261

262 R: No. You can go back to any question you want to, to revise it. So you have the
263 option on screen of saying, this is my definite answer, or this is a provisional answer
264 and then you can go back to them. But it's rather like trying to read a book on screen.
265 You know, it's not the same experience, as reading it and being able to flick back a
266 page and thinking well, I'm sure that was there or something. It just doesn't work
267 quite the same way.

268

269 B: Why is that do you think?

270

271 R: I don't know. I mean despite this being me, it might not be a generally felt thing.
272 But I know if I'm reading through a book and I think, I am sure I've read something
273 like that before, I'm quite happy to flick back a couple of pages. And it's more
274 difficult to do if you've got to scroll back through and you can't quite remember
275 where things were or the order of things. Yes, I find that personally a lot with the
276 financial services or authority [*cannot hear*] which is all on line. You dare print it off
277 because they might change it tomorrow, so everything has to be viewed pretty much
278 online.

279

280 B: You said some of this came from... some of the stuff you are doing now came
281 from some of the previous things you did...

282

283 R: Yeah.

284

285 B: And you mentioned earlier, the stuff related to distance learning.

286

287 R: That's right yeah.

288

289 B: What did that involve?

290

291 R: I went to the Chartered Insurance Institute in 1985, and at that time they used to
292 produce books by hot metal and it was an interesting place to be. But what they
293 wanted to do was to expand the number of distance learning activities really so that it
294 wasn't just a book or a correspondence course. They used to produce correspondence
295 courses. But that it was a bit more multi-media, although they hadn't got the funds to
296 do the full whack of Open University types, but for multi-media. And to develop the
297 publishing and so in 1986 when I was there I introduced desk-top publishing to that
298 part of the institute, it was very new then. The machines that you tended to get were
299 little Apple Mac machines that had a sort of seven inch screen. They weren't the sort

300 of Macintosh stuff that you tend to get nowadays and so it was with some trepidation,
301 but before, immediately prior to that you didn't have the wishy wish systems at all.
302 You had word processing systems where you had to assume line lengths from the data
303 that was on the screen and so on. And although difficult to imagine what life was like
304 then, that was the way it was. There was no word processing in the sense we would
305 understand it today prior to about the early 1980's really. And so having been
306 introduced to this in seminars, we said we would go down that route, and so I
307 introduced it in a fairly modest way, but we began producing our own documents. The
308 systems side of things then was pretty poor. I mean Apple Macs were well ahead of
309 PC s at that time. They had drop down menus and all kinds of fancy things that
310 Windows had borrowed later but really it wasn't there then. You could move text
311 around and what you saw on the screen was nearly what you got in a printed
312 document. And that for, if you were doing publishing of lots of short run things which
313 is really where we were, we didn't have... we had one or two text books where we'd
314 print a run of maybe twenty thousand, and that was very exceptional. The first lot
315 we'd print twenty thousand because we had that number of students world wide. But
316 as you got esoteric subjects of marine insurance claims, or something fairly specialist
317 we'd be doing runs of books that were tiny and they weren't very cost effective so and
318 all the supporting material - the correspondence courses that went with it and so on
319 and all the design of forms and so on - that had all been put out before to different
320 agencies and organisations because that was just the way you did it. So what I did was
321 to bring in house quite a lot of the external things so that we could begin to do them in
322 that sort of way. And so we became much more ... much more geared towards that
323 particular system to the point that over a period, I would say for about 11 years. By
324 the time I left there...

325
326 B: Sorry... where was this again?

327
328 R: This is the Chartered Insurance Institute.

329
330 B: In?

331
332 R: It's actually based in Alderman bury but I was based in seven oaks...

333
334 B: Oh that's just down the road isn't it?

335
336 R: Yeah they had a college of insurance there that was in a nice country house which
337 Churchill had once owned [laughter], so it was very nice. It spoils you rotten I think...
338 but it was yeah... so that's really where we had the distance learning - the editor's
339 base - we had a team of editors for the text and...

340
341 B: Sorry, when you say distance learning... in what way... So people were learning
342 from home?

343
344 R: Yes they were, yeah. Most of the people who go through the examination scheme
345 to the CII are people who have a job. They are almost all part-time learners. There are
346 one or two universities that teach the subjects that are examined by the institute and
347 some that get exemptions from major parts of the associate-ship programme, but
348 essentially its people who are working full-time and then have to study for their
349 insurance exams. For most people it comes to a shock to them, they've thought it's all

350 over and then they've got to continue. And then they get this thing, and this thing is a
351 means by which they can learn about the subjects that are related to insurance.

352
353 B: Is it kind of using the Net or?

354
355 R: No, it is now, it is now. When I was there and I left in 1997/98. 98 it was. And
356 when I was there they weren't teaching over the internet but now they are. What they
357 was saying, was what we produced up to the point where I left we had some computer
358 based training but it was largely things that were sold to companies for their intranet
359 or it was sold as a CD and you could use it in that way.

360
361 B: Oh ok, so you'd either have your home computer or you have a computer at work
362 where you could get this disk and put it on and learn things.

363
364 R: You could, but it's only as a supplement. The way that these systems work that
365 was the book – the text. There was a text published by the Chartered Insurance
366 Institute for each of its subjects that it examined, and we expanded the number of
367 examination subjects to 93, so there was a lot of subjects and a lot of separate exams.
368 And for each of those there was a text. And that text, for virtually all of them... one or
369 two exceptions, there was the option for taking a correspondence course which would
370 enable to complete say 7 or 8 tests and have the advantage of having a tutor marking it
371 and you could query things and so on. And then added to that for many subjects but
372 not all there were extras. These would be things like key facts cards for some subjects,
373 computer based training for the, or popular ones, but there was no point in doing that
374 for the others because, there was no point, it was not cost effective to do that for the
375 tiny subjects so it was only done for the major ones. So there was computer based
376 training. There was audio tapes done for some subjects, and that was about the range
377 of it really. And a lot of face to face teaching was possible at one time although that
378 got less and less as student numbers really diminished for each of the subjects and so
379 certainly the evening classes that are run at the various London universities that run
380 them, they tended to offer a lot but in fact not do very much at the end of the day so
381 there wasn't much face to face intuition but that was possible if you add onto it but
382 essentially it was a build up of the book, the correspondence course and then some of
383 these additional elements.

384
385 B: You know you say there was less and less attending. Was that because they were
386 accessing things in the distance learning... Was it more of that?

387
388 R: It wasn't it was a reduction in student numbers really. The whole industry shrank.
389 The insurance industry from about probably 1990, maybe a little bit before then,
390 through the next 5 years shrank considerably in size. A lot of expertise went out of the
391 market. Systems largely replace people. I mean there was an awful lot of lesser
392 numbers of people and this very often was... I mean if you took an organisation like
393 direct line for example. Direct Line ... before direct line arrived which is about the
394 early 1980's probably, 85 maybe. When Direct Line arrived they introduced a
395 different kind of approach to insurance underwriting. Prior to that you would have a
396 lot of senior people in organisations and a whole hierarchy of underwriting – the
397 considering of risks and deciding on premiums and so on. Direct Line brought with
398 them a new kind of way of doing things which was largely systems driven. They... I
399 didn't think what we might term an expert system but it was certainly a system that

400 had taken all the information they could from the Underwriter, created a model
401 whereby 85 or 90% of all quotations would be provided within a three or four minute
402 time period and so on, which was revolutionary at that time. Prior to that, you would
403 have spent days filling in forms and getting stuff back and forth, but it was driven by
404 this very sophisticated computer system that presented these questions on screen for
405 people working at call centres. And that call centre technology was introduced at that
406 time and a large part of the insurance market have had to reorganise and respond to
407 that. And they have responded to it by trying to mirror it really in lots of ways. And
408 even the conventional companies, such as Norwich Union, now has Norwich Union
409 Direct. So although it's the largest insurer in the UK they haven't decided the brand
410 itself is strong enough to carry on doing things that they were. They've invented a
411 thing that competes directly with that. That systems driven approach reducing the
412 number of experts you need, because you don't need that many if 90% of what you do
413 or a better part of it can be done simply by screen prompted answers to questions, then
414 you don't really need that number of people to look at the few which need special
415 attention. And that kind of revolutionary system changed the nature of insurance,
416 reduced the number of senior people that you needed and lots and lots of people
417 worked from the industry with all sorts of nice packages and so on from the insurers.
418 And the insurance world was slimmed down considerably. All of that has an impact
419 on the number of people being introduced to the system who would eventually have
420 the more senior underwriting and claims jobs and so the CII saw a tailing off in the
421 UK which is their largest area. We do, do stuff all around the world but UK is
422 certainly the largest. And we were seeing student numbers dropping so that at some
423 exam sittings, at some centres, because there would be say 50 centres all around the
424 UK and you'll find that at some of those centres there was as few as 3 or 4 students
425 per subject and it just became unviable. It was unfortunate in a sense.

426
427 B: So this was to do with the industry changing. Less people required.

428
429 R: Yes, and a different kind of exam needed, so what happened was, was that the
430 Associate-ship exam, which always been the sort of flagship of the institute was
431 supplemented by a lower level certificate exam, but what was found then was that a
432 large number of people in the industry didn't need anything more than that certificate
433 because there weren't that many people going through so the whole thing became a
434 little bit watered down, in terms of numbers of people per subject. And so the CII had
435 to revise what and revamp what it did.

436
437 B: Is this that it just needed people on the end of the phone asking questions which the
438 system was drumming up.

439
440 R: Yep. Instead of having a room... let's suppose you had a senior underwriter, two
441 assistant underwriters and various administrative staff. What you now had probably
442 six call centre staff and one underwriter, and the savings it cost was huge for that
443 change around. You sort have changed from a pyramid to a water board system really
444 and it worked. Certainly for the high volume, you know motor insurance those kinds
445 of high volume type commodities within in insurance.

446
447 B: So if you describe a typical call, say I guess someone wants some insurance. It
448 might be for their car or whatever, and they phone, I don't know... direct line when
449 they'd just, in the early years, got this system, what kind of questions would they...

450

451 R: Right, essentially what the operator at the call centre would have... a lot of them
452 had some sophisticated technology so they would know whether you were phoning
453 for a quote or for a claim, because there was different numbers and so the screen
454 would come up for them which would say 'new proposal' or the equivalent. They
455 would then go through and each screen would produce its own question. They would
456 ask in exactly that form. One of the very interesting things about this was that when I
457 used to attend the annual conferences in the CII and they had a variety of speakers,
458 and one of the speakers on one occasion was a guy called Chris MacLean, who was
459 the marketing manager or the development manager who had formed Direct Line and
460 this was in... it might be 1987 or 88 but it was in the relatively early days of direct
461 line starting out and he was asked about qualifications. Very boldly he said that he
462 didn't want any of his people qualified at all. He didn't want them to even know about
463 insurance, and the theory was that if they knew anything about insurance instead of
464 just asking the question that came up on the screen, they would start interpreting it for
465 people and saying, this is what it means or what we really want is this. He didn't want
466 that. He simply wanted them to ask that question, get an answer, then the screen
467 would clear and so on, and then it would all go into this large machine at the back
468 somewhere and the answer would come out. So he wanted it to be entirely systems
469 driven, but I think they've moved from that position now, and I'm sure that they do
470 have people who are qualified but it was an interesting philosophy in that actually not
471 only did you not want experts but you wanted to dissuade people from being experts.

472

473 B: Why didn't they want people to... you know... what if someone doesn't
474 understand the question or... you know... he's saying they don't to interpret the
475 question in different ways, they just want to ask... but...?

476

477 R: Well, his theory was that if they'd started to apply a little bit of knowledge they
478 would then not just ask the questions in a particular way or rephrase them for people
479 but they might actually assume something in the answers and put that in. What he was
480 really saying was that he didn't want any intellectual process at all from the operator
481 which was an interesting... I mean it didn't go down very well at the CI conference
482 which was all about qualifications and so on, but it was an interesting view that
483 actually... you know the system had almost taken over entirely from people and that's
484 what he wanted and he didn't want any other process... I mean what it was really, was
485 the internet by another name because all he was doing was saying we want to get
486 this information into this box but at the time there was no internet possibility of doing
487 that.

488

489 B: So if someone phoned through and said I want car insurance, they should be asked
490 a series of questions?

491

492 R: They would, they would be asked their name, their address, the type of car, the
493 driver, their age, their experience, and it would just be a series of...

494

495 B: Multiple choices...?

496

497 R: It's all yes/no. Well, unless you've actually got to name drivers for the certificate
498 or something but essentially it's a yes/no thing all the way down, yeah.

499

500 B: And then at the end of that, you said it would take about four minutes for it to...

501

502 R: Four minutes for it to go through the process and then at the end of that the
503 machine produces a number and that's the quote, or it will say 'refer' and as I said
504 their aim was to get something like 85 or 90% with the actual premium quote and
505 that's largely what happens today. You get a quote and they'll tell you a price and
506 your own assess level, but they haven't worked it out, it's simply a process of this
507 whole sort of very sophisticated machine. I was told that... I don't know whether this
508 is sort of anecdotal or true but I was told that one insurer, it might have even been
509 Direct line, updated their rates twice a day, so you wouldn't necessarily get the same
510 quotation from one day to the next because they are constantly putting in information
511 about all the claims they've had and so on that feeds into their pricing model.

512

513 B: What about those 10 or 15% who get referred. Who do they get referred to?

514

515 R: Well for them, that's the underwriters, so whoever's got that title or role.
516 Somebody is going to look at the ones that fall outside their mainstream areas. So for
517 example, if you're... if their age range of people who they prefer is let's say 25-55
518 which it might be. Let's assume it's that sort of age range and the car is no more than
519 a group 15 car or something like that, in the car group rating. If you happen to be 56
520 with a group 16 car you would fall outside that area and therefore they will then refer
521 it to the underwriter, and the underwriter will then decide whether in all the
522 circumstances having considered the proposal which is what you set every proposal at
523 one time, it does fit their criteria and it's near enough for them to provide a quotation
524 or not.

525

526 B: Right so they'll make a decision.

527

528 R: They will, they'll [*cannot hear*]...

529

530 B: And what about today... Do they still...

531

532 R: It's the same process, except you can do it online now, but it's exactly the same,
533 you've just taken the operator out of the equation really but since the operator wasn't
534 putting in any huge steps – just the typing skill really.

535

536 B: Has that 10 or 15% improved or...

537

538 R: I think it has... its difficult to say because there are... not quite hundreds but tens
539 of these little direct companies and many of them have gone for niche markets. Now
540 for them lots of people fall outside their criteria. Obviously there are some particularly
541 for ladies only... well if you're a man [*laughter*]...

542

543 B: Oh like this 'Sheila's Wheels' thing.

544

545 R: Yeah, yeah. So there are some who have decided that that is the way they are going
546 to do business and therefore there are quite a few that would automatically would fall
547 outside their criteria. There are some that specialise in those that have been convicted
548 of driving offences.

549

550 B: Oh right.

551

552 R: And have decided that because it's high premium business they will specialise in
553 that area, so they do. So there would be no point if you had a clean licence if you go
554 to them because their prices start at a level that is uncompetitive. So there are some
555 that have worked it so that they would have a much higher sort of [*cannot hear*] rate.
556 But on the whole if you took... certainly if you took direct line and Churchill, and
557 both are part of the Royal Bank of Scotland really, so there's an interesting
558 competition thing there. But if you took those two, and they are probably the two
559 largest, Norwich Union Direct is quite large and so on... if you looked at them, then
560 probably they do, because they are looking for a reasonable spread of all [*cannot*
561 *hear*] that they would be trying to improve that number all the time. Because the less
562 decisions they have to take, you know with a sort of a real person having to make that
563 decision rather than a processed one, the more its going to cost them, so its an
564 expenses issue from there.

565

566 B: So, come back to this bit were it says 'refer' and then they get put through to the
567 underwriter.

568

569 R: Yeah.

570

571 B: Can't they... some of the decisions the underwriter makes, haven't they developed
572 a system that can make judgements based on a further set of questions.

573

574 R: I don't know the answer to that. I mean they might be trying to do that. The
575 problem is that once you've decided that you can make money out of people within
576 this particular range. Once you have gone outside that range even to a modest extent,
577 whether that's capable of being done without someone's judgement. Individually
578 looking at competing issues, you know, ok it's a high risk car but the driver s very
579 solid, so you know, maybe that's ok, or... trying to balance those factors I think it
580 would be very difficult in the context that you could do a points scoring system or
581 something. I mean am sure it's possible to do it but I just think there's always going
582 be some that fall outside it's just a matter of how many really. The other thing is if
583 you've only got two or three a day, you're hardly likely to keep someone employed
584 for... so in a sense there's probably a balance that says well, if we have got to employ
585 one person then let's not worry too much about whether they get a reasonable flow, as
586 long as its got... meaning we've got to employ two or three or four people. There's
587 got to be a balance there. You would have to be on the inside of the organisation to
588 know how far they've taken it.

589

590 B: So the underwriter might say oh this is a very high risk car blah blah blah but this
591 guy is a great driver, and as far as the underwriter is concerned should be given such
592 and such a quote.

593

594 R: Yeah, yeah, that's exactly what they do. I mean that is the job of the underwriter to
595 decide on discrimination factors and things and make them different from the normal
596 risk of its type, whether its age of driver or a named driver added to it, or a young
597 person added into a policy, it's those kinds of things. So you would find for example
598 that you won't necessary at the quotation stage but suppose a mature driver with a sort
599 of family car suddenly wants his 17 year old to drive because he's learning, then that

600 suddenly is going to take it outside the scope of probably what would be a normal
601 acceptance category. Someone will have to look at that separately. It would be
602 difficult to say well we've got a model for this and we'll just plug it in and it will give
603 you an extra whatever...

604
605 B: So the system works to an extent. It works to 85 to 90% of people.

606
607 R: Yes, yes.

608
609 B: And then you still require... even 15 years, or 20 years after Direct Line have come
610 on the scene and others have followed or others have mirrored them, they still require
611 that underwriter there to make these decisions overall. And do you think they will one
612 day... I mean you suggested a points system.... Do you think they will have it one
613 day completely kind of mechanised?

614
615 R: They could do it and.... The think that might happen if they do, is that they would
616 have more people that they decline. The tendency I think is there to be... because
617 insurance people are relatively cautious. You know, they won't just want to insure
618 everyone that phones up, there is still going to be some people who fall outside of that
619 and my guess would be that if anybody did go down that route and try and totally
620 mechanise it so that the only input that the underwriter had was at the end of the
621 process to review it all and see whether generally things were at the right level. It's
622 really difficult to see that as a scenario. But I mean if that were to happen, then it
623 could possibly, I think that the rate of declined cases would go up. That has some
624 serious implications in the case of motor insurance because its compulsory by law and
625 if you went over the water to Ireland for example, because it's a big issue there and
626 they've had much higher rates of premium over there you have to keep a note of who
627 has declined your proposal if your in that situation. And once you've had I think its
628 three declinator's, your entitled by law to go back to the first one and get a quote,
629 even though they didn't want to quote for you, so there are some compulsory
630 insurance issues as well that sort of sit there behind the possibility of people turning
631 down more and more cases just so they can do it all by machine if that was the way it
632 worked.

633
634 B: That's interesting so you said that the decline would go up, so they'd be losing
635 business because they are declining more people.

636
637 R: They would yes.

638
639 B: So, what they're saying is the system will make errors or decline people... If you
640 had a totally mechanised system the machine would decline more people than it
641 should and make errors. And therefore they need this person to come in and make
642 those decisions on the ones that are kind of borderline, borderline people if you like.

643
644 R: I think so. I think the other thing is that insurance is not exactly a pure financial
645 decision. It's not just 'is my house this old', 'is it worth this much', 'do I do this as a
646 job'. It isn't like that. It's often that things work in combination with each other. Or
647 someone in a particular occupation you'd be very comfortable with the risk for
648 example. For someone in another occupation, even though occupation isn't the thing
649 you normally measure you might actually be more concerned about that as an

650 underwriter and what you can't take into account in a mechanised system is a thing
651 called 'moral hazard'. So you could measure how many claims someone's has, you
652 could measure those things, you can't easily measure how honest people are or the
653 sense of the claim you may have settled in the past showed that they might have been
654 fraudulent. They didn't prove anything. So there are some measures that have to be,
655 well certainly currently have to be measured by a person doing the underwriting and
656 not just purely factual, what code is this car and how many miles does it do in a year.
657 And that would be true of virtually every kind of insurance. I mean most underwriters
658 are much more concerned about what they call 'moral hazard' than 'physical hazard'.
659 Physical hazard are all the measurable things, you know the engine car and so on. The
660 'moral hazards' are to do with other things and that's difficult to encapsulate in any
661 kind of system. They have tried to for, specific areas like fraud for example. There
662 was a whole system set up. The association of British insurers has a system where you
663 are suppose to put in some fraud indicators. Things were you think there might be the
664 possibility of fraudulent claims. They were concerned at one time about credit hire –
665 its accident management companies that will take over your claim for you and get you
666 a replacement car and do all sorts of things. But there was lots of issues surrounding
667 this particularly the fact that you as an individual didn't have to sign up to pay for this
668 because it was always going to be collected from the act fault persons insurer, so you
669 never had to pay for your car, and they would take a proportion sometimes of your
670 personal injury claims settlement if you were injured. Now there were some honest
671 people in this [*cannot hear*] and there were some dishonest people. There was an
672 interesting fraud video that the AVI produced on this were they did some undercover
673 work with the Granada television or something to kind of investigate what went on.
674 The result of all of that was that they decided to ask insurers in their claims
675 department to put fraud indicators against every motor claim and the kind of indicator
676 they were looking at were: 'Are both the vehicles registered in the same area...', 'Is
677 one of the vehicles at least 8 years old', 'Was there a claim from a solicitor within 7
678 days of the claim arising' and so on, a whole series of things. This was then passed
679 through to a database that the API had. The API would then alert insurers to possible
680 fraud issues especially if they'd got similar information about that person from
681 somewhere else, and so on, all sorts of issues, and there are a number of databases that
682 try and measure some of those.

683
684 B: So they tried to develop... well they did develop a way of trying to combat this
685 fraud.

686
687 R: Yeah.

688
689 B: But previous to that you said the judgement of the underwriter for example could
690 pick up on either someone was being dishonest in what you were saying or they were
691 doing some sort of fraudulent activity going on, or what they're saying they have
692 wasn't the truth. How would they pick up on that? You said having an overview?

693
694 R: Yeah, for example if you looked at the value of the vehicle. Now one of the things
695 it would be very difficult to do in a systems sense is to maintain a current register of
696 all reasonable values of vehicles of every age. I mean there are tables for it, you can
697 go to Glasses guide and find that. But you wouldn't want to keep updating that every
698 month, so that when someone puts in a vehicle value that's very different from what
699 your expecting in a mechanised way that's not going to be picked up. It's only going

700 to be picked up when somebody looks at it as well. So this guy's in the motor trade,
701 he's got the vehicle value, and its way out of line with the sort of thing that we'd
702 expect. It's those kinds of judgements.

703
704 B: Oh so one problem with the system is it's not always up to date, and you've got to
705 keep...

706
707 R: Yeah [cough], excuse me [drinks some water.....].....

708
709 B: That's interesting.

710
711 R: Yeah, so, although theoretically you could keep it up to date, the cost of imputing
712 that amount of data all the time just so that the system would say oh this is an
713 overvalued vehicle or something would be difficult. Now in some ways you could
714 well the overvaluing is not a big issue because the policy wording says you won't pay
715 more than the market value anyway, but you're in a bit of trouble with the policy
716 holder if you had accepted their view that it's worth ten thousand when you knew it
717 couldn't be worth more than three. It's very difficult then to go back to them and say
718 well, you can put in what you like but we are only going to pay that amount. So there
719 are some issues but... theoretically you could pump it all into the machine, but is it
720 really what you want to do. Previous losses as well... You see, what happens it that
721 there's a claims underwriting exchange that the Association of British Insurers run
722 and so whenever a new policy is introduced, it's up to the insurer whether they check
723 that database to see whether there are other policies that this person has or whether
724 there's any claims history that they may not have declared. Now again, you could
725 mechanise that, but it's an awfully difficult thing to get information from another
726 database and then incorporate the effects of that into this decision making process. It
727 means that your decision making process becomes very very difficult, and most
728 insurers don't, I don't think they put everything through. I don't know this, but I'm
729 assuming that they don't put every proposal... if it looks very straight forward I don't
730 suppose they go to the claims number writing exchange every time to check it out. As
731 I say, I don't know that because I've currently worked with insurers...

732
733 B: What do you think about the move to...? I don't know if there is a move, but I've
734 seen a couple of advertisements for ... banks has been one of them, where they say,
735 you know, you can phone us 24/7 you'll speak to a person a phone.

736
737 R: Yeah.

738
739 B: And I've also seen it recently where it's been an insurance company and they've
740 said, you know, you can speak to someone... and the other thing is its UK call centres
741 only... what do you think... I don't know if you know anything about those sort of...

742
743 R: Yeah, I mean direct line for instance advertise UK call centres only, they have a
744 little strip line on their advertisements. The 24/7 approach has been more common for
745 insurers providing services under their policies than it has in providing quotations.
746 There is still some insurers that will not be available outside between 8-6 or
747 something, to do quotations. It just depends who you go to really. Except that on line
748 of course you can do it anytime as long as you can fit the systems patterns you can do
749 that 24/7. But in terms of call centres, insurers have set up, most insurers anyway have

750 set up or have linked in with call centres. They buy this in, I mean a lot of its
751 outsourced, either in the UK or elsewhere and its all screen prompted, its all driven in
752 the same way and a lot of them are now 24/7 for help lines for motor insurance for
753 example, or help lines for legal assistance or help lines for plumbers and all those
754 kinds of things. Those are 24/7. Its less common, I think for you to be able to get a
755 quote if you phoned at 1am in the morning to get a quote from Norwich Union Direct,
756 I'm not sure they'll answer. I don't think it's that kind of service and I think
757 reasonably so because it would cost a lot of money to keep that service up and
758 running and the number of people who actually want a quotation at that time of night
759 is pretty minimum really so it's probably not worth it. I don't know precisely how
760 many or... but I do know that there are some of the smaller motor companies that you
761 can't get hold of after a certain time, they don't advertise the 24/7. It's not like
762 banking really 24/7 in a way because the requirements for getting a quotation are
763 usually much less urgent that the requirements for getting your car fixed or something
764 so their dealt with in different ways.

765
766 B: Why do you think they are having some of these advertisements now, because I've
767 only seen them over the recent couple of years?

768
769 R: I would think... Well there are two elements really. One is the advertisements for
770 actually UK centres and I think that there is a general feeling that, well certainly my
771 personal experience but I think that there is a general feeling that once you are talking
772 to someone who isn't actually based anywhere close to where you are, the chance of
773 them actually understanding, not just the language difficulties, although that can be
774 so, but just understanding what the issue is. You know if your car is in Tonbridge and
775 needs to go to Tonbridge Wells now that could mean 750miles or it... For someone
776 who doesn't know either of those places you get an odd kind of conversation, and I
777 think there is a sense that people would much prefer to have somebody who might
778 actually have a clue of the context as well as being able to answer the questions on the
779 screen. But I mean some of the big insurers have gone to India particularly for their
780 call centres. I think Norwich Union did at one time, I don't know whether they are
781 still there but they certainly went that route for cost savings really. It's much cheaper.
782 You can buy the services of a graduate out there for something like a fifth of the cost
783 for a UK equivalent, so why would you pay UK rates. The current UK issue I think is
784 that a lot of people felt that the standards were very poor in terms of either
785 understanding or really feeling that anybody got to grips with your particular problem.

786
787 B: And why have someone on the phone at all, why not just have the internet?

788
789 R: Well I suppose there is recognition that there are an awful lot of people above a
790 certain age, and I guess there are a lot of people in that category, are not really
791 comfortable with the internet. I mean there are... And certainly a lot of the people...
792 there's a kind of a threshold around about 55-60, where people younger than that have
793 been brought up with and are used to the technology, and people older than that had to
794 find their way into it if they wanted to. I put myself into that category really. I was
795 fortunate in that I was actually looking to introduce better technology to the CII back
796 in the 1980's but it was quite new then and fortunately I got in on the beginning of it,
797 so I'm reasonably confident and competent now, certainly at the desk-top publishing
798 aspects of what computers can do and reasonably with the internet, but that's not true
799 of most people of my age and above really. I mean I would say that there are still huge

800 numbers of people, and of course everyone is living longer so that increases the
801 numbers in that category really. But there are a huge number of people who are
802 frightened of the Internet and who either don't have internet connections or don't
803 want to know about the technology so the 24/7 phone has a greater appeal to more
804 people I think and so...

805
806 B: Do you think in the future, in maybe 30 years time...

807
808 R: Oh I don't think there will be a phone call made I shouldn't think, No. It's striking
809 the rate of expansion of technology really. You know, when I first started work, a
810 long time ago now in 1963. When I first started work we had a main frame computer
811 in the Royal that was the size of a bus depo. Well, not quite but it was that sort of size.
812 All sorts of things wearing around it. All kinds of environmental issues about how
813 you had to keep this thing and so on. It produced four cards, which were these strange
814 things with holes in them in different places but are the end product of this process,
815 and that was how we used to look at renewal every year when a renewal came up
816 we'd get a little card and it had little holes punched in it. That was the technology.
817 There was no calculators. No one had calculators. The only people that had a
818 calculator. When I was in the Life Department we had a calculator. That was a thing
819 on a spring that you had to wind three times this way and six times backwards, that's
820 how you did your calculations. There were no photocopiers, except those where you
821 had to put in the two, the fixer and the... Now it sounds like the middle ages but that
822 was 1963.

823
824 B: What was it like at the time using these sorts of things?

825
826 R: It was... you just got used to it... everything was very labour intensive. We used to
827 have things called odd timetables. Odd timetables were... it was a book that was
828 published that told you that if a premium increased by five shillings, then... and you
829 had got 263 days to run, it would tell you what proportion of five shillings you had to
830 charge... and you looked it up in a book, you didn't calculate it. It just works like that.
831 So I've seen things from... and this isn't really very long... forty years sounds a long
832 time but it's not really very long. We've gone from that which was entirely non-
833 systems based to the time today where my computer has got more functionality than
834 the main frame has at the Royal in 1963, they paid millions for. The whole thing has
835 changed at such an extent that if you say, what's the next 30 years hold, I think that
836 you almost can't predict the expediential move that there's going to be. But certainly
837 by that time, all the people that are non-technologically minded will have gone. So I
838 think you will be in an age when it will be... you know, everyone will have their own
839 little sort of hub, and everything will be done online, on sky. I mean the thing is that
840 television might not go in its complete sense and we probably by that time might be
841 all hooked up with video cameras and so on and it will be a brave new world again,
842 but it will be quite different.

843
844 B: Do you think though, because some of that technology, I guess some of the
845 technology you were using then might have been quite new to you, as something that
846 you just used in everyday work. I guess if I or someone who'd grown up in the
847 technological era, if they went back in time and tried to use some of that, do you think
848 it would be straightforward [laughter].

849

850 R: I think it would be frustrating, but one of the things that technology does. I mean
851 an interesting thing is that the kind of technology we have now is not like the
852 industrial revolution and so on, when those things happened they involve more people
853 being needed to do more jobs and... this technology means less people all the time or
854 it takes less time or you expect results more quickly. I get frustrated now if my
855 computer doesn't refresh the screen within a milli-second, and I'm sort of waiting and
856 drumming my fingers. In 1963 I'd have found it absolutely remarkable that anything
857 could be done within 10 minutes. So its very difficult to... you know you just got
858 used to the fact that everything was labour intensive. You needed a different skill set.
859 You needed to be able to add up, in pounds shillings and pence. Well you don't need
860 to that now. It worries me slightly that some people can't put a real value to things
861 and make an assessment as to whether this things right that's coming up on the
862 machine. But non-the-less you don't need those kinds of skills, you don't need to be
863 able to create sentences properly now because you get a spell check and you get...

864
865 B: At the same time do you think say for instance when I'm 55 or 60, do you think
866 there might be things that I haven't grown up...? [Laughter].

867
868 R: There might be. I think it would depend whether it's an adaptation of existing
869 technology. Nobody is uncomfortable with adaptations of existing technology. When
870 you move from the TV as it was to digital TV and so on, I don't think people are
871 terribly worried about that, having a new box. But that kind of move is not changing
872 the technology terrifically, even though I'm sure the boffins would say 'Oh yes it is,
873 it's very different', but the end result is much the same. You still press the button and
874 the television comes on. But if there were a totally new type of technology I think
875 that's what makes the difference. All the while its incremental builds on the existing
876 functionality and existing systems, I'm not sure that there's going to be that, but for
877 those of us who didn't grow up with... or didn't have access to a computer... I mean
878 nobody had a computer, nobody thought about it. The first computer we had in our
879 house was a Spectrum.

880
881 B: Yeah, I had a spectrum [laughter].

882
883 R: I mean that was it, that was high tech and fortunately our eldest son who was into
884 these things started programming it which I thought was jolly good, and he still now
885 does a lot of stuff in that area, but that was high-tech, it was really good and it ran off
886 a tape that you used to ...

887
888 B: You used to have to load it didn't you.

889
890 R: Yeah, you used to have a tape... take for hours...

891
892 B: Actually it was my brothers Christmas present but I'd have been about five or
893 something, I remember loading these games, and it would go all fuzzy and...

894
895 R: Yeah...

896
897 B: And now you got Play stations, Xbox 360's...

898

899 R: Oh yeah absolutely. But in a way they are only doing the same thing. They are
900 doing it faster they are doing it better, but its not different technology, from the user's
901 perspective. I think we reach a point where because the user just sees a better end
902 result, and all the kind of piddling that's going on behind the scenes as it were, in the
903 systems sense. And there are all sorts of applications, I mean I'm not sure, but do you
904 want a talking refrigerator. There are all these things that are being built that will tell
905 you that your low on milk and all that kind of thing. And you think well that might be
906 a bridge too far, but its not different technology. I don't think anyone's going to look
907 at that and think wow, that's so different from what we do. They just realise that it's
908 another application of that kind of technology. So I think unless there's something of
909 which we don't yet know, and I think there might be, that's so totally different in
910 concepts that it changes things. I'm not sure that the previous forty years you could
911 necessarily say well that's going to happen again.

912
913 B: That's interesting... Just one final thing just to go back to. When we were talking
914 about direct line, and they first started putting things on systems, I was going to ask
915 you what did they do previous to using... what did the insurance people do previous
916 to having the system?

917
918 R: Yeah, well prior to that a lot of the insurance industry had things called tariffs.
919 They are outlawed in The EU, but at the time they were tariffs. I'm trying to think
920 when tariffs were abandoned. It's probably the late 70's or something there was a bit
921 of a gap between that and with Direct Line but essentially people used to... Tariff
922 companies used to consolidate their figures together, so they'd all put in information
923 which was gathered together in one of these big computer type things and an analysis
924 was done but the analysis was nothing like a sophisticated... the technology wasn't
925 there to do it really. So for example we would have tariff rates printed for cars... I
926 keep using the car example but it is quite a good example for things that have got
927 different aspects to them. So when there was a tariff I would look up a tariff rate. Now
928 the tariff rate would take me too a car in group 8, and we a list of which cars would go
929 in which group so you could... all written down behind the scenes now but... and
930 then you had to look up the car group, you had to look up the value, you had different
931 prices with different value, and you needed to know if its CC or break horse power or
932 whatever, and so on. And in a non-mechanical way you looked these things up in a
933 table. Now, in order to get that table, somebody had done that work but it was done in
934 a sort of once a year fashion, it wasn't done continuously. There wasn't the
935 functionality in computing that would enable you to do it on a rolling basis, and so
936 these things were all fed into a large system and the system would be looked at by a
937 team of people from the tariff company. They had their own associates within the
938 company so you'd have an association just for employer's liability. And they would
939 set the rates. If you wanted to deviate from the rates you would have to apply to that
940 central body. That's effectively where the underwriter's position came from. It came
941 from the collective tariff offices. And so that's the way it worked, and tariff
942 companies therefore always used to charge exactly the same rates for everything
943 because that was the tariff. Non-tariff companies did their own thing theoretically, but
944 what they really used to do was get hold of the tariff and discounts it by 10% so it
945 wasn't ever so scientific. The original setting of quotes might have been. But they
946 stayed like that for quite a long time before you get another set of rate pages and stuff,
947 so it was very... it's difficult to imagine that. But that was the kind of system that it
948 was and gradually as the tariff disappeared which must have been mid to late 70's I

949 think. At that point everybody had to develop then their own more sophisticated
950 system. The computer technology was improving then, so you could do that and you
951 could...

952
953 B: And in terms of customers phoning up and they would just phone up and were
954 asked a series of questions.

955
956 R: Well, no they would be sent a proposal form completely, it was all paper based. If
957 people wanted instant cover then you would take information over the telephone and
958 providing that they left you a deposit then you would do that if you knew them. If you
959 didn't know them you wouldn't at all, there was no many of knowing who was who.
960 With internet of course you can tell, there's a paper trail through the banking system
961 and so on and you could identify people. And you would know that anyway for any
962 money laundering and all that but then you didn't know who Joe Bloggs was when
963 they phoned up. So you would normally expect not them to phone up but an agent to
964 be phoning up. There was a whole network of agencies that were set up then and
965 although insurers do still operate through agencies to some extent, they haven't got
966 the huge network they used to have. The whole distribution system has changed
967 because of the technology, so whereas you're local bank manager would have been an
968 agent of three or four insurance companies, and got personally quite a lot of
969 commission out of all the business that went through there. That was quite a lucrative
970 job I think. Not the job itself but the extras. So that would have happened. So when
971 that bank manager phoned up you would know that they were in a sense vouching for
972 the person who was there, so you would then give cover without any money changing
973 hands at that point. But it just depended who the source was in that inquiry. But
974 people who come in straight off the street; you give them a proposal form. You ask
975 them to complete it. You rate it. You don't give any cover until they've paid you
976 some money.

977
978 B: And how long would it take?

979
980 R: Well it wouldn't be unusual. If someone wanted instant cover and could give you
981 enough information, then you could do that, you could issue a cover note, but the
982 actual process of getting... you would then want the proposal form completed, you
983 never did anything without a proposal form. Some of these proposals were quite
984 extensive. They were sort of four page long forms to fill in. So you would send that
985 off and you'd wait for it to come back and it wasn't at all uncommon for this to take a
986 period of a month or more to get the thing.

987
988 B: [Laughter]..... I think that's great David.

989
990 R: Is that ok.

991
992 B: I think that's brilliant.

993
994
995 **End of Interview**

996
997
998

1
2 **Appendix 7 - Interview Transcript 7: The Systems Analyst**
3

4 Key

5 B: Brian

6 R: Respondent
7

8 B: Right, try to ignore that if you can [pointing at Dictaphone]. Probably better if I
9 move it closer to you to hear you. Yeah so basically, the first thing I guess is just to
10 give me a brief description of what you actually do.
11

12 R: Well my job title is a senior systems analyst, and I'm responsible for all the IT
13 within a manufacturing plant, so there's about 700-800 employees making gear boxes,
14 which go into Ford cars. So there's about 600 employees who actually make the gear
15 boxes and associated with it, and there's about 100 staff, and there's a small
16 department that's just responsible for all the IT. About three, maybe four people, and
17 then contractors when we need it. So we are mainly looking after the network in the
18 plant, the PC's, the printing, and then we're getting involved with the computer
19 applications as well to a small scale. We get supported by Ford corporately, so they'll
20 issue an application, and we'll implement some application, and some times we
21 develop computer applications and systems for use just within our plant, like a web
22 based system, or something like that.
23

24 B: So if you were to describe just a typical day being in work, and I know this week's
25 a bit different because you're on this course for a few days.
26

27 R: I'd say first of all, there's no typical day. Everyday is totally different. I spend a lot
28 of time in front of the computer screen doing a lot of email because I'm dealing with
29 people in sort of Essex. A lot of the time with headquarters in Germany. Possibly
30 people in the US. So there's a lot of sort of dealing with people offsite as well as
31 people onsite, but we've also got to look at the sort of hardware, and problems that
32 come during the day. So anyone from the plant, anyone from the 700 people can walk
33 in and say 'I've got a problem' and then we've got to sort it out. So there's that sort of
34 operational part of it, making sure everything that we've implemented is still working.
35 But there's also like project type work where we are trying to implement a new
36 system or we are doing a technology refresh. Like we are swapping lines on all the
37 PC's or we are launching a new application. If I use jargon, stop me if you don't
38 understand.
39

40 B: No, no, no, that's fine, the jargon's fine.
41

42 R: I'm just...
43

44 B: I'll probably ask you afterwards if there's anything I don't understand. So part of it
45 is the gear boxes for the cars, and the manufacturing of those, and part of it is also the
46 software – so the PCs...
47

48 R: We support the people who make the product that we sell, that makes the money. I
49 mean if no gear boxes go out we don't make any money. But we support the people
50 who are putting in applications that will reduce the number of people that have to

51 make the gear boxes. Make it shorter, quicker... better quality and better standards if
52 you like. So we are not directly involved with the manufacturing but we support the
53 manufacturing.

54
55 B: And when you have... What kind of things might you manage or look over or
56 develop, for instance... examples were they've brought into play new intranet systems
57 or web-based systems or...

58
59 R: We've got to look after the hardware in the infrastructure. Because we need to run
60 PCs in the plant so you have got to have a hardware in the plant and then you can
61 hang off your PCs and your printers. So if all the infrastructure is there, you can then
62 have applications and then you can share data across all the different PCs, and there's
63 250 PCs on sight so they can... If you have the right access then you can get to any of
64 the systems that are available throughout the site, or you can direct people to other
65 systems that are offsite, in the US or in Germany or in Essex in the headquarters, so
66 it's like providing access to services.

67
68 B: So you said you've got to look after these 700 employees or so. So is there any
69 examples where someone's recently... one of these people have come in and said
70 'I've got a problem with my PC or this system...'

71
72 R: All the time. They haven't got sufficient access so they can't get onto... Like a
73 maintenance system. Maintenance systems record all the maintenance actions that
74 maintenance people do. Maybe his password's expired so he can't get onto the system
75 anymore. He's been off sick long term, comes back and his password's expired or
76 what have you... or he can't print out anymore, but he needs to print out a requisition
77 so he can get something from the stores. Or he can't get access to the email system so
78 he can't communicate to other people offsite or onsite. So those are the things that
79 might go wrong, where his PCs crashed and he can't get anything up on it, so it might
80 be a hardware issue. Or he might be looking for... He's got a problem and he wants a
81 new system, or he's heard about a system offered somewhere else and he wants access
82 to it or he wants to develop a new system. 'I've got a problem, how can you help me'.
83

84 R: I see. So what kind of... Someone comes along and they want a new system, or
85 they've heard about a new system, is that system used to help them do their job?

86
87 R: Well generally it's to automate it. For standardisation, automation, and so they're
88 not having the drudgery, and once you have the application and the data you can then
89 share it if it's in the computer system. A good example is, like we build three different
90 gear boxes at the moment, in two years time we're launching a new gear box which is
91 required by Ford, so half the plant... this is going to be a major product in two years
92 time, so half the plant they've got to put a new production line in. So they are sending
93 like a launch team of like a project manager, engineers, admin staff and eventually,
94 once we get closer to the time operators, group leaders, foremen as part of the
95 production. So they need IT across the spectrum, they need to set up this launch team
96 office, so they can accommodate all the launch team. So they'll need like a new part
97 of the network. They'll need new PCs. A good specification to run the new
98 applications. They'll need special software so they can pretty much design the
99 product, or if the designs are already available to handle any last minute changes. And
100 then they'll be looking at getting the computer infrastructure on the shop floor where

101 they're actually going to produce a new product so we'll have to put another network
102 in, more PCs more printers, we'll link the network to the machines that make the
103 gears and assemble all the gear box and all things like that and then we've got to find
104 out what they want. Do they want to monitor all the machines remotely so they know
105 how many parts they are making? Do they want the maintenance system linked to all
106 the machines, so the machines say I've now produced ten thousand parts, I need to do
107 this maintenance task. And then there's all sorts of CAD applications for the design,
108 that they might need.

109
110 B: How long have you worked for them now?

111
112 R: We'll I've been working for 34 years this week [laughter]. This particular plant for
113 ten years.

114
115 B: Yeah... wow, so going back, what you must have thought 34 years ago, you must
116 have seen a huge amount of changes?

117
118 R: Yeah, especially in IT. The plant is relatively similar, there's a lot of technology in
119 the plant now, but generally they just manufacture, there's a lot less people which is
120 sort of interesting. I mean when I first started I went into the Body Assembly Plant
121 where they actually manufacture the car. A body assembly plant makes the car and
122 there's a Transmission Plant next door that just builds the gear box. In the Body
123 Assembly Plant, I think there was about ten thousand people and there's now under
124 two thousand people so it's all more recognised and I went over to the transmission
125 plant were I worked there twenty years ago just for a look around, and I think there's
126 about 1000 people in the offices alone, just hundreds of people, and now there's just a
127 handful.

128
129 B: I'm assuming in terms of manufacturing, the parts or... we are talking about
130 making cars...

131
132 R: Gear boxes...

133
134 B: Of course... so I guess the technology or the machines are enabling them to reduce
135 the number of staff...

136
137 R: Yes.

138
139 B: On the actual floor where they are actually building these things. But in terms of
140 the offices. How can they get away with having less staff working in the offices?

141
142 R: Well there was a big push about 15 years ago called office automation so all the
143 Generally you produce files, like memos and pieces of information, for financial,
144 HR, Quality. Everyone produces documents or files, and when people would have to
145 handwrite a memo or get it typed up, or if they had an invoice.... If you produce a
146 particular form, you would have to handwrite it or get it typed up, or... if you produce
147 a particular form you would have handwrite them, get them typed up and then sent
148 out... whereas now, because their computer system is there, it is there by pressing...
149 but you assemble all the information and you just print it, and you get it sent off. Or
150 you send the information electronically.

151

152 B: Right, I see.

153

154 R: So.. say there was a department handling invoices coming in, now that was all sort
155 of centralised and recognised. So you have barcode readers to read the document, and
156 then once it's in the computer system the data can be manipulated, handled or
157 managed so there's no bits of paper anymore.

158

159 B: So, a lot of the software, a lot of the systems have been automated... Or they've
160 brought in some forms of automation to replace some of the office workers if you
161 like?

162

163 R: Yeah, perhaps a lot of the mundane work, sort of consolidation of data. So if you
164 worked in the finance area you would have people adding up things, so if its read in
165 automatically... the system can add up, take away and consolidate it, so if you have a
166 program you can press a button and it can consolidate all this information and brings
167 out a bottom line, so you don't need twenty feet people working on the finance and
168 doing the accounts, you just need one or two people, its that sort of reduction.

169

170 B: You say it does a lot of the mundane stuff, is there any cleverer bits that the
171 software has taken over, that's not just mundane but it's actually quite sophisticated.

172

173 R: Certain CAD applications, where you would have a draftsman 25 years ago, we
174 have a thing called... The shop floor changes, and moves machine from one area to
175 another.

176

177 B: So this is Computer Aided Design isn't it?

178

179 R: Yeah, so where they would have a sort of hand drawn draft of what the plant floor
180 looked like and where the equipment was, and you'd have to rub it out and then draw
181 it somewhere else, that's all now contained on a computer... all the lines if you like.
182 So the guy can log onto the computer and select this piece of machinery, highlight it,
183 and then move it to another place and it will do all the updates automatically and then
184 prints out a new one, so there's no manual drawing, so its a lot faster, and presentation
185 wise you can print it out straightaway and it looks a lot more professional. He's losing
186 more skill because he's not having to draw it to scale all the time, but he's gaining the
187 computer skills to do it quickly. So where you would have had ten draftsman, you
188 have one or two. There's a CAD application... Think of a gear box, all the moving
189 parts in a gear box, now what they have is tolerances. So a certain gear will move
190 making another gear move. Now think about all those moving parts, they can only
191 move so far. So if you imagine like a gear box going at 10 miles per hour, as oppose
192 to 100mph you're moving a different amount. There's a computer application which
193 we launched a couple of years ago which monitors all of the tolerances, so if you
194 change the design on a gear box a part might move differently at a faster rate and it
195 recalculates all that. In the old days you would have a team of people working out all
196 those tolerances, but now you move it electronically and it works out all these
197 calculations for you and maybe half an hour later it pops out the result. You can't do
198 that, or you can do that, it's within the tolerance.

199

200 B: And does it do it better today than it did when you had a team...

201
202 R: Far more accurately, because there's not a fella with a calculator or adding up...
203
204 B: So there's going to be less mistakes?
205
206 R: Yeah, and the quality of the output is just far better. I think if you don't do it
207 correctly , and you move it into production, the cost of putting it right then. Cos if you
208 can get it right at the design stage then when you move it to manufacturing you know
209 it's going to work. They have something called simultaneous engineering. It might be
210 easier to relate to this. Think if you want to make a car, what do you start with? You
211 start with a few sketches and then you design a clay model and then sort of break it
212 down into all the component parts and then you build a prototype. And now they have
213 what's called simultaneous engineering, so you start with an electronic drawing and
214 while your designing this, the fella at the other end who makes the models can already
215 start, so you where it might take you three years to design from the sketch to the
216 prototype, you can shorten that to three months, because people can be working all the
217 stages before the designers finished his drawing, the clay models made, and then your
218 moving to the prototypes. So you can shorten all that lead time. So where it might
219 have taken 7 years to... from concept to production, you can shorten that to two years.
220
221 B: And is that more effective, more efficient?
222
223 R: Well your getting your competitive edge, because if someone brings out a new car,
224 a new type of car that no-one else has thought of... you can respond with a new car
225 within two years from concept to manufacture. So there's more ideas that come out or
226 a new requirement that you can bring it into the market place faster.
227
228 B: In terms of this kind of process where there's less people and more technology,
229 using those two examples. From what your saying there's huge amounts of benefits
230 from things like... over time its cost effective...
231
232 R: IT is always cost effective. Well not always cost effective but it's always brought
233 in to reduce your costs inevitably, or to improve your quality. But basically its cost
234 driven to make it more competitive.
235
236 B: Is there any drawbacks do you think? I guess an obvious one would be people
237 losing their jobs or becoming deskilled or whatever else, but are there any other
238 drawbacks?
239
240 R: Downsides?
241
242 B: Yes, downsides.
243
244 R: You see am coming in from an angle where I'm introducing IT so I benefit. Those
245 jobs inevitably go, so yeah the downside is less jobs all round.
246
247 B: Do they... is the work always done far better by the system than the designers?
248
249 R: It depends on how good the implementation is and how good the quality of the
250 system. There's no hard and fast rules, but you might get systems coming in that are

251 absolutely crap, that everyone hates, people avoid using because they are badly
252 designed or badly implemented. Generally, that might be at the start and then we get
253 rid of the bugs and sort it out, but some just roll over and die... Some are overtaken
254 because the technology improves that quickly... it's kind of like leap frogging all of
255 the time, so you bring out a better application, so some will wither and disappear.

256
257 B: So when these new systems are leap frogging the old system. So that's the lifeline
258 if you like of that... That system might be very short, in terms of...

259
260 R: It could be just for a few months. I'm looking after systems that have been there
261 for twenty years, which it's probably too expensive to replace them. There's one in
262 particular that's like a logistics application. There's parts coming in, and it tracks the
263 parts from around the plant, so it triggers orders for pulling in new parts from the
264 suppliers. There's one thing called Just In Time, JIT. Once again it saves money
265 because you will only order. When you reach a threshold, with one days supply, that
266 will trigger an order at your supplier electronically, so they'll know to send you more
267 parts. So you reduce your infalantry where in the old days you would have had two or
268 three weeks supply just in case you run out. What you do now is have one day of
269 stock and trigger it for the supplier to send you more, so if you don't have two weeks
270 stock on plant, think about how much money you can take out. Its not just dead
271 money.

272
273 B: So that again is cost effective?

274
275 R: Think about how much floor space. If you've got stock you've got to manage it,
276 you've got to know what you've got and where it is so you can get to it. If you don't
277 have the stock, you don't need the floor space, you don't need to build a roof over it
278 and you don't need to manage it. You don't need to count it to make sure where it is.

279
280 B: So there's a lot of savings. When you said about there's always new systems
281 coming along and some of these come and go. You said often there's problems,
282 there's good systems and bad systems, and often there's problems with design and
283 implementation. What kinds of problems would they be, in terms of implementing the
284 system and designing the system.

285
286 R: The designers might not have spoken to the people who are going to use the
287 system. It might be that the users aren't ready for it or it is too different from the old
288 system so it's like a culture shock – 'what the hell do I do now, I've got a factory to
289 run, how do I use this?' And people are basically reluctant to change, people like
290 familiarity. So what you've got to do, is you've got to change systems because you've
291 got to put the bugs right. You've got to increase functionality that's requested or
292 you've got to change it because the operating systems that's controlling it is changing,
293 and there's like a knock on effect. So what you try and do is like small incremental
294 changes so people will be familiar with the application but just change a little bit here
295 and there. The front or back end. If you do too much of a change they will resist it and
296 they'll avoid using it because it will take too much time up. They've got to pick up a
297 manual to find out how to do it.

298
299 B: So you've seen instances where this has happened?

300

301 R: Oh all the time, all the time.

302

303 B: And so this new system, as people say I don't know how to use it – I don't know
304 how to use it – it's not like the old one.

305

306 R: It doesn't work. They'll put up false barriers to hide behind it. Possibly they
307 haven't got the time or they are unwilling to spend the time to find out how it really
308 should work.

309

310 B: That must be quite a big issue for the developers of the software?

311

312 R: So you've got to spend time with your users, and talk to your users to get them on
313 board for any changes on the new systems. Try to promote ownership so they feel
314 involved, so when they are presented with something new, they say 'well I asked for
315 this, I'll use it, I'll put an effort in', because they feel responsible, but if you just
316 develop without them knowing and it doesn't quite work the way they want they'll
317 resist it and do anything to avoid it. 'Oh get me the old system because it's what I
318 knew and loved, not like this new one'.

319

320 B: So you think it's important to get the people on board?

321

322 R: Yeah, because if you don't it will never work. There will always be something else
323 that they have to do to avoid it.

324

325 B: And what about... you said over the last 34 years you've seen immense changes
326 where there is more technology, more systems, there's always new systems. Is there
327 any... as you've seen less workers on the floor and less workers in the offices, do you
328 think that will continue? Do you think in 10 years time when you've been there 44
329 years you will look back and say, oh we used to have more IT staff, or we used to
330 have more people in the offices, or we used to have...

331

332 R: I think in some areas you will see that but not in all areas. It won't be across the
333 board, because we've made efficiencies in some places and it's as lean as you are
334 going to get. There'll be other areas where IT hasn't reached quite yet that... Is like a
335 prime target. Probably in the manufacturing side actually making the bits. Machines
336 cutting the gears will become much more efficient and do much more but will become
337 more complex. I think that's probably the area. I think our staff-wise, you can only cut
338 it down so much. You still need a few people. So I think in some areas yes, in other
339 areas no.

340

341 B: What stops you from cutting it down even more?

342

343 R: Like in the finance area you've made the efficiencies, you've put in the system,
344 you've automate a lot of the job, you still need people to talk to in finance, to give you
345 money for things, they still need to press the button to produce the reports. You still
346 need engineers who coordinate between how to make the gears to support the guys
347 that actually do the job. And even if you bring in a new machine or a new process you
348 still need that human element, you can never get away from that completely. Because
349 you might have a manufacturing process that maybe makes part x. You might be
350 making part x 20 years with the same machine, but at some stage someone will bring

351 out this whizzer new machine than can make part x at half the price or three times as
352 many in the same timer. So you need an engineer to go and investigate is it feasible to
353 go and buy this new machinery and how do I actually bring it down to the floor and
354 get working in our existing processes. The old machine might have taken three
355 operators to run it on each shift, so nine people, this new machine might need one
356 person per shift, so you've got three people.

357
358 B: I see. And what about some of the things/ the jobs that you currently do or people
359 you directly work with... are they, are there things which you do now which you
360 think will be automated in the future?

361
362 R: Within the IT Department?

363
364 B: Yes.

365
366 R: Yes, probably the guys who do the trouble shooting, like the hardware trouble
367 shooting, there will be less and less for them to do. We used to have to have two guys
368 who just looked after hardware. Well if you upgrade your computers, or your PCs on
369 a regular basis, the hardware isn't as troublesome – it's more stable, so there's less for
370 them to do. So...

371
372 B: When you say troubleshooting, what do you mean? Do you mean spotting
373 problems?

374
375 R: Yeah, 'me PC won't switch on', it doesn't work when you press the button, or 'me
376 printers broken down – its all jammed'. Well the technology is getting more
377 sophisticated but it's getting more reliable, so you move the guys that were working in
378 that hardware support role into software support. You know, I can't get this
379 application to work, I need a password. So that job changes. But I find I'm moving
380 more into project management, hence the course because solutions are coming... they
381 are refreshing the technology faster, so you've got to swap out the PCs faster. You
382 know every two years instead of three. Instead of buying the printers, you got to lease
383 the printers, so you've got to change all the printers out, because it's cheaper to lease
384 than to buy. And also new solutions and new products we want to build are coming in
385 so you've got to have new facilities. So the pace of changes accelerates it all of the
386 time and you've got to put together a project as to why you do it, and justify why your
387 doing it. Is there a good business case. Are you making the savings long term.

388
389 B: And when you put this business case forward, what kinds of issues are there?

390
391 R: Well there's only a limited amount of money. The plant might have a delegated
392 central office. You can have two million euro to spend on improvement on the plant.
393 The plant has got a turnover of like a hundred billion euro in a year. Two million of
394 that you can spend on improving things. So I've got to say, well, we need a new
395 server because the older one was five years old now, its not going to live forever, its
396 going to die, or its too slow but I've got to compete on the budget with some guy who
397 wants to fix the hole in the roof, the plant manager who wants to build a new whizzo
398 machine that will build parts faster. So I've got to put a business case together to say
399 well look if you get this new server, you are carried to build... or your uptime will be
400 better, so I can more or less guaranteed an improved service which will save money

401 long term for whatever. That's a bit difficult to justify sometimes when you just want
402 to renew technology because it's getting old. Sometimes you can't get those cast iron
403 savings through modernisation.

404
405 B: So in general you think a lot of IT guys who for example do stuff with the
406 hardware. So your example was 'my printers jammed', or 'I can't get my computer'
407 or 'I can't get this up', they'll be sort of... that's getting better, that's improving.

408
409 R: We'll we've seen the results. We swapped all the PCs out the back end of
410 Septemberish. Now where we were getting 300 problem calls in a month, it's now
411 down to 150. The hardware's newer and more reliable. The operating system the
412 software that runs the PC is more stable, is more reliable, so in theory he's got half as
413 many calls so you can shift him onto doing something else, maybe a bit more skilled
414 or challenging.

415
416 B: So that guy might move into something a little bit different.

417
418 R: It will give him different tasks to do. Possibly less mundane and more challenging,
419 where he's got to use his head more rather than just... the screens blown up, its dead,
420 send it back to the supplier...

421
422 B: Going back to what you were saying about when they are designing new systems
423 and they have to get it right in terms of speaking with the users. In what ways do they,
424 I don't know if you know the answer to this... but in what ways do they actually go
425 through this process. Do they sit down with people?

426
427 R: That's what they should do. Discuss their requirements and document it. And if
428 you've got the document, you can then go back to the user, and say is this what you
429 really want. Because the systems guy doesn't know what the user wants because he
430 doesn't know his job. And the user doesn't know what the system could be capable of.
431 So that's why you need to talk to them in detail, then document it because the user
432 might say something... and the developer doesn't quite understand. Or the developer
433 might jump to conclusions which might not be right, so if you have a detailed
434 discussion, document it, and then ask the user to agree to it. Depends what detail you
435 go to. Your sort of [*cannot hear*] showing your back to him, so you get a better
436 understanding rather than having one meeting, go away develop a system, bring it
437 back, and then you say, oh I didn't quite mean that, I want it like this or I want it that
438 way, and then try and get a sign off or an agreement from the user before you proceed.

439
440 B: What, to cover his back?

441
442 R: No, not so much that. Just to get his agreement and then if you sort of document
443 it... If he's going to sign it or something then he is going to make sure that its exactly
444 what he wants, rather than the developer has one idea and the user has another idea, so
445 it's in everyone's head, otherwise if it comes back in three months, they'll say 'did I
446 really ask for that?'

447
448 B: Yeah, so that speaking to the user is important in developing...

449

450 R: Yeah, because the developer will never know in detail, what the user's job is, or
451 what his job function is.
452

453 B: You said if this happens, there might be some sort of resistance from people, or do
454 they just say 'I'm not using it, I don't know how it works'.
455

456 R: Well they might be forced to use it, but if you are forced to use it then you resent it
457 won't you. So you'll find any excuse to prove you were right, its rubbish, they haven't
458 listened to me, the old system was much more friendly.
459

460 B: Is there any particular examples you can think of where that's happened.
461

462 R: I can't think of any specific examples... I think in very general terms that will be
463 what you get...
464

465 B: Or is there any recent examples?
466

467 R: There was like a, it might not be a good example but the one that comes to mind
468 was like a travel and business expense system. It was a very simple system and you
469 could follow it through. You would put all your expenses in and the date, how much
470 you spent. It was a very simplistic and then it printed out a report which you
471 submitted. And then it became... I mean it wasn't in any consultation with anyone,
472 because it was done at a corporate level. You know, everyone in the UK had to use it
473 and it became a web based system so it slowed it down. It became far more complex
474 and it was really difficult to use. You didn't really know quite what you were doing.
475 So you tend to think you'll do that tomorrow. And then suddenly think I'm out of
476 pocket here because I haven't claimed me expenses I better do something, and then it
477 will take you a long time to go through it because it's a new process, and you didn't
478 know quite what you were doing so there was like a resistance but eventually you are
479 forced to use it.
480

481 B: So this might be just you know.... For example you came down to Essex, so you
482 might claim you're...
483

484 R: Your hotel costs or travel costs...
485

486 B: So you'll go back to work and you'll fill out one of these...
487

488 R: Yes, to claim your money back...
489

490 B: So has that system changed now?
491

492 R: Yeah it was a very simple system, and you used to walk down to the cashier in the
493 plant and once you had sign off. It produced like a nice little report, which you could
494 come up with in about five minutes. You get sign off by your manager, take it to the
495 cashier and they give you the cash. Well, ok, so the example here is they closed the
496 bank so there's no cashier any more, the new system, what you'd do was fill out like a
497 template. You sent it to your boss electronically who would sign it off and then
498 centrally it would pick up all these reports and pay it into your bank account. So

499 you've got rid of the cashier. There's no cash handling, so you don't need security
500 men to deliver it to the plant.

501
502 B: It's safer.

503
504 R: Yes, and it's quicker. But it used to take five times longer to fill out this report
505 because there were screens everywhere.

506
507 B: [Laughter] Do you think that's an advantage to your employer the fact that it's
508 difficult for them to get their expenses [laughter].

509
510 R: In the old days you could walk the document around get sign off and go to the
511 cashier all in the same day but now it takes a week or ten days for it to get paid into
512 your bank account.

513
514 B: So these. You said earlier that because of your job role that these new systems
515 coming into place favours you because that's what part of your job involves. So you're
516 quite comfortable/ confident about some of the new systems that will be coming in the
517 next five or ten years.

518
519 R: I think it will slow down the rate of change because it's becoming more and more
520 expensive to implement something. Come up with a new system. A lot of systems
521 have been scrapped before they have gone too far because they know it will be too
522 expensive to implement. Because IT skills are becoming more specialised.... to get
523 the people to do more specialist skills takes a lot more money. So to hire them takes a
524 lot more money, so the overall project becomes more expensive.

525
526 B: Well I think that's probably enough... I might... if there's any jargon or anything I
527 don't understand.

528
529 R: Well there's just one thing I wanted to say, which something you might not have
530 thought of. Where you're saying about taking away the expertise, or taking away
531 people's jobs, look at the flip side of it. How many people work in IT now, become IT
532 specialists. 30 years there was no IT specialists, but you've got a whole raft of an
533 army of people who can develop networks, how PC expertise can develop program
534 languages, can write applications, so you've deskilled people and taken people out of
535 the job market but you've got a whole new and more technical, more knowledgeable
536 army of people working in IT.

537
538 B: So you've created a new industry if you like?

539
540 R: Correct. So that's the flip side of it. So that I would see as the upside. And you can
541 use those skills anywhere in the world because it's so... communication is so much
542 greater now, with internet, mobile phones and all of that, so you can use those skills
543 anywhere. So that's the flip side and counter argument if you like than from what
544 your brief [respondent points to my research brief on table].

545
546 B: No, that's good, I can see that.

547
548 R: Don't take the negative, look at the positives as well.

549
550 B: Yeah, I can see how that works. Ok, excellent, I will stop this.
551
552 **End of Interview**
553

1
2 **Appendix 7b - Interview Transcript 7b: The Systems Analyst**
3

4 Key

5 B: Brian

6 R: Respondent

7
8 B: Right then, we're on.

9
10 R: Ok.

11
12 B: I suppose just really what's new and what's happened? Has there been any recent
13 developments at work or what you've been up to recently at work? Has there been any
14 sort of developments in the systems you've been maintaining in the work place or
15 whether you've had any new systems come about or just generally what...

16
17 R: Yes, in the last twelve months, it's been quite a transitional phase, as I mentioned
18 in general. The last we had the interview the industry was booming, there was a lot of
19 money to spend, we were making lots of profits, so we weren't too worried about the
20 IT manager spending money, upgrading the IT infrastructure, like when you get the
21 benefits of the new technology, and things have sort of gone full circle, the plant was
22 working overtime and we could sell as many transmissions we could produce we
23 could produce, in fact we were sort of slipping on production, and had to airfreight
24 transmissions over to the assembly plants up until August and then they all sort have
25 dropped off dramatically (cannot hear) commercial vehicles which we supply and
26 now suddenly this year we're faced with short time working, so there's no production
27 on any Friday, up till the end of year. Because we've got too many surplus gearboxes,
28 and the car gear box production, is a lot slower, so we don't produce on the Friday
29 any more. And there's down weeks, when we don't produce anything at all. So in
30 terms of that, because the production's a third less, because of the recession, there's
31 less money to go around. So we're not making the profits that we were expecting, or
32 used to, so we've got to look internally at sort of spending less money. That goes
33 down into, you know, travel costs, you've got to have a really cast iron reason for
34 doing any travel, and any expenditure at all. It's authorised at different levels in the
35 company, where it was only authorised at one level. So where you might have some
36 projects to spend on, replacing all the printers, because they're becoming quite old,
37 they said we'll defer it for six months, we'll look at replacing some of the printers, not
38 all of the printers, before the end of the year. We'll see if the commercial side picks
39 up a little bit. Like this time last year I was planning for a big infrastructure upgrade, a
40 completely new network (cannot hear) the shop work area, and spending, I think its
41 about a hundred thousand pound. There will actually be no chance of that now. So
42 spending has been more or less frozen. There's only (cannot hear) that affects quality
43 production or safety. So the major projects have sort of dried up for the moment.

44
45 B: You were saying last year which is over a year ago now... that you had, there's a
46 new project. You said it was coming in. It was quite a big one; a new gear box was
47 being created.

48
49 R: That's right.
50

51 B: You said it was coming in two years. Is that coming in the next...

52

53 R: Yeah. That's seen as taking the company, you know, getting the company more
54 orders. So, fortunately that's an investment worth retaining, but to retain that
55 investment, less important investments have been frozen, to reserve funding for this
56 new transmission. That's on course, I think we're expecting it to be, get taken delivery
57 of the new machines (cannot hear) to produce the transmission this year. Starting to
58 arrive in the next few weeks, and then start to produce by the end of the year. That
59 will be something like four-hundred thousand transmissions, eventually. Maybe fifty
60 thousand next year. Then the year after 400,000. That's going to be the main project,
61 the product that the plant will produce.

62

63 B: And you said, you're obviously overseeing all the new P.Cs, new systems, looking
64 after the system maintenance if you like, of this new gear box project, or the new, the
65 new project or the next phase of this sort of thing. One of the things you said last time
66 is that systems are always brought in to try and make things more cost effective and
67 they usually do make things more cost effective and they usually or are often more
68 accurate, for example you use the example of the CAD, the draftsman's designs,
69 doing the designs and then you said you've got the computer aided design which is
70 doing it a lot quicker and you talked about simultaneous engineering where you said
71 someone could start on the first part of the car, at the same time the end guy could be
72 working on the end bit because the computer system could work out all the...

73

74 R: How it all fits together. You don't have to wait for a clay model and then design an
75 engine then design a car around it, you could be doing the same, you could be
76 designing the car at the time the engine is designed, and how it all couples together.
77 That's the sort of theory of it.

78

79 B: Then you said a lot of these new systems that have been introduced, sometimes
80 they don't always either get used or sometimes people just hate them. Or you said that
81 people like familiarity.

82

83 R: That's right, so if someone changes the software then they lose that familiarity. So
84 they feel a bit awkward, don't like it, and prefer to go back to the old way of working.
85 We see that when we upgrade face book or something like that, same in a commercial
86 environment do a few changes, looks unfamiliar, and people have got to think
87 differently. So people like small gradual changes, not big changes in technology,
88 because they feel detached from it, separate, and they have to start all over again. So
89 gradual change is the thing you want to do.

90

91 B: Why is it that people don't like some of these new systems on new technology?
92 For instance if I get a new mobile phone, or a new dvd player, I would be quite
93 excited about the prospect of using it, you know, like getting a toy at Christmas sort of
94 thing. So then why do you think it takes... Why do you think people like this, why are
95 they familiar with the systems they are using?

96

97 R: I think it's just a generation thing. It's a good answer to that, apart from people like
98 familiarity. It seems that the older you get, you said the old thing about being set in
99 your ways. My mother you know was in her eighties, struggled with new technology,
100 she can not get her head round it. So blocks it out, and tries to ignore it as much as

101 possible, whereas my son, who is seventeen, looks at a bit of new technology and tries
102 to get the benefits out of it, by trial and error, and practicing. So he has grown up with
103 gadgets and technology, and is familiar with them, and comfortable with them. But
104 my mother who has not grown up with that technology, sort of keeps it at arms length.
105 A lot of it depends on your frame of mind. Some people like gadgets, some people
106 don't. But I think it has got a lot to do with a generation thing, as you grow up with it
107 your more familiar with it, your more comfortable, your willing to give it a go, if you
108 haven't grown up with it you will keep it at arms length.

109
110 B: I can see people who have grown up.

111
112 R: Just to interrupt. I saw interesting example last weekend, I had to take an article of
113 clothing back to a shop, I think it was Peacocks. It's nothing to do with my job
114 obviously. But they had three assistants behind the counter. There was two seventeen
115 year olds, with the technology all working the till. There was a new employee, who
116 looked in her fifties. They was all three women. The fifty year old was being trained
117 up and she was very unfamiliar with the technology on the screen of working the till,
118 and doing a refund. So the seventeen year olds was teaching the fifty year old, how to
119 work a till. You could see she was a little bit uncomfortable with it, but the seventeen
120 year olds knew it. But obviously they had been there longer, but it just struck me as
121 being strange, that the seventeen year old was teaching the fifty year old, how to work
122 the till. And she was a bit uncomfortable with it, the older person was a little bit, she
123 was not as confident.

124
125 B: Do you get instances like that where you work as well?

126
127 R: All the time, yeah. You get the younger engineers, the people who have just come
128 out of university. Who are used to different software, having a more flexible
129 imagination, or more active brain power, who take to new technology, new software,
130 new hardware because their around it at home, in college and that, their much more
131 flexible. Whereas the more established engineers would be reluctant to take on, to
132 learn new technologies. You know, stick with the familiar stuff.

133
134 B: What is it that makes them say reluctant, to say embrace new, I mean get away
135 from the age aspect, which is really important, but come away from that, because one
136 of the examples that you used last time was not just to do with individuals, but also
137 groups of people, when you have the expense claim system, and you said you know,
138 this new expense claim system that previously you would just fill out a piece of paper,
139 and you go to the cashier, and they'd give you your expenses back. But now you have
140 to do it on the system, and you said that it took so long, that people are taking days or
141 weeks, before they suddenly realise that oh I haven't got my money back. In that
142 respect, that kind of change that's impacted on everyone and they're not used to... I
143 suppose they're not used to filling out the computer version of the...

144
145 R: From individual's point of view, filling out like, usually a piece of software on a
146 PC. So, you have got to find out how to use software. You have to get round the
147 security, you've got to get access to the system, and you've got to spend time
148 navigating your way round the screens, to get your money back at the end of the day.
149 Where as previously, they would just get a piece of paper, fill out the boxes, and sort
150 of write in the boxes, and hand it to the cashier. The benefits of the company are, with

151 having that technology, you can cut down on man power or employee power, you
152 know employee's elsewhere, because that can consolidate so much more those little
153 bits of paper electronically. It's so much better, instant feedback. So you save time
154 and effort in some areas, but the employee, the poor employee wants his money and it
155 takes him longer to obtain that money. If it's a piece of unfamiliar software, used
156 twice in a year, you know you have got to go through that learning curve each time
157 you use the system. So you might get a bit of resistance because of that, you know
158 instead of just filling out the boxes all in front of you. You have got to navigate your
159 way round streams and find exactly what you want. Some software can be badly
160 written, you know it doesn't work, or doesn't do exactly what you want it to do.

161
162 B: If it's badly written, in what way is it badly written, is it the software designers?

163
164 R: Yes it could be a bad layout on the screen, too many screens, not meaningful
165 enough, confusing, and maybe its not really what you want to do, so its something
166 your trying to do with a piece of software, that wasn't really designed for what where
167 trying to make it work for.

168
169 B: So how do people get used to... how do they become familiar with the software, if
170 they just keep using it?

171
172 R: I think so, just with familiarity. You've got to use it more often. With some CAD
173 packages which had a three week sort of training course for, if you don't start using it
174 immediately, because its so complex if you don't start using it immediately and using
175 it often, you forget about it, and they have to struggle to get back into it.

176
177 B: One of the interesting things you said last time was about the new systems
178 replacing some of the old systems, you said they kind of leapfrogged some of the
179 present systems, and you said some of the others just wither away and die. I am just
180 wondering how people sort of experience, as these new systems come in, why people
181 spend a fortune on a new system, and they stick it out there for people to use but
182 nobody uses it. Is that to do with the people not wanting to use it, or is that to do with
183 the new systems coming along...?

184
185 R: I think you've got to be pulled into using something because if you just told to use
186 such and such a system when your doing that, and then you get distracted with other
187 things, and if its not intuitive, its not easy to use, you've got to be drawn into using
188 software, you've got to have a little bit of knowledge, just to, if no one is showing
189 you, you've got to use it on your own, experience it, you've got to be pulled in and
190 sort of dragged into using it.

191
192 B: Are you forced to use it?

193
194 R: Not really, it's got to be persuasive, its got to be intuitive. So you're familiar with
195 how things work. You know a new window or a new pocket will come up, and you
196 can handle that, you give it the right responses. Things change. I mean you've touched
197 on something about why things change. I mean it's the technology that changes. So
198 you get like a new piece of hardware, or more powerful piece of hardware, that drives
199 the software to get better, or to get more powerful later on. So you come up with a
200 much faster machine that can handle the processing a lot faster, therefore you can do

201 more, you can write more, on the software side. And make it sort of computer systems
202 which was just like two colours on the screen, how they were replaced with modern
203 web-based systems, with pocket boxes, graphics, animation, things all going on the
204 screen. That's because the hardware technology has increased, so it's more processing
205 power and more facilities. That drives the change, over time. Maybe software is
206 driven by people wanting to sell. Think of the internet, if you make the appeal,
207 attractive appeal on the screen, something like face book or my space, you can pull
208 people in, and learn to use it. Because they like using it they can connect and talk to
209 their friends, and that drives the commercialism of it, you know, you put adverts on
210 the site, there are so many people are using it. That's away from my side, but you can
211 see how it drives it.

212
213 B: So if someone likes something. So I'm trying to imagine something on a screen...
214 People just as you said use it intuitively, just by, when I get my computer the first
215 thing I do, I just click in the corner, because that's where my web mail and my email
216 is when I go into work. Is that what you mean by sort of intuitively, you know...?

217
218 R: That's more familiarity than intuitive. I would say that intuitive is when your given
219 a new piece of software, or visiting a new web sight, and you suddenly know what to
220 expect. Whether its window based or web based, so you know if you hit the mouse
221 key, the right hand mouse key, you might get a help screen or something, or you seem
222 to know what to expect next. It is sort of familiar, you know with familiar menus. So
223 you don't have to go search around to find out what you need to do, its sort of, you
224 know there is a drop down there, I can use that drop down, I should be able to use that
225 drop down, to do this that or the other. That's more intuitive than familiarity where
226 you know, you know your mail is in the top right hand corner, that's what you do first
227 thing in the morning, when you power up your machine. So you're intuitive with the
228 new stuff to pull you into learning it, and being familiar with it.

229
230 B: Do you think when you get this new gear box, and you've got a team of all these
231 project managers and various people involved in this new project, and you're
232 overseeing the systems aspect of it. Do you reckon there is going to be issues or
233 problems with it then, either there will be a new web-based system that you have to
234 design for it or they've got new software problems, and they want you to create
235 something new, because of the new project. Do you think there will be times when, do
236 you think there will be problems, I guess with...?

237
238 R: Very much so because that's part of the installation. You would expect problems,
239 so you try to plan as much as possible using pilot applications, so you can identify
240 problems before you go with a big bang, sort of type of approach, you know, I think
241 your riding along you look, hoping that you have just put in a new system, and it
242 works first time. Although software companies and providers we will say, you know
243 we have got this system working, such and such a place, the environment might be
244 totally different, and peoples' expectations might be totally different, so yes, every
245 software project will have problems along the way. It would be different hard ware,
246 different operating systems, different people using it, and a different environment.

247
248 B: So is that because it's quite new, the new project?
249

250 R: Possibly yes. The (inaudible) circumstances really. The difference with this new
251 project is that mainly we've been office based before. But because there is an
252 opportunity to get more new machines to build this new gear box, all brand new
253 machines, like the previous machines that work on the shop floor, might be ten years
254 old, maybe even five years old. But the machine manufacturers, they have been
255 looking at the technologies, and they have incorporated new technologies in these new
256 machines. So they do so much more, and they are so much more computer based,
257 where as they might be more mechanically based, twenty years ago certainly, even
258 more like five years ago. So they are using all the new technology, so it will be a
259 completely different new machine, and do different things. So the engineers and the
260 people who operate the machines, have to get used to the new technology, and the
261 new IT, and software. Some of the people in the IT department, based in the plant,
262 would have to get familiar with some of this, so they'd have to plan, for all this new
263 technology. You might have different machine manufacturers; we have to link all
264 those machines together. And our task is to try to find out the performance of all these
265 different machines, and link them all together with a network. Once we've linked
266 them together with a hardware network, and extract the information from the
267 machines, and produce reports for management, and engineers, so they can see how
268 the machines are performing, so that's our task. Doing that is quite difficult and quite
269 expensive, because of all the different manufacturers and different software being
270 used.

271
272 B: So in a year or two when you're producing all these new gearboxes, would you see
273 a sort of settling down period, where things are pretty smooth?

274
275 R: Well you're looking at a year in advance doing all the work. I mean all the
276 planning work can take any amount time you like. They expect twelve months
277 planning, a very hectic six months, nine months of implementation, where you
278 actually make things work. Then people get familiar with the software and then it will
279 settle down. Then in another year I can imagine it to be fairly quiet. If the
280 implementation has been ok and your planning's been good, you haven't sort of
281 overlooked things. That plateau you know should be reached sooner rather than later,
282 then it's a matter of automating it and tidying up, and then people will run the software,
283 and use the software themselves. And it's just a matter of managing it and tinkering
284 with it, and then you have got lots of upgrades later on down the line, in two or three
285 years time. So that's the full cycle, like birth to death, the de-commissioning of it.

286
287 B: So in so many years time, then you will be doing another, there will be something
288 else moving along...

289
290 R: Well what we're anticipating is production at one level, and then in three years
291 time, if we get a different company that wants to buy the transmission, you might
292 have to increase the production by a hundred thousand, so they will need to look
293 where they want the extra capacity, how they're going to make the extra parts, and
294 gear boxes. So they might start buying different machines, and in five years time,
295 those machines will use different technology, some of them were probably different,
296 so you will have to get used to that software and hardware, and how we attach, the
297 different hardware and software, and operating systems to the old network. So you
298 start with a different set of problems, try to keep it in line.

299

300 B: So I suppose you've always got your hands full because you've always got new
301 projects which want new software or solutions to things. Just one other thing I wanted
302 to ask you about, I think you said last time that you did a lot of, you work a lot on
303 your computer, sending emails and communicating with people, and you said its not
304 only just sort of on site, but its also off site, so you said that your communicating with
305 people, I guess trying to solve problems, in Essex and also the US and Germany. Does
306 that cause any issues, what's that like? Sort of communicating with different people
307 externally, especially not just Essex, which is a couple of hundred miles away, but the
308 likes of Germany.

309
310 R: We have sort of communication problems, fortunately because it's like, it has been
311 like, an American company in the past, and the company language is English. Even
312 though, there are installations in France, Sweden, Germany, Slovakia, and the UK, the
313 company language is still English. So you find that the technical people know
314 English, but it can still be very difficult communicating. Email, phone, text messaging
315 we use. But sometimes you lose tone or inclination with those facilities; it is not like a
316 face to face meeting, where you can see the whites of their eyes, and the tone and
317 inclination. So it can be difficult, but it makes it so much easier, than twenty, thirty
318 years ago, where you had to deal with letters or the occasional phone call. So that's
319 why I spend a lot of time communicating with people. So you can standardise across
320 all these different countries and cultures, you can have a complete culture of how it
321 works and standardise. If we have a new plant in Slovakia, and we were trying to get
322 the best practices, of things that were done in Slovakia, and implement them, you
323 know for our new project.

324
325 B: So do you think it is ideally better if you could actually, obviously the sort of
326 language, you said, is English based, so it's not as much as much of an issue, but in
327 terms of being able to speak to them, see them face to face.

328
329 R: It's always better to see them face to face, and you build up a relationship so much
330 easier. So next time if you have met someone, you know and you have had a cup of
331 coffee with them or discussed the family, you sort of build up a relationship with
332 them. But if you are dealing with someone over the phone, you tend to just speak
333 business and that's over with, so you don't really build much of a relationship unless
334 your on the phone all of the time. I always find with a face to face meeting, the next
335 time you ring them up, the relationship is so much better, and their more willing to do
336 things. Some of the time you're trying to extract information, or find out information,
337 or need to know something, and you know, the other person will know it. But, you
338 know you need to get that information. That sounds like confrontation but it is not like
339 that. You might have a certain task, which you need to find out about, so you need
340 them to spend time telling you how to do it. If they have got all the deadlines or other
341 work to do, they will be reluctant to spend time with you. If you have had that face to
342 face meeting, their more likely to you know, sort of, give you the time.

343
344 B: Do you have people, all the time on site, do they have problems, can you go around
345 and see them?

346
347 R: Yes it is always better than picking up the phone, although you do tend to pick up
348 the phone, or email because it is quicker, and you can communicate with a number of

349 people who might be involved. Rather than walking out to see one person, then you
350 walk over to try to find the other person.

351

352 B: Yeah, because I email Lynda who is my colleague who has got an office opposite
353 mine. She's not always there, she is often teaching and doing other things, but
354 sometimes I email her, without even just sticking my head around the door and seeing
355 if she's there, and I can go and speak to her. I don't know really why that is but...

356

357 R: It's probably because fifty percent of the time she won't be in the office, and you
358 know if you send her a note she will pick it up eventually, so you will have your query
359 answered, eventually. But if it is possible to just walk across the corridor, and go to
360 the next room you are better doing it that way.

361

362 B: Also, it's a different kind of communication isn't it, to email.

363

364 R: You see another advantage of email, apart from you will get a response eventually.
365 Sometimes you want people to think about how their going to respond, so its horses
366 for courses really. If you want someone to think, you go to see someone in the next
367 room, they might give you a flip answer, because their doing some work and don't
368 really want to be disturbed. If you get a more thoughtful response, we send an email,
369 they respond when they can, benefiting their work load and you might get a better
370 response, so it really depends on what you want. And also by sending an email, you
371 can contact ten people, with that one communication, where as you might have to visit
372 ten people to get the response. But sometimes if I send out an email, and don't get a
373 response, I follow it up by a visit. Because people know you've sent them an email,
374 and they have not bothered to get round to answering it, they feel more obliged to
375 spend more time with you. So there is psychology there, so you have got to match it,
376 how you use your email, how you use your phone, and how you communicate with
377 people.

378

379 B: Yeah because when you turn up and obviously they have got to deal with you. But
380 its not the worst thing to not answer an email you know, you can just say I am really
381 busy, or I have got hundreds of emails, or I have just not seen it, or whatever.

382

383 R: In my position a lot of people don't like dealing with technology. There is the IT
384 guy, is he under pressure, I don't really know what he is talking about you know, he is
385 going to make me feel awkward. So feign you're busy or something.

386

387 B: that's great.

388

389

390 **End of Interview**

391

392

393

394

395

Appendix 8 - Interview Transcript 8: The Doctor

1
2
3
4 Key
5 B: Brian
6 R: Respondent
7
8
9 R: So you're health is alright yeah? Have you started or not?
10
11 B: Yes, I've started it.
12
13 R: Ok.
14
15 B: First of all to tell me a bit about what you do.
16
17 R: I'm a General Practitioner, looking after the people in this area.
18
19 B: Ok and if you describe the kind of community that you...
20
21 R: I mean we are in N1, Hoxton, Shoreditch area. We've got all sorts of age groups. I
22 think a lot of younger people are there because of the location. And they're multi-
23 ethnicity, different nationalities. Always different ethnicities have different health
24 problems, so that is how we tend to focus on their needs.
25
26 B: Right, have you always worked in this...
27
28 R: Yes always, 35 years.
29
30 B: In this area?
31
32 R: Yes.
33
34 B: Wow, and is that how long you've been a doctor for, a General Practitioner for, 35
35 years.
36
37 R: Yeah, 32 years, 33 years, here in the same practice.
38
39 B: So you qualified as a Doctor?
40
41 R: 1968.
42
43 B: 1968. And then you came to this practice here in Hoxton.
44
45 R: Yeah, yeah.
46
47 B: One of the things I wanted to find out more about was...
48
49 R: Is it about me or about the (points to the computer screen).
50

51 B: Well, it's both, it's both.
52
53 R: Not both. Should not be about doctor's personal things.
54
55 B: Well, it's about how you feel towards using some of the computer systems.
56
57 R: Yeah, those are ok things to ask, you know.
58
59 B: Because over the time you've been a Doctor you must have seen some changes.
60
61 R: Oh enormous changes, we never had a computer before. Over the last decade you
62 know.
63
64 B: And what kind of changes...
65
66 R: Well I find it is a great tool to record. Mostly recording and then noting, note
67 keeping. And then information. Gathering information when the information comes
68 you have all the ready made...
69
70 B: Right, so this system's called EMIS is it?
71
72 R: EMIS PC. It changes all the time. They are upgrading. At the moment we have
73 EMIS PCS it's called. And we have two premises, they are all linked, so I can go and
74 see them, so that's the advantage we have.
75
76 B: I see, and before you were using the system.
77
78 R: Everything was manual, was manual. I don't know how we were using it. It's too
79 much work for the receptionist also. Now I don't know how we used it I was thinking.
80 It's too much work for the receptionist also.
81
82 B: So did you have great big...
83
84 R: Well you seen them there.
85
86 B: Filing...
87
88 R: Files and files. And you have to get them out and keep them here. There's no way
89 you can look through in front of patients but here it's easier to retrieve information.
90 To record, to retrieve and to store. It's a very important tool really. That's what it's all
91 about.
92
93 B: So to report, retrieve and store information.
94
95 R: Record, store and retrieve. That is the most. And a lot of the results are directly
96 linked to the hospitals, they directly come.
97
98 B: So if you were to describe a typical...
99

100 R: Much better tool, tool. It's a tool really for a General Practitioner. Handwriting used
101 to be very bad from doctors, now you just type it on.
102
103 B: Do you just print it off do you?
104
105 R: Yes, you just type it or there's codes... you can get everything.
106
107 B: So, you describe it as a tool, does it assist you.
108
109 R: Yeah, in assisting better care for the patient ultimately. It's all tool to assist me to
110 assist the patient, that's all. It's as simple as that. There's no other function really.
111 There's no other function.
112
113 B: So if you were to describe a typical day when a patient comes in, would you look
114 them up on the system?
115
116 R: Yeah, you have information all ready, you know. What medication they're on.
117 Easy to access before which one I'm dealing with, you know, the patients past
118 conditions. It's a much help, good grasp, unless they come with a new problem. Their
119 past history, medications, what they're on, what they're allergic to. Sometimes you
120 put alerts. This patient needs something to be done, you know next visit, so you can
121 enter all those.
122
123 B: So when I come in you've got my...
124
125 R: Yeah, it's like this, (points to computer screen), you bring your file up. And you
126 wait until a new consultation starts. All new conditions are recorded. All new
127 medicines are recorded.
128
129 B: Right, and before...
130
131 R: Well it was difficult to retrieve. It was manual, you know, it was huge notes like
132 this (Doctor picks up a huge handful of paper files of notes/ letters all bundled
133 together), there's no way I could retrieve in front of the patient properly. If I want to
134 see a letter it's impossible to go through them, but here it's much easier. All the
135 information is scanned and stored.
136
137 B: So when you look back now. When you look back to 20 years ago before you
138 had...
139
140 R: Yes, much easier for me.
141
142 B: You described it as... you said you know, how did you ever cope.
143
144 R: We all say this. How do we cope without electricity, water in the past, that's how it
145 looks like. We coped. That is the system we have, there's still millions of people still
146 don't have computers in the world, there's a lot of doctors....
147
148 B: That's right yes.
149

150 R: ...in other countries but they are still coping. You have to cope, what can you do.
151 We had no privacy in the past but what can you do, one room we had. So you cope
152 with what you have. You do your best with what you have. Not every country can
153 afford all these computers, is it?
154
155 B: Of course yeah.
156
157 R: Most expensive tool to link up.
158
159 B: How do you find, when talking about coping, and things changing. How do you
160 find changes?
161
162 R: Change is always a problem when you're used to one system. To change over it
163 takes time, to set up, mind set, number one. Learning. You have to learn about it. It
164 takes time. It is a time process. First of all, you need to set your mind. Mind set to
165 change. Because this is what you need to change. From then, if you don't want to
166 change everything difficult, if you change then it becomes an easier transition.
167
168 B: Right, I see. Have you found you've ever had to have any tuition or courses or
169 anything?
170
171 R: Yeah, we have to go through them when somebody comes and trains you. And
172 then afterwards everybody can't train on everything, then you learn by your own, you
173 know, yourself. You open up every window to see what's there, that's how you learn.
174 Then you have dummy patients. You practice on them as well.
175
176 B: Oh so you have dummy ones.
177
178 R: Everybody has to do dummy patients. You're learning one task, so you have to
179 practice. Not on real patients. Every doctor, everybody has to go through changes,
180 everyone. It's like in the house. If we have computer you need to learn about it.
181
182 B: Do you ever find that this makes mistakes? (I point at the computer).
183
184 R: I don't know. Not the computer. Unless you know, like any other car, you know.
185 There are systems very not upgraded. A lot of systems going on still not up to speed.
186 All of those systems are like any other system. But if you want the most modern
187 sophisticated car, it costs money. So country should be able to afford. But this is ok;
188 we have what we have here. It's good. You go to another practice and they have
189 another system. For me, if I go into hospital to work today, I have to learn again.
190
191 B: Right I see. So if you went into a hospital.
192
193 R: You have to learn everything new. Everything, even if you are a locum in another
194 surgery you have to learn about this.
195
196 B: Oh I see.
197
198 R: Because they might not have exactly the same system.
199

200 B: It must be the same if a locum. I think the time before last I came you had a locum
201 here.
202
203 R: Yes, he learnt. He has to learn. If you have a new locum, the first day is a bazaar,
204 you know. But you need locums, you need time off, you will have sick doctors.
205 Locums are important. Unless it's a big practice, you know, ten doctors covering each
206 other, you know. A small practice like ours, we need a locum. Everyone picks up but
207 it takes time you know. Sometimes, if they've already worked with the same system
208 it's easier.
209
210 B: So I guess it's just getting used to.
211
212 R: No you must learn, not used to. You must learn, number one. You must put your
213 time in and learn about it correctly from somebody. And then just practice with it.
214
215 B: You got to keep practicing using it.
216
217 R: Sometimes locums struggle also. Sometimes I've asked locums to do something,
218 it's impossible, you know. So you ask everything somebody else.
219
220 B: And how do you find... Because all that's providing you with really, is
221 information isn't it? Does it help you with any sort of...
222
223 R: Well information. The internet is there. So if I have some query I can go into
224 internet and try and find for the patient. Sometimes I don't know everything you
225 know. We also have to learn from the textbook. There is, we have some dictionaries
226 and some guidance and all those things which are the guidelines. It's easier; it's a
227 good tool to have.
228
229 B: In comparison to some of the other people I've spoken to about using the computer
230 systems.
231
232 R: What in medical practices?
233
234 B: No, in other occupations. I think when I came the other week I told you about my
235 ear from flying. Because I interviewed an aeroplane pilot on using some of the
236 autopilot systems and things like that. And I guess similar to him, your system's quite
237 important because your job's very important, it's to do with people's health. And I
238 just wondered if it ever impacted on things like helping to diagnose people or...
239
240 R: Well it's a good tool to assist you, you know. The information is there so it's easier
241 to... You can just check the previous...everything.
242
243 B: To what extent do you think that actually helps with things like diagnosis and...
244
245 R: Not really, it doesn't make diagnosis. You have to make a diagnosis. Its like a pilot
246 also, he has to still be there, automatic pilot. You have to be in control, you know. I
247 don't think it will do mistakes. The computer will only do what you want it to do. It
248 won't do it automatically on its own. What you put is there.
249

250 B: So you're diagnosing and dealing with the patients.
251
252 R: Like a normal way. I don't even look at the computer when I'm diagnosing, I just
253 check you up and I just put information there.
254
255 B: So your just using it as a...
256
257 R: As a recorder, it's a recorder...
258
259 B: What do you think about... because I've seen a lot of these... this is something
260 different to the kind of system you're using but I've seen a lot of these online medical
261 systems where people go on. Self diagnosis and...
262
263 R: Well it depends; you have to look at how systems are designed. Some are designed
264 for medical patients, some are for professional people. They're good. They're very
265 useful, unless the patient who is looking at it is confused, make them more confusing
266 then... It's not easy just to learn. But you get fear; oh I got this I got this. The best is
267 personal. It gives some idea definitely. If it's just some condition, high potential, it's
268 just easier to look up for these are the. This is why I need to take medication. It gives
269 all the information, it's like a leaflet, you know. You can print out leaflets.
270
271 B: Some of these systems that I've seen recently. I think the way technology has
272 improved, and you know, people are finding new ways of getting diagnosed. I've
273 noticed things like NHS Direct has become quite big.
274
275 R: Direct means it's direct. You can ring them direct. NHS, National Service, nothing
276 else. That terminology should not baffle anything. It's somebody the other side,
277 professional person, sitting and you have query and they answer by phone. I give you
278 for example a patient who can't come here, they ring me, I give advice, the same
279 thing. You can do a lot of stuff. You don't have to physically see a patient. Many
280 things. They've got flu, you can assess, oh you've got flu and take something.
281
282 B: I always find they ask, they run through. Because I phoned them up about twelve
283 months ago and I was really ill in the night. I was being sick and whatever. And I
284 phoned them up and I found they went through a set of questions.
285
286 R: They're asking you what's your problem, number one. Where is it, how long it is?
287 If its heart and you can't breathe they'll advise you to call an ambulance. If it's a pain
288 in the foot they will say did you hurt yourself. They are relevant questions. They are
289 all trained to ask these questions. Depends on the other side of the person, how you
290 dealt with them.
291
292 B: Because you were talking about being face-to-face with the patient. Do you think
293 it's ultimately better to be...?
294
295 R: Not necessary. Some are face-to-face some are by phone. What am I going to do if
296 somebody wants to talk about their problems, face to face for what. It's only talking
297 and listening. Understanding, you know. Face to face for some things where you need
298 to examine you know. But psychologically people feel face to face is good. It's
299 psychological. Rather than need. Many people don't need it unless you are checking

300 the blood pressure and all the regular monitoring. Or you are coming for a blood form.
301 Many things can be done effectively without face to face. But it's psychological. The
302 effect will be there. They want to see me and talk to me. I say, my face, but I can talk
303 to you by phone. But somebody feel face to face.

304
305 B: So you think it's to do with the patient.

306
307 R: It's the patient, it's nothing to do with the condition. Conditions can be dealt with
308 by phone. Many conditions. Many conditions can be dealt with by phone. The
309 patient's important, the psychology of the patient. You have to convince them they
310 don't need, unless I'm going to go and do something, you know. There are conditions
311 where you need to go and do a physical assessment.

312
313 B: With all these new, internet systems. You know where you can go online and
314 check, where they ask you a number of questions.

315
316 R: Yeah... I don't know... maybe there might be some systems. Have you tried that?

317
318 B: I've been on there.

319
320 R: How do you find it yourself?

321
322 B: I find it quite frustrating sometimes, because you want to just...

323
324 R: Maybe not everybody. Some people find it useful. Very efficient. You see, it
325 depends upon the individual as well. Not everything is beneficial. Some people find it
326 when you telephone they're happy, where some people are not happy.

327
328 B: Because some of these things you go through and you get to the end after they've
329 asked you say twenty or thirty questions...

330
331 R: It's the same, no? When you come, I also ask you questions isn't it?

332
333 B: Yeah, yeah.

334
335 R: Because by questioning, it gives you. The same thing they put into the computer.

336
337 B: That's interesting. That's one of the things I wanted to ask. Do you think you could
338 take your knowledge and you could actually put that into...?

339
340 R: I suppose that's what they were doing. So many things are like that year. Right or
341 wrong, even I could be wrong when I examine a patient. A lot of doctors can be
342 wrong. Things can go wrong.

343
344 B: What, make a misdiagnosis or?

345
346 R: No, human error. A lot of people make the wrong diagnosis. It happens all over the
347 world.

348

349 B: Do you think if you were to do that, do you think it would be as good. If I was to
350 come along, if I was a computer programmer, for instance, and I asked you how you
351 diagnosed...

352
353 R: Yeah, we can tell that, yeah. How we diagnose appendicitis. You can tell that,
354 yeah. First of all you have to have pain or a fever, unwell, in this area. And when you
355 examine your temperature, your blood count is high, tender, these are the things.
356 These are the things; basically they put that down on the computer. That's the only
357 way. Only doctors can put that diagnosis, nobody else. So medical people only know
358 those questions and answers and then obviously somebody will assist them,
359 programmers and all this. Ultimately a medical person has to be involved in that
360 programming.

361
362 B: So you could actually produce a system to do your job.

363
364 R: Yeah, I'm sure some conditions can be done. Atypical, you know.

365
366 B: Do you think in the future...

367
368 R: Future... anything can happen.

369
370 B: Anything can happen but do you think there will be an increased reliance on
371 informational systems and to help with diagnosis and...

372
373 R: No, I said as long as you use it as a tool. It can't replace your brain, or experience,
374 it can't. It's a tool, it's a recording tool. Record, and store and retrieve. That's it, three
375 things, three R's.

376
377 B: And they are always changing these, they are always updating them, are they?

378
379 R: Yeah, yeah, we've got, I think two systems. They have to upgrade them, like any
380 other computer. Their capacity to be upgraded, their ability to more spread, you know,
381 they add other values to calculate. Are you into IT or what, your subjects?

382
383 B: Yeah, but really from the person's perspective, rather than...

384
385 R: No, no, no, this on is on for what behalf are you doing. There must be a subject? Is
386 it IT systems or...?

387
388 B: Oh yeah, it's looking at human expertise and computer systems and how computer
389 systems assist.

390
391 R: They do, they do...

392
393 B: Human expertise.

394
395 R: Correct, yeah. Simple as that. Assisting, assistance.

396
397 B: Because a lot of the computer guys are pushing...

398

399 R: Yeah, yeah they do.

400
401 B: But a lot of them are pushing the idea...

402
403 R: You know, I mean when I came, we started; I've seen so many systems. Some are
404 so slow and very bad, you couldn't use a tool. Like a car you know. You have a
405 starting motor problem. To have this kind of system you need money my friend
406 there's no other way. Billions and billions they have spent on these computer systems
407 and there's all links to every hospital, you can book appointments by the computer
408 from here without... but it costs money isn't it. Everybody would like to do it in the
409 world but which countries can afford this, you know. This country is very bankrupt
410 because of this. Overspending on NHS. Which country doesn't want to be like this,
411 you tell me? But which country could afford to be like this? Nobody, nobody in the
412 world can afford to be like this, not even Europe. Anywhere in the world. Forget
413 about other... they not have basic amenities. For example now, in India there's
414 elections going on from tomorrow. One billion people voting. Can you believe what
415 kind of system they must have? Now they can use electronic counting. You go in and
416 put on electronic machine, but people when you invent a system you have to explain
417 to them. So many uneducated people, so many blind people can vote also, now they
418 developed all this. Before they didn't have electric, everything is manual, you know.
419 They used to wrong counting, or wrong marks. They used to do paper counting. Can
420 you believe, millions of people sitting and counting one billion people in the election?
421 Now it's electronic when you put there it's already counted. So that is another tool
422 they added since last two elections. Now they included it for blind people, you know
423 brail system and all that. So this is evolution like that, you know. Now I want really,
424 to be honest, I need anatomy pictures so that I can explain to the patients, you know,
425 but I don't have it yet. So I want everything to be there. Pictures, drawings. I don't
426 want to write it I want to draw pictures and then tick my findings which I used to do
427 in my manual record. I used to draw an abdomen here and then these are the points
428 you have. Its was so easy for me. Now I have to write everything you know. So they
429 don't have that capacity, so that is something which is very important I feel. To show
430 a patient, one picture is enough than a hundred words.

431
432 B: Yeah, like some of these. (I point to the diagrams of human organs on the wall).

433
434 R: See like that I show, it's easier, you know. Same things is not there, we don't have
435 that capacity (he points to the computer again), you know, or I want to draw a picture
436 for my record, you know, its not there.

437
438 B: So it was very different before when you...

439
440 R: Yeah, I think that one was good for me. If I wanted to draw injuries, if I draw a
441 face, you got injuries, I can record it, I don't need to write it, he's got this side injury,
442 he's got this much. I found that was very good, that way.

443
444 B: Oh so that's how you actually record information, you draw...

445
446 R: For me. A lot of doctors write. For me it's easier. Draw a face and point out the
447 injuries ... explain that...

448

449 B: But now you've got to...

450

451 R: Now I've got to type it.

452

453 B: Word by word.

454

455 R: But some doctors don't draw pictures, they write, you see, but I prefer pictures.

456 Even to explain. I'll show them, they understood very easily rather than me talking

457 about that and that, you know. So these I needed, I mean computers like this. Much

458 easier you know, for the patient and for me much easier, I feel satisfied that I'm

459 showing this is what's happening. It's understood, very clear. Maybe some countries

460 maybe used to have. I don't think we have it.

461

462 B: But you think that would benefit you're...

463

464

465 R: I think so, very much

466

467 B: And that would help you with what you do.

468

469 R: No, for the patient mostly, I'm talking about the patients benefit. So, that is another

470 thing. Operations you know, you can show everything there, you know. This is what

471 they do; this is how they'll operate on your heart. I'm sure we can show on normal

472 pages. Books you can see real anatomy. Pop up anatomy. Reading anatomy. It's much

473 easier for a child to explain... it's the same thing, it is also part...

474

475 B: Yeah. That's interesting.

476

477 R: So we don't have this here you know, these systems, so there's a lot to develop a

478 lot.

479

480 B: Yeah, I suppose...

481

482 R: But I don't know how some doctors, how are they surviving with very poor

483 capacity computers. There's so many poor ones out there. I wouldn't be able to

484 operate myself. Like a car, you know. You have a new faster car, or a slower car.

485

486 B: They're using a lot of medical... Surgeons are using a lot of technology now don't

487 they to do surgery.

488

489 R: Am not sure, I think so, like an aeroplane you can see flying. You don't have to fly

490 an aeroplane you can do it in a module.

491

492 B: That's very interesting... very good... ok.

493

494 R: It's really privileged to use computers, not everybody can afford, number one. It's

495 a really privileged health service. Its one of the important revolutions.

496

497 B: Yeah, I guess when the...

498

499 R: Can you believe whole countries linked. We have yet to develop everything now.
500 My information, your information should be in some other surgery also. While if you
501 go to hospital they should have some link. Night time doctors should have
502 information. I'm telling you, it costs money, nothing more. Technically it's possible,
503 it is money.
504
505 B: So it is not linked at the moment.
506
507 R: Not all linked, it is impossible to link all of them. It takes years and years. I don't
508 think you will see now. I don't think with the cuts you see now. I don't think they will
509 start a computer system now with the financial... Its all money isn't it. Nothing more.
510 Same in our own household only, you can have a computer if you've got money or
511 what would you buy....
512
513 B: That's right, and the more money the better computer you can buy.
514
515 R: And if you have money you can say oh I want to link up to my son, my daughter.
516 It's the same thing if you've got money. I mean some people cannot even buy a
517 computer for your own children, its impossible. Luckily in this country, libraries and
518 everything is...
519
520 B: Yeah I see.
521
522 R: So everything is economy. First willingness and economy, nothing more.
523
524 B: It's interesting you saying about other countries.
525
526 R: Billions of countries, billions of people, that don't have this. Six billion in the
527 world. How many people in the world have this access? They are lucky to see a
528 doctor. That's why nature heals everybody. They take from the leaf, this leaf, that
529 leaf. They eat as medicine, like animals. In the forest, the monkeys go and take some
530 leaf and cure themselves. We are all like that. Herbal medicine has been going on for
531 ten thousand years. But they are all healing themselves. There are so many different
532 healing systems. It's not the only one, so I've got a computer, I can heal everybody.
533 It's because we are practicing this kind of medicine so we have to adopt this. If I'm a
534 Chinese herbalist I will not be talking about this at all. I'll give him herbs because
535 that's the knowledge I have, this is the belief I have.
536
537 B: So you see it as practicing a particular westernised version.
538
539 R: Yes, Western nothing more. Western means economy, nothing more. Economy
540 means, well off (laughter).
541
542 B: Yeah, so in other places in the world you...
543
544 R: (Cannot hear) India nowadays I think they all have computers because they have
545 IT... Not all, but some private hospitals they all have.
546
547 B: Right I see.
548

549 R: But not this scale, not like a national scale.

550

551 B: So we are very lucky.

552

553 R: Oh I think so, very lucky, people don't appreciate what... I tell some people and
554 they moan and groan. Go and see somewhere else and come back. That's what I feel,
555 my impression.

556

557 B: That's very interesting, I'll stop it.

558

559 R: Ok, I hope it's useful.

560

561 B: Yeah...

562

563 **End of Interview**

564

565

566

567

568

569

570

571

Appendix 9 - Interview Transcript 9: The School Teacher

Key

B = Brian

R = Respondent

B: Yeah, so, I suppose if we imagine we've not met before. So if you tell me you're job title and what you do in school.

R: Well, I suppose how I got here might be quite an interesting sort of thing.

B: That would be good yeah.

R: Well, originally, and of course you'll remember that. I just came here as a biology teacher. Well Head of Biology. Well that's because we only had one biology teacher so it was easy to be head of biology then. And then after a year I became Head of Year. The school structure changed a little bit. And I did that for years, fourteen years or something like that, doing the two jobs.

B: So biology and Head of Year?

R: Head of Year, yeah. I think the head of year was quite difficult because biology then was a very big department in the school and we had lots of people doing A-Level. It was over subscribed in year 10 and 11. And it took a lot of stuff. I mean we had big classes didn't we then? We had more A-Level kids, now than we do in year 10, so the two jobs together were quite demanding. And I'll say this because I'll say it as if we haven't met and because it's confidential obviously, I was having problems at home as well at the time. And all this stuff was too much. In the end it just got to be too much and I was off ill then. I really just couldn't take it any more then. So I was off for about three or four months and I wasn't sure if I could come back to school at all. And in the last year or two when I was doing the two jobs, we was running the Silent Work Area. But we were running it in a sort of ad hoc thing where different teachers took it, whoever was free, and to be perfectly honest it was chaotic because every teacher had different standards. Kids worked on paper. When people took over, kids used to tell them they hadn't done this or they'd done that, it was just a mess. Really, it was a joke. So I wanted to come back to work but I wasn't sure what role I could fulfil. I knew I couldn't do both those jobs again. So I suggested to Mr Baker (headteacher) that I might take control of the Silent Work Area, and he said 'no' to begin with. So I said 'well I can't come back to do what I was doing, so I'm just going to stay off until I feel I can come back'. And then after a couple of weeks he came and said that he'd thought about it and he thought it was probably a very good idea. I think things were discussed in school and so on. So I came back then and started it as it is now, which is totally different to the way it worked then. I mean I could see that it needed, it needed stability and it needed somebody who had a place in the school. It's really difficult to explain. Because I've been here a long time, because kids remembered I was Head of Year, I just seemed to have some sort of hold. So when they came in they knew. It wasn't like it was just somebody, you know, that they didn't know in there. So it made it easy for me to lay down certain parameters in there

51 that I keep to. And strangely, even though like I feel now, I don't think I could go
52 back to teaching in the classroom. The control that I've got in there – it's my little
53 domain, and I feel totally in control in there. And because of that, I think it comes
54 across to the kids. You know, when they come in there, that they're in my world now
55 and they have to behave in the way I say so. So although it was a job I sort of created,
56 it's evolved as well. You know when I first came back I sort of carried on as I was.
57 And then I started to see things I could do to help. Not only to help the kids but to
58 help the Year Heads. Because I knew how much pressure they were under, because
59 they were all doing the same. They were doing the teaching jobs as well, trying to
60 keep plates spinning all over the place. And there's no time for them to do what they
61 should be doing. So I tried then to take away what I could, some of the pressure they
62 were under. I mean I hope they don't think I've undermined them. I mean, I'm sure
63 they'll tell me if I did. But things like reports, which is just a pain. You know if you're
64 a Year Head and you're trying to see people and you're trying to do stuff at the end of
65 the day and kids are coming with reports and you can't keep track, it's easy for me
66 because I'm in one place. Kids bring their reports to me. I keep track of whether
67 they've got them, whether they're good. Talk to the kids about what they've done.
68 You know, why they can't come off, why they have to stay on. And it just takes that
69 pressure off them. But they're all things I didn't do at the beginning that gradually
70 I've built up. I mean the same with the work. When I first started I did exactly the
71 same I did when there was loads of different teachers in there, copying. You know,
72 just whatever books were handy, they just copied it out. But of course, gradually then,
73 I started to find out what topics people are doing in different subjects. Go round and
74 catch books and worksheets from people, find out what's going on in lessons. Staff
75 have been great. You know, they just give you things. They're not sort of tight over
76 things. They say 'of course yeah, I've got a worksheet on that...' So instead now of
77 just copying, they are more doing work related to what they should be doing if they
78 were in the class. That's one of the ways the IT stuff came in as well, because now
79 I've got everybody's timetable on computer, I can look up what they are doing, which
80 teachers they've got, which set they're in. If they don't know the kid, I can look up on
81 the staff share drive, the SEM stuff, what level they're at, so I'm not giving them
82 things that they can't do or things that are too easy for them. So that's one aspect of
83 the IT that's been really, really valuable to me, I can look it up on the Internet
84 (whispers). You know, I've got kids doing French, technology, History, all sorts you
85 know. Somebody was doing PE the other day. What colour are the Olympic rings?
86 What order do they go? I went 'I don't know'. I said I know they're coloured for the
87 continents but I haven't got a clue what order they are in. We'll look it up on the
88 computer. So having that there means I'm not infallible. You know, I say to kids, I
89 haven't got a clue but I'll look it up for you. You know, we'll see if we can do it. I
90 mean it's just like if they ask you if you can spell something and I don't know how to
91 spell it, we'll just go and get a dictionary. It's just using a computer in exactly the
92 same way. So that's been really good having that in there now. So the whole role in
93 there has just completely changed. It's become much more pastoral and supportive
94 rather than just disciplinary, although that side of it is still there. And like if kids are
95 really, really dreadful when they come in I will still give them stuff to just write out
96 because sometimes they need to just do that to calm down, and just get back onto
97 track. I mean, when you came in did you see I had the rules. Did you see I have a
98 sheet of rules?

99
100 B: Were they highlighted?

101

102 R: No, it's a printed thing with the aims of the Silent Work Area. Aim One and Aim
103 Two. You know because we're still thingy with all the aims and objectives. So you
104 know, so to improve my behaviour. To understand that my behaviour is my own
105 responsibility. And there's like two little paragraphs that they write about how their
106 work should be done and that they have to be respectful and get on nicely, otherwise
107 they won't be able to go out. But that's there really as a calm down more than
108 anything. I mean some kids have written this out so many times like because they've
109 been in the silent work area. 'Do I have to do it again?', 'Yeah'. Because when they
110 come in and they are all mmm. They sit down with their book right away. And those
111 rules, by the time they're written those out, I've checked up all what their up to in
112 their lessons, they're much calmer. I go and mark it. We talk about it being nice and
113 what have you. Everything is so much easier and so much calmer. And that's another
114 thing, they all have their books, they don't work on paper so they can see the work
115 that they've done before. They know where they're up to. They come back in again, I
116 look and see what you were doing last time you were here.

117

118 B: (Cough). So they pick up the same, their own book?

119

120 R: Oh yeah, yeah. And that book is always there and it is checked. You know when
121 they do their work, I don't mark a great deal. I mark the rules just because it looks...
122 because I think they think that's the way it should be done. They get feedback right
123 away. You know if they've finished a piece of work and I go and look at it. Then I say
124 oh that's nice, but you've done this and you shouldn't have done that or... you know,
125 you've got to do your sentences or whatever, but if you look at the walls. The other
126 thing is, is that there's feedback because there's kids work on the walls. Now we'd
127 have never have done that in the old days, you know, 'when you change the walls
128 miss, will you put that up for us on the wall'. And that's what they do, and they take
129 pride in their work even in the Silent Work Area which is what I want. Well you
130 know how fussy I am about written work and things being nice and that, but it gives
131 them a certain level that they've got to keep to, I think in there. I mean the other thing
132 is not losing your temper. That's the biggest thing. I mean I don't know whether I
133 used to lose my temper a lot in class or not, I can't remember now, but I seem to have
134 lost it all together now, as in lost it. You know, it takes a tremendous amount to make
135 me rout now. Even when they come in and say the most ridiculous things, you can
136 just sort of shrug your shoulders. I suppose I don't take it personally anymore,
137 whereas sometimes you do.

138

139 B: Is that better to manage the kids?

140

141 R: Yeah, I think so, yeah. I mean I'm in charge of the student teachers as well now.
142 And I say that to them. You know, it does you no good as a teacher to lose your
143 temper. It's ok to pretend you've lost your temper occasionally. But when you really
144 have, you feel awful. So it's better if you can keep your temper. And I know
145 sometimes it sounds a bit like your pandering to the kids, but there's more than one
146 way to skin a cat. Sometimes the kids that come in the SWA (Silent Work Area) are
147 really upset or angry or they feel badly done to, as well as the fact they've usually
148 done something they shouldn't have done, but I think if you're calm, and you don't
149 rise to the bate, it diffuses the situation instead of exacerbating it. And then they calm
150 down generally speaking. I mean not always, it would be perfect if they always did,

151 but it's not perfect by a long shot, but they do. Loads of them just calm down,
152 eventually. And because they know the system, you know sort of, you can say to them
153 (respondent whispers gently) 'If you do that you know I'm going to have to send you
154 home, it's going to be six lessons in the Silent Work Area, it's much better just to do
155 half an hour now, think about it for a few minutes'. But you can't confront them, you
156 can't say (respondent raises her voice): 'Right you've got five minutes to think about
157 this now, and if you don't do what I say'. That wouldn't work any more than it does
158 in the classroom, because then they've got you. You've risen to the bait and you've
159 lost. I think that if you rise to the bait you've lost. I feel like that, if I've really lost my
160 temper or if I got really upset or worked up, then I haven't done what I intended to do,
161 I haven't done what I set out to do in the first place.

162
163 B: How does the... My assumption is that other schools have other things... Well the
164 things like the silent work area, and I'm assuming this because I've not been to other
165 schools but I'm thinking that things like the Silent Work Area is something which is
166 suited to this particular school. So if you were to describe the school. Because
167 assuming that... like, I could describe it, but I'd rather you describe it for me in your
168 own terms. How would you describe the school? How would you describe how things
169 like the Silent Work Area fit with the type of...?

170
171 R: Yeah, I know what you mean. I think it fits because it came from the school. It's
172 not an imposed system. When it was first envisaged with the whole system with the
173 one, two, three and everything, it was done very democratically with a collection of
174 staff from all spheres. From Dave Edwards who was the Senior Pastoral member of
175 staff down to the NQT's (Newly Qualified Teachers), and we went round and pinched
176 stuff from other schools. We had visiting speakers, people went round and looked at
177 things, we looked at our own systems, before we came up with this.

178
179 B: So sorry the one, two three is?

180
181 R: Part of the Silent Work Area system. It's how kids get sent to the Silent Work
182 Area.

183
184 B: Oh, so they have like three life lines?

185
186 R: In class yes, the staff have one, two, three on the board. So if somebody
187 misbehaves. I mean theoretically, and the way it was built up was a behaviour
188 management system, so the emphasis was on the child, modifying their behaviour,
189 rather than the teacher just imposing what happened. So I'll tell you how it is intended
190 to work, but I can say I've been in classrooms it doesn't work like that. It's intended
191 to give a sort of base line, so it wouldn't matter if you misbehaved for Richard Baker
192 or the student teacher who started yesterday, the consequences would still be the
193 same, because I think what we had was a hierarchy of staff where some staff didn't
194 need to go mad. You know this yourself, they just have their own discipline and some
195 people really struggled. And what we wanted to do is make it so that everyone had
196 something the same that they could use. Doesn't mean that you can't have your own
197 classroom discipline, but that there's a level that everyone can rely on. And a back up
198 that everyone knows is there for themselves. So the one, two three thing is if
199 somebody's in your class and they're not doing what you want or they're doing
200 something you don't want, the idea is that you go up to them and say (she whispers)

201 'oh look, I've asked you to do such a thing and you're not doing it, don't make me put
202 you on a one', rather than, as you go around and see teachers standing at the front and
203 saying (she raises her tone of voice) 'And you, you're on a one!' .That's not the way
204 it's supposed to be done but people are different and so they use it differently, but the
205 idea really is then to go away and leave the child. Not stand over them. Confrontation
206 again, out of the window. You know, just say 'Don't make me do it, don't'. Then go
207 away, come back and if they're doing what you want you say, 'Thanks that's better',
208 if they're not you say 'Look what you've made me do now, I asked you, but now I've
209 got to put you on a One', and you put them on a One, and if they're still not doing it
210 you do the same thing again. But if they start to work you see, it's a bit like snakes
211 and ladders. You can say to the kids, 'You're doing great now, am rubbing you off'.
212 That is the way it should be used. You know, if they get up to a Three, then they have
213 to have a detention which is done with me. The teacher gives them a letter, the teacher
214 puts their name in my log, and they have to do the detention with me. That takes the
215 pressure off the teacher as well, and it's all recorded then on Andy and Mick's
216 wonderful system which I'll say about afterwards if you want. But if they go past a
217 three and they are still disrupting then they get an exit. So, the teacher who is on
218 response comes to collect the child, brings them to the Silent Work Area and if its
219 their first exit they have to six lessons and a building detention in the Silent Work
220 Area, and their parents are informed which is another reason it works well in this area
221 is because the parents know the system. The kids know the system, they come to me
222 and say... you know, they've been exited in the afternoon 'Oh that's four I owe you
223 tomorrow then miss, isn't it?' I say 'Yeah', and 'Detention tomorrow?' I say 'Yeah',
224 'Can I do it tonight?' Well loads of them say that. Can I do it tonight to get it out of
225 the way. Of course you can because I'm there every night. But they know the system.
226 They know it just as well as we do. Unfortunately sometimes they're a bit like barrack
227 room lawyer, you know if its not been applied properly, they are the first to tell me,
228 you know, 'but I was only on a Two, I was only on a Two!'...

229
230 B: (loud laughter). They're saying the teacher hasn't counted it properly?

231
232 R: Yeah, we've had student teachers who've had kids say to them 'Oh it goes up to
233 six you know'. No, no, no. But you know, they know the system, the parents know the
234 system. If they get an exit letter they know what's happened, you know. And the
235 letter's sort of saying 'If you want to talk about it ring your form tutor'. The second
236 exit letter says, 'if you want to talk about it ring your Head of Year'. If it's a third exit
237 in a year, the kid's parents have to come up and see the year head. And they talk
238 through the three exits, because if somebody exits a child they have to write a report
239 on it. You know, what the interventions were at each stage, what the final straw was.

240
241 B: So you have to kind of record that information?

242
243 R: Oh yeah. At the moment we record it on paper but we are encouraging everybody
244 to record it on the system now, because we've got space now. They've just put a kind
245 of drop down thing for exit reports, so we're asking for as many people as possible to
246 record it on there, because we do end up with a bit of a paper trail where people are
247 looking for the exits. They come to me, then they go to the Year Heads, then they
248 don't know where they've gone in between or whatever so the teacher's done the exit
249 reports. So if you're a Year Head, and you've got somebody coming up for a third
250 exit interview you've got three reports there so it gets over that 'oh well it's a certain

251 teacher whose picking on our'. We've got three exit reports here probably from three
252 different teachers, and this is what's happening. And like when you read them out, it's
253 great because the parents are saying 'you didn't tell me that bit of it, you didn't tell
254 me that bit of it'. And the kids haven't really got a leg to stand on then. But it's all
255 there, for them to look at. If it's four exits they have to see Mrs Parry. It sorts of
256 escalates upwards like that.

257
258 B: So what's Mrs Parry...?

259
260 R: Assistant Head Student Services. Pastoral in other words, but... so she's like the
261 next step in the ladder. So they've gone from not seeing anybody to seeing the year
262 heads to seeing Denise (Parry). If they get five exits they have to see Richard.

263
264 B: The Head Teacher.

265
266 R: Yes, so an interview has to take place. They look at all the reports. They're on a
267 report booklet then. Those little booklets you see with the kids, and they have to stay
268 on those for four weeks. Not just for any old weeks. Four good weeks and they have
269 to bring those to me to check every night to discuss what's been going on differently.
270 If it's six exits it's Richard and a member of the governing body, so it's getting really
271 serious then. When the system was first started, seven exits was expelled as it was in
272 those days, but it's no longer the case. I mean permanently excluded but it's the very,
273 very last resort. I mean up to then we've tried everything, seeing the school
274 counsellor, going to units off site for half a term to try and modify their behaviour,
275 giving extra help in any way possible. We see it as a real failure if a kid is on a
276 seventh exit. It's not a case of 'Oh yeah, we've got rid of'. We just think what are
277 going to do now. There's nothing left we can try, you know, when we've exhausted
278 every possibility that's when we have to say we've done what we can.

279
280 B: So how many is it now when it gets to that sort of situation?

281
282 R: I can't remember it ever being more than two in a year. Because another thing is,
283 just like with the rubbing off on the board of the one, two, threes, the exits get rubbed
284 off as well. When a child is exited, I put it in my diary for four weeks from that day,
285 and if they've been better, not perfect, better. You know, if they haven't had another
286 exit, (*loud school bell rings in background*) if they've not had loads of detentions, if
287 they haven't been to me all the time. If their attendance has been good then the exit
288 gets wiped off, and a letter goes home saying that we are delighted to say that after a
289 period of prolonged improved behaviour, they've lost an exit. I mean we've had kids
290 on four or five exits mid-year who've finished the year on none. Because they've
291 suddenly clicked that it's not a good idea. And they like the letters. I mean, the other
292 thing about kids saying to me I owe you so many lessons and I owe you this, they'll
293 also come to me and say 'when's my date?' 'Am I ready to come off yet miss?'
294 They'll hassle me on the Friday or whatever day and then they'll come on the Friday
295 and say 'have I, have I?' you know. (Cannot hear) take it home. Because loads of
296 them get praise or reward or something for taking a recovery letter home. So that's the
297 nice part of my job that where people have lost exits and go down, so it is very few. I
298 have to say this year, probably, we are in danger of it being the most, and it is Year 9
299 that are so unsettled because they don't know where they're going. I mean their
300 hormones are all over the shop anyway. Year 9 are always difficult and all of a sudden

301 they find that the school is being closed in three years and they know pretty well that
302 they're not going to be there. They don't know where they're going. They don't know
303 what options they're going to be offered. They don't know whether they're going to
304 be victimised by the other kids at the other schools. It's just horrible, absolutely
305 horrible, I feel so sorry for them.

306
307 B: So this is because of the plans to close the school?

308
309 R: Closed yes.

310
311 B: If you were to describe, obviously for the tape, what's happening with the school
312 closure and why they are planning to close the school, or why you think they are
313 planning the school?

314
315 R: Yeah. Numbers. Its all demographics. There are not as many children in Croxteth
316 as there were. There are three secondary schools, there are not enough people to fill
317 the places in the secondary schools so their idea is to keep the two catholic single sex
318 schools open and close the only non faith not single sex school in the area. So to me
319 it's absolutely mad, partly because I've certainly got no catholic faith or any kind of
320 faith, of that kind to me. If I was a parent in this area I would just be distraught, at the
321 thought of sending somebody to either of those schools. The other thing is putting all
322 our boys together with the Del La Sal boys in an area where there are already gangs
323 and sort of sectarian conflict, if you want to put it that way, just seems to me a recipe
324 for absolute disaster. Go to Fazakerly, it's a nice school, it looks like a nice school,
325 it's all just been re-built but it's too far away, it's not our community. So I think that's
326 really disturbing the kids.

327
328 *(Somebody walks into the classroom)*

329
330 Male Teacher: Sorry to interrupt, is Alma around?

331
332 R: In the Silent Work Area.

333
334 *(Male Teacher leaves)*

335
336 R: So this is the situation our kids are in. Do they go single sex? Do they go to the
337 Catholic Schools? Do they go far away to Fazakerly? Some of them are even looking
338 at things further away than that and some of them are saying they aren't going to go to
339 schools at all.

340
341 B: What kind of significance does that involve do you think. The fact that they're
342 saying the schools not in our community, it's further away. What kind of?

343
344 R: I think this school's just a focus for the community, with the Communiversity, with
345 the Skills Centre at the back there. People just feel as if it's their school. They come
346 here. Parents can come here. They can come in, they can speak to the teachers, there's
347 an atmosphere of people who know the area, know the kids, know what's going on. I
348 just feel that they are going to think that they're going somewhere that doesn't care
349 about them. This school cares about the kids, the parents, the community, about
350 what's going on in this area, and they're just not going to get that out in Fazakerly. I

351 mean they might get that at Del La Sal, John Bosco, I don't know, they are in the
352 community but not in single sex faith schools which... And they say they're going to
353 take kids who aren't their faith and that's fine, but they'll still be subject to the ethos
354 of those catholic schools which to me would be a no, no.

355
356 B: What kind of ethos do you think they have in comparison to the ethos here?

357
358 R: I think I'm biased because I'm so anti-religious, you know, our assemblies are
359 generally speaking totally non-religious. Theirs just cannot possibly be that. I just feel
360 that if you're in that situation and you're taught in that way. And they've got lovely
361 ideas about looking after other people and things like that, that's great. A
362 humanitarian can do that for me fine, no problem, but it's just that I don't like the idea
363 of kids being in a place where religion is part of the teaching of the school. For me, if
364 you want to do that with your kids you send them to church, you go to Sunday school,
365 you do it at home, but you don't do it in school. I mean that's just a personal opinion,
366 am really against it. I mean, I don't even think we should really have assemblies in
367 our school. I just think it should be out of it altogether. And for years like, I did
368 assembly, but I managed to do it without ever really bringing up him upstairs.

369
370 B: And if you were to describe... obviously again, not just for someone who's not
371 been to Croxteth, but for someone's who's not even been to Liverpool, how would
372 you describe this school, in comparison to other Schools like Bosco and Del La Sal,
373 Fazakerly but also schools right up and down the UK. If you were to describe this
374 school to someone you'd never met before how would you describe it?

375
376 R: (Laughter). Well I think the kids have got it off to a tee, it's a family school. I
377 mean the buildings aren't what they should be, people strive manfully to keep things
378 looking nice, and my room's lovely. It's a lovely room for the worst place in the
379 school I always think, but it's an indescribable feeling. When the students come here,
380 and this is probably the best way to do it. Because you see I haven't been to many
381 other schools either. The two schools I've worked at have both been like this. Very,
382 everybody watching everybody else's back. People first, always people first. When
383 student teachers come here originally they are very wary because some of them aren't
384 from Liverpool, so Liverpool itself some of them think, it's going to be a bit much.
385 Then they get Croxteth on their teaching practice and stupid things people say to
386 them, like 'oh you'll get shot', you know 'have you managed a whole day without...'
387 and they come with these terrible ideas and they've only been here a few weeks and
388 their whole thing changes. I mean, some of them you have come from what are
389 deemed 'good schools' come here on their second practice, and they say 'this is much
390 better', that they'd rather work here because of the way that people look after each
391 other and care about each other. I can't put it any more than that really. It's just
392 always been the same, since I started here, I mean when we first came here in 85 we
393 didn't know each other, and for some reason, I don't know whether it's backs against
394 the wall sort of thing, because when it first opened they didn't think we'd last out until
395 Christmas of the first year, you know, we will not be moved, we will stay and we'll
396 look after each other. And I think, no matter how horrible a child is in this school,
397 how many things they've done, you can always find at least one member of staff who
398 will be their advocate. No matter how horrible they have been, there's always
399 someone who will stand up in the staff room and says 'well I like them, I'll do that,

400 I'll take them, and I'll have them in my class. There's always somebody and it's just
401 that feeling about this school that I think is unique.

402
403 B: So how many years have you been in this school now?

404
405 R: Twenty-three.

406
407 B: Twenty-three years?

408
409 R: Yes.

410
411 B: So that's going right back to?

412
413 R: When the school re-opened in 1985.

414
415 B: So you came in just after they closed the school down or when they...

416
417 R: No, when they re-opened it. When they re-opened it in 1985 they brought teachers
418 in from ordinary schools round the city. The school I was at was Netherly Comp and
419 the Head of Netherly Comp was made the Head here, and he brought staff with him
420 from Netherly. But everybody was moving about, the whole city was being re-
421 organised so I could have gone anywhere really, except I was offered the post here
422 and it was the Head I had always worked with, I had worked with him for eleven
423 years, and you think 'yeah' and we were promised lots of things when we came as
424 well. Lots of money, new buildings, all kinds of things, none of which ever transpired
425 in the end. The first week here I spent throwing books out of a window into a skip,
426 because he said we were going to get money for all new text books. The second week
427 I spent getting them back out of the skip because the money had all evaporated. Yeah,
428 so there you go. It's been the same ever since. You know, they're going to give us all
429 this money for building schools for the future. We have a whole day of planning for it,
430 everybody is really buoyant and wow we are going to have this and we are going to
431 have that and what kind of classroom would you like and it's gone again. Gone even
432 to the extent that we're not giving you the money and we're shutting you down as
433 well.

434
435 B: So it's due to close in?

436
437 R: 2010.

438
439 B: 2010, completely?

440
441 R: Yeah. And next year will be a winding down year. They won't let us have any year
442 7s. What's the point? So we'll have year 8s, year 9s. They are not letting the present
443 year 9s begin their options. They're going to have to go somewhere else the end of
444 this year. So there won't be any year 10s in school, there'll be 11s finishing off their
445 GCSEs. No year 12, because they won't let our 11s go into the sixth form. And year
446 13. So it will be like 8, 9, 11 and 13 which is going to be rattling round. And the other
447 point of course is that teachers will leave, and you can't blame them because they've
448 got their families to think of, so we're going to be losing really valuable members of
449 staff. And it's quite conceivable that we might lose the whole of the Maths department

450 or the whole of the English department, which would then probably result in people
451 teaching subjects that they aren't qualified to teach because they're still here.

452
453 B: Right. And then do you think, well probably this year, going towards 2010 do you
454 think there will be quite a fuss kicked up by parents, do you think?

455
456 R: Well we've done all that really now. We've had all the protests, we've been to the
457 town hall, made all the pleas possible and they still turned it down. The only thing left
458 now is the legal challenge that's being made by the parents of the students and poor
459 Richard's still scratching his head and thinking, is there anything else that he can do.
460 And he thinks, and I'm sure he's right, that there's been irregularities in the way that
461 the consultation was taking forward, because that was the way they wanted it to go,
462 was to shut Croxteth but he's convinced that they've used statistics incorrectly in their
463 decision as to which school to close. And that's the only way left to do it now. We are
464 at the stage now where people are coming in to talk to us about redundancy and re-
465 deployment and things. I mean, once we get to that stage, it's really difficult. Nine
466 children left last week. And you can't blame the parents. They're getting them in
467 somewhere before the big flow of kids come in. Get their feet under the table
468 somewhere.

469
470 B: So how did they manage to keep it open twenty-four, twenty five years ago now?

471
472 R: Community action. They slept in. The buildings were never left unoccupied even
473 over Christmas and so on. They had rallies, they had famous people coming in, U2
474 came and did a concert...

475
476 B: Did they?

477
478 R: Yeah, to raise money for keeping it open. They had people volunteering their time
479 to teach. Parents taught. I mean you remember Margie Gaskell, who worked in the
480 office, she was the Head at one point, you know, like Senior Mistress.

481
482 B: Was she?

483
484 R: You know, and they just kept it open but it was just due to that community spirit
485 but I don't know whether they've got the fight to do it again now. It just seems to be
486 so absolutely *fate comple* this time. And a lot of the people who fought the last time
487 are sort of older now and maybe haven't got the energy and are looking to the
488 younger people. Nicki Madden who's been the sort of parent's spokes person was
489 here in that first year when I came, I taught her first year Biology. She was in year 9
490 when we opened in 1985 and she's taken up the baton but I don't know whether
491 there's enough political clout. I mean the unions got involved and everything last
492 time. Don't seem to have seen that sort of thing this time. Maybe I'm not on it enough
493 but I just feel there isn't the same sort of impetus to keep it going this time. You never
494 know I might be wrong. I hope so.

495
496 B: Going back to the Silent Work Area, talking about using the ICT.

497
498 R: Which is what we were supposed to be talking about...

499

500 B: No, no, no, the other stuff is obviously related. But just to describe in your own
501 words, what the system does and what it's used for?

502
503 R: It's a real surprise to me that I find it so helpful because I was the biggest Luddite
504 possible for computers. I had no idea what I was doing with it at all. And Andy and
505 Mick came up with this File Maker system to record everything about the child, so
506 we've got it all in one place. When I was a year head we kept it all on paper in files. I
507 was talking to Christine Armstrong the other day about how on earth did we ever
508 manage to keep all this data together. We used to have like little Policeman's
509 notebooks. You're going around all day writing them down, and I'm going home
510 transferring it all to the kid's files, massive big boxes of paper all over the place. Now
511 it's all centralised onto FileMaker, so if you go onto FileMaker, you've got the kids
512 contacts. If there's a problem in the Silent Work Area, I can just ring the parents. You
513 know, kids say to me 'oh I can't stay for detention tonight' and I say well you haven't
514 brought me a letter, so I say, shall I ring your mum just to check and they say 'no, it's
515 alright, I'll stay'. I mean occasionally yeah, but then I ring up and say cancel it: he has
516 got a hospital appointment at that time, 'absolutely fine, I'll let him go then, but he'll
517 have to do it tomorrow'. 'Oh that's no problem Mrs Watkins'. And because of that,
518 that's really good because it's so helpful and generally speaking, if you ring up the
519 parents they are really nice, pleasant, happy to know what's going on, nice to know
520 somebody's bothering to ring up about their children. So there's all that there for a
521 start-off which is wonderful. Then we've got all their timetables which helps me to
522 give kids the right work, got all the stuff about the SEM which helps me to give them
523 work at the right standard. Then there's the recording part, now this the bit I thought I
524 would never get the hang of, but they've made it so easy for me now with all the drop
525 down menus and things that I can put down... If somebody comes in like Ian who was
526 down there when you came in. He's only there because he's forgotten to bring in his
527 report, which you've got to bring me at the end of the day. Put the date, who's done it,
528 what lesson it was, the reasons for him being in the Silent Work Area, the action
529 taken, an area to type in what happened. I mean that's where all the exit reports are
530 going now. You can put in nice things, you know when kids have been really nice and
531 they've all got really good reports or they've recovered an exit and I've sent a letter
532 home, you can put that in as well. So you can build up a picture of everything going
533 on. Now I use it like all the time. When I come in of a morning, the first thing I do is
534 turn on the computer, get onto the File Maker, then I can check. I can check who's in,
535 so I know who I am likely to send in for, for reports, or the Silent Work Area,
536 attendance is all there for me. I can check what lesson they are in, so I can send
537 response to go and get them if I need them, everything is there for me when I do that.
538 Then as soon as kids start to come in I can find out what they're doing, I can put on
539 what they've done, so that by the end of the day... I don't go home until I've done all
540 that (cannot hear) stuff generally, unless there's some particular reason. So if a year
541 head or a form tutor wanted to look at the end of school, they could see exactly what
542 everybody in their year was doing in that day. You could check up right away. They
543 did say they were going to have a thing, they haven't done yet where you put your
544 register up in the morning, because they do the registers on computer. If something
545 had happened the day before they'd be like, it would flag up like a red thing so you
546 could go and look and say 'hey, what were you doing yesterday in such and such a
547 lesson?' Now they haven't actually done that bit yet but I am sure it will come. At the
548 minute I do that on paper.

549

550 B: Right I see.

551

552 R: In the morning I give all the year heads and the form tutors a slip with everything
553 that's happened to the kids the day before. So if you're a form tutor, you get a slip
554 saying such and such got a building detention. You can go into registration in the
555 morning and say 'what were you doing yesterday'? You know it's so good at like just
556 making the staff appearing to be absolutely spot on with everything that's gone on.
557 You know, kids come to me and say 'I did such and such', and I say 'oh, I know all
558 about that, I've just seen the thing for that'. Because it's not only horrible that you're
559 always on their back, but they know that you are interested enough to know. You
560 know like I'll pass people in the corridor and say 'oh building detention, you'. They
561 say 'how do you know?' And I say, 'of course I know, I don't know what you've been
562 doing in French or whatever it is'. Or alternatively, you're walking down the corridor
563 and you say, you got a certificate didn't you, in Art, I saw it on the computer; you
564 won such and such in some competition. And they think 'how does he know that?'
565 But it's because it's all there, and that must make life so easy for the year heads, you
566 know, if somebody's in bother, you can print it all out. We were talking about people
567 getting seven exits and there was one unfortunate boy who had done that this term,
568 and when the year head printed it out she said there was 69 separate recordings in his
569 case. You know, truancy, disobedient, being out of school, all the rest of it. There's
570 just no case to argue. You know, you're scooting about looking for things, but it's all
571 there, everything's there and it is a really, really good system and I never thought, I
572 would be able to use it the way I have, but it's made my life so much easier, apart
573 from the fact that I still write it all down in the book, because I just don't trust
574 computers. You know, sometimes they go down and then I've lost. I can't believe
575 how much I rely on them, you know. I've started getting out paper copies of the
576 timetable, so I just can't trust myself enough yet to get rid of the paper. It's still got to
577 be there, you know. I still need the paper.

578

579 B: So even though, you've got all this information in the system, you're still writing
580 things on bits of paper?

581

582 R: Am afraid so, yeah, I think I'm just too old. I know it's there and I know it's tons
583 better, but I suppose it's like people having a computer back up, I just have to have
584 my own back up and I don't think I'll ever get out of that habit of having it on the
585 paper as well. But I've got cupboards full of books of stuff, of all, you know people's
586 records and everything and I just keep putting them in the cupboard and putting them
587 in the cupboard and your thinking in a few years I'm just going to throw these away,
588 aren't I, you know, but I can't get out of the habit of keeping those records.

589

590 B: And say, this pupil for example, who's got 69 records... So you have on your
591 database, or on your screen you would have all these different types of behaviour like
592 truancy?

593

594 R: Yeah, and you can do... make them into bar charts or pie charts or whatever to
595 display where, or what kind of incidents, which teachers with, what subjects, what
596 lessons even if you wanted to see if it was afternoons or mornings or whatever was
597 the worst time, you can pick out and analyse that data phenomenally, but I don't do
598 that but the year heads do. I mean to me it doesn't really matter. You know, all I need
599 to do is deal with the behaviour at the time, record it and then for the pastoral staff to

600 use that information. You know, I provide the data, they do the analysis or whatever
601 needs to be done with the kid. Or sometimes you think, you don't need to analyse it,
602 you can see where the problems are coming up, and then like we will speak to Head
603 of Departments, teachers themselves, or Heads of Year, whoever you think is going to
604 help. I think my job is to support the kids, but to support the staff and make their life
605 as easy as possible. Probably because I know how hard it can be.

606
607 B: So the system... Is this used to know your records or keep records of the kids'
608 behaviour... as you said... do you rely on the system to kind of know what the kids
609 are up to or do you?

610
611 R: Well I know. I know the kids who are badly behaved, but it must be easier for the
612 year heads to keep track of the kids who are in the middle or well behaved. Because
613 you see, I won't be putting much on about certificates. I mean will be putting things
614 on about people losing exits, or having good reports, but the nice things you do like
615 going to the theatre or playing for the school football team, or going on a course, or
616 helping out or doing that peer helping, you know, helping their friends and that in
617 class...

618
619 B: Peer support?

620
621 R: Yeah. Other people would put that on, but not me really but I could probably tell
622 you what exit all the kids were on just by remembering because its so part of my
623 everyday life. Kids say to me 'What am I on?' well I say 'you're on...' say 'how do
624 you know', and I say 'well because...' But you know, that is uppermost in my mind,
625 trying to get kids off exits. I'm saying come on please give me a bit of ammunition so
626 I can say to your year head 'can I take this person off an exit, can we do this?' 'You
627 give me something to go to Mrs Parry with and say come on, let me take him off this.
628 Bit like bad cop and good cop in a way. Mrs Parry will never let me come off this you
629 know if I can't take a nice report book to her. And of course Denise will do if she
630 possibly can because we all want kids to succeed, you know, not to fail. Because if
631 they fail we feel as if we have as well.

632
633 B: So even though you've got the system there... ok so say you didn't have the
634 system there, you'd still kind of know, what the kids were...

635
636 R: Yeah, yeah... Well we haven't got many kids have we, when you think about it
637 like... I mean maybe that's why the school is so family-like because it's small. You
638 know when you look at these Comps and there's 1600 kids, we've got 400. You can
639 walk down the corridor you know everybody's name, you know whose brother they
640 are, whose sister they are, whose son they are, or whose daughter they are, whose
641 class they're in, what they're good at, what they've been doing, you just know so
642 much about them. You can walk down the corridor here and kids say 'hi Miss, I see
643 City won on Saturday, or City were rubbish the other day', and it's such a lovely
644 feeling and atmosphere that I can't describe.

645
646 B: So the system can flag up, not for you so much but for head of year, people getting
647 certificates and other good stuff as well as all the behavioural problems that you...
648 particularly what you do in the Silent Work Area. But even with all those stats, if you

649 like, or figures about the kids, you still know the kids from just walking up and down
650 the corridor or spotting them walking past?

651

652 R: Yeah. It's no good having kids just being numbers or data. They are so much more
653 than that. When you're recording things on the computer, well I always try and keep it
654 short. One, because it always takes me ages to type it. But you're just putting the
655 barebones down aren't you. You know sometimes somebody will say to me, 'what
656 happened to such a body in that lesson', and I'll say 'oh I can't remember' and I'll put
657 it up and whatever it is there will spark me off and say 'Oh I know now, they did this
658 and this and this and this'. And it will only be two or three words but as soon as I see
659 it I will remember the situation that occurs, or what had caused it in the first place, so
660 it's an aide memoir as well, you know, as far as what's there triggers the rest of it off
661 after.

662

663 B: So a few words or sentences will trigger off the whole incident or...

664

665 R: Yeah.

666

667 B: And so you're putting lots of information about kid's behavioural problems into
668 the system, so they've been exited or truancy or whatever else or they're disobedient,
669 and at the same time there's heads of year – they are viewing that...

670

671 R: All the staff can view it and all the staff can put in information. And that's one of
672 things we are trying to get people to do, is to put more, especially good things in.
673 Anybody can put a comment in about a kid. People put in topping test.

674

675 B: And do they? Do other staff use it?

676

677 R: Not as much I don't think as people would like. That was one of my targets to
678 myself this year. You know, we do our appraisal thing, was to try and encourage
679 people to use it more. I put stuff in for people. If a kid's been in trouble in
680 somebody's class and they come to me, I put it in because they haven't got the time.
681 But I'll put it in with their name to say it was in their class and they were sent to the
682 Silent Work Area, and this, this and that happened. But it's just getting them into the
683 habit of doing it, isn't it. Often people will come and talk to you about kids being
684 good, but if they could just get around to doing it. But one of the things now is you
685 can do it at home which is like... Now I haven't got the hang of this now. You have to
686 go and get some sort of special gummings sorted out into your computer at home and
687 then you can access this at home. Now I'm sure when people get the hang of doing
688 that that they'll sit down at night and if they're marking something or looking at
689 something, if they can just get on, people will do it more then, you know when they're
690 thinking about it in the evening or whatever. Whereas during the day it's a bit like a
691 roll coaster. You come in the morning, we start early, the day goes so fast. Before you
692 know where you are it's ten to three, and you've got kids coming back either to do
693 extra work or going to do badminton with them, or something else and it comes to 5
694 o'clock and you think 'oh, I'm off now, I'm going home'. And really, you might like
695 in a way then to put down some nice things but you're just knackered aren't you, you
696 know. But if people have got that opportunity to do it at home which I think is the
697 next... they haven't started it yet...I haven't availed myself, I'm still at the point
698 which I'll stay until I've done it, but I'm sure if we stay open, especially the younger

699 staff, they'll just get into that right away. I mean, perhaps one of the problems is that
700 there are quite a lot of old staff like me here who, we're still just learning the basics,
701 never mind getting on to doing all this wonderful stuff. Some of the young staff like
702 John Cumin in Maths, he does all his things on.... He's no sooner exited somebody
703 and I'm putting their name up and there's his report, and I'm thinking 'oh did that
704 happen, did that happen', and he's really good, he does it really thoroughly,
705 everything's there, you know. But maybe that's because that's what he's used to isn't
706 it. He never writes his reports on paper, never. Just does them straight onto computer.
707 Other people bring me them on paper and then a few days later I'll see that they've
708 typed them up onto the computer as well, because they think 'oh go on then, I'll have
709 a go'.

710
711 B: So do you think he's got a much better grasp than other staff?

712
713 R: Well, yes him and people like obviously Mick McDonnagh always puts his on,
714 because he knows what it's for, he never writes anything on paper does he, he just
715 puts it on the computer. So as we fall off the end and new people come on as it should
716 be if we weren't going to be closed down, then when people come and they are shown
717 the system at the start of their career here, that would just be the norm anyway
718 wouldn't it, to do it. Old dogs and new tricks comes to mind with us older staff but we
719 are having a go.

720
721 B: And do you think, going back to you typing stuff into the system, or other teachers
722 and sort of head teachers have sort of an overview of what's going on in some of the
723 classes with some of the kids. Did you think they kind of... because they are only
724 getting one sentence and a few words of what's going on, do you think they kind of
725 lack what's going on with the kids in the classroom? Or do they follow that up with?

726
727 R: Yeah I think they talk to people about it. The computer hasn't taken the place of
728 meeting somebody on the corridor and saying 'oh I see such and such happened in
729 your lesson'. And the teacher saying 'well you should have heard what...' or this, that
730 or the other. We are still very anecdotal teachers. We still like to tell the tale of what
731 happened. I should imagine it would be quite easy for somebody to just read what's
732 there if they were too busy, but generally speaking again people want to know what
733 the kids are doing. You know they don't just look at the behaviour, they look at what
734 lays behind it, why did that happen, why is that happening after dinner, why is that
735 happening in that lesson, what's going on in that class, what's the dynamics in that
736 class between... You know, if you put Francis Maguire and Connor O'Shaunity
737 together in a class and they're going be sitting together you can bet your life on it
738 somebody's going to be in trouble. One of them or both of them. And that doesn't
739 come across on the computer but everybody knows it because we all talk about it.
740 You know, one of the biggest exchanges of information is the staffroom before
741 school, and not so much at dinnertime because other people are on dinner duty but
742 certainly before school.

743
744 B: So is that like first thing of a morning?

745
746 R: Yeah, people all sitting around having a cup of coffee and a gossip. People come
747 early because they like that. They like to sit down and clock on what's been going on
748 all day.

749

750 B: So if I was sat in your classroom, first thing of a morning, what kind of discussion
751 would I hear?

752

753 R: In the staffroom?

754

755 B: Yeah.

756

757 R: Well people talk to colleagues in their own departments about what's happening. If
758 the year heads are sitting around then they will be talking about somebody in your
759 year did this, or that or the other or. I mean there's just a general exchange of
760 information. I think that is one of the most valuable ways of getting stuff across. I
761 always like the students to go in then because they hear what's happening in other
762 people's lessons. And the other thing in this place is that nobody covers up. People
763 don't do what I've heard students tell me in other schools, (respondent puts on a very
764 posh voice and says the following) 'I don't have trouble in that class, no, no, no'.
765 They never do that in my room. Our staff come in and say: 'My God, they've been all
766 over me'. And they don't care who it is. The highest, the lowest will admit that
767 they've had a disaster or somebody's run rings around them. It happens to me in the
768 SWA where they're supposed to be quiet. And I come in and say 'Well they've just
769 absolutely trounced me'. I just feel as if I have been taken left, right and centre there.
770 Even after years of experience and with only a few kids in there it can still get done
771 and the students say that's one of the things they find the most helpful for them is the
772 fact that nobody sort of has an air or grace and says that they can do it, you know. So
773 people pass on ways of dealing with things or ideas about stuff. I mean obviously
774 people talk about other things apart from school in the morning but generally it's
775 planning for the day, reviewing what's happened the day before. And gossip!
776 (laughter).

777

778 B: (Laughter). What you're saying is that the system's obviously sharing information
779 because the Maths teacher can be putting in information into the system and it's
780 coming up on your screen five minutes later or immediately perhaps but your also
781 sharing information from just meeting in the staffroom of a morning. Do you think the
782 software replaces some of the sharing of information or does it add to it or?

783

784 R: I think it adds to it because we all know what's going on. Like you might not have
785 time to tell everything. This morning Christine had had six people sent out of English
786 yesterday, she got her note this morning and she said 'my god what was going on?'
787 Well, she's gone to see them all this morning to find out what's going on, tell them if
788 there's anything like that again she'll be right on to their parents. And the person who
789 sent them out yesterday, sent them out, then rang me at dinnertime to apologise for
790 sending six people. Told me the whole story, asked me for advice about what to do
791 next and spoke to me again this morning about the same situation. Now that all goes
792 in a line there from the computer, from the Silent Work Area, talking strategies, going
793 to the year head, going at it from another direction, helping people to deal with those
794 classes. We've already had somebody offer to go into that lesson in their free period
795 to act as another pair of eyes because this class are obviously so difficult. Now none
796 of that is official, it's just all there. It's just all the information.

797

798 B: When you say none of its official do you mean...

799

800 R: Like nobody sits down and says right what are we going to do with nine set 2 or
801 whoever it were, I don't know, we need a strategy for this, and strategy for that, we
802 just say how can we help, who can help. People say I'll help. Not people going to
803 someone and saying 'right we need you to give up a free lesson and go to work in that
804 class'. People have said to me 'oh I'm free then, I'll go and help'. But like Richard
805 won't ever know that, or nobody would probably know it apart from me and the
806 teacher who was having the bother and the teacher who has volunteered to go and
807 give them a hand, and they might not do it for long, it might only take a couple of
808 lessons and things will settle down a bit.

809
810 B: So there's no sort of formal procedure there, it's just a kind of...

811
812 R: No, no.

813
814 B: ...helping one another out...

815
816 R: What can we do, you know. Yeah.

817
818 B: And does that relate back to the kind of... You described the school as a big
819 family. Does that relate back to that sort of idea?

820
821 R: It does yeah, watch everybody's back. Look after everybody, kids, staff,
822 everybody. I don't just mean teaching staff either.

823
824 B: How do you think the software system in terms of recording information about the
825 kids, how do you think that fits in with the idea of the school being a big family where
826 you're looking after one another, is that system...?

827
828 R: I don't know that applies so much. The kids generally speaking I don't think know
829 how much information is kept on them. I've shown a few. You know just as a shock.
830 'Come here, you know when I'm typing on here what do you think am doing?' 'I
831 don't know', 'Well, just come and have a look and I'll show you your record for this
832 year'. And their jaws just drop. Everything you do, 'look at this, look at this, look,
833 look, look, everything'. 'Can anybody look at that?' 'Oh no' I say 'not anybody can
834 look, I can't show you anybody else's'. Yours is there. But I don't think the kids
835 really know unless somebody... I mean I don't know if the form tutors ever show
836 them or the year head but just sometimes I think, you know it gives you a bit of a jolt
837 to just see how many times you've been on detention, sent out, in trouble, whatever
838 you know.

839
840 B: So it's like a good way of communicating with the kids?

841
842 R: Well, I can't say I've done it more than five times and it's had a good effect on the
843 kids. But I don't think that's part of their sort of psyche at all, you know. The
844 computer doesn't bare any relationship. What they see is the product of the computer.
845 The fact that their year head knows something. The fact that their form tutor knows
846 about what they've been up to or whatever, so I think they see it from a different
847 perspective than what we do.

848

849 B: But it's used as well for... Is it used to show parents on occasions?

850

851 R: Yes. When it's really bad they print it out and give it to the parent. Say if it was a
852 meeting with Richard, and Richard and the governors they'd give them the whole lot
853 and then it's there in black and white. Some of them have an incident everyday
854 almost, everyday and other day and it really does absolutely show up. You have the
855 bits for the punishment or whatever but there's a bit you can put up for 'discussion
856 with student' which I use quite a lot you know where I've sent for people over reports
857 which are insufficient and I say, look you can't carry on like this can you it's horrible,
858 it's rubbish, you must do something about it. And you can just put that up, but it just
859 shows how much time people have spent with the child trying to modify their
860 behaviour which is... I mean that's always the thing for me, but I don't know if it's
861 part of the psychology thing of what I used to do, is if we're going to change their
862 behaviour because they've got to want to do it. They've got to do it. I can't do it, I can
863 help but they've got to do it.

864

865 B: So it's got to come from them?

866

867 R: Yeah, I mean that's where all the successful loss of exits have come from. It's the
868 kids who make their mind up, that they'll have a go. Nobody is expecting them to be
869 perfect, but they'll get so much praise for having a go and trying their best.

870

871 B: You know when you've showed it to parents and printed it out from a meeting with
872 parents or whatever else, can parents access their own child's data from when it's
873 online. Can they do that now?

874

875 R: I don't think so, no. I mean you will have to ask Andy and Mick. But as far as I
876 know, no. Because they'd have to be part of our line network system, probably. I
877 should imagine it might be an idea but I don't know how you would get on with the
878 data protection and all the rest of it then. That people could access the school system.

879

880 B: If they could access it from home, do you think that would make a significant
881 difference or reduction in the number of incidents, do you think? Or do you think that
882 would replace the parents having to come up to school to speak to teachers about the
883 kids?

884

885 R: I don't know. Theoretically I suppose it would because they'd be absolutely on top
886 of everything you know. I spoke to a lady last night who rang me up, her son had been
887 put on detention and she wanted to know why and I said well he has been on report
888 for a couple of days. First she'd heard of it. Now really, I don't know, maybe we
889 should send a letter home as soon as somebody's on report but you're just, thinking,
890 you have to give the kids a bit of flack. Maybe if they're on report a couple of days
891 and they get off, you don't want the drop of writing it do you, you want to save that
892 for in case there's a real. Maybe there's (school bell rings loudly). Oh gosh. Look.

893

894 B: Is that half ten?

895

896 R: Yes, 10.25 and Alma's on break duty.

897

898 B: No that's fine

899
900 R: Am sorry if I've gabbed on.
901
902 B: No that was good.
903 R: Are you sure, I hope it's been helpful anyway.
904
905 B: Yeah, no it's good.
906
907 **End of Interview**
908
909

1
2
3 **Appendix 10 - Field Notes of Participant Observation: At the Airbase with the**
4 **Pilot (Transcript 5b)**
5

6 The following field notes have been taken from a follow up visit with the Pilot. My
7 field notes are a mixture of my experiences taken from memory and also the
8 information I was able to record from my Dictaphone. My observations and audio
9 recordings are written out in three main sections. Section one sets the scene, and
10 describes my journey to the airbase. It also tells the experiences of being on a Flight
11 Simulator. Section two tells the experiences of being on the Cherokee aeroplane. And
12 finally, section three is a transcript of speaking with the Pilot inside his car
13 immediately after flying the Cherokee aeroplane.

14
15 **Section 1**

16
17 ***Setting the scene: travelling to meet the Pilot***

18
19 It was mid-March. I woke up to my alarm clock at 6am. I knew I had to be up early if
20 I was ever going to be flying an aeroplane that day. The weather was cold, but fairly
21 bright and I had received no phone call from the Pilot to inform me there were any
22 problems with the weather, so I knew we were still on for going up to Cranfield
23 airbase. I had no digital camera to take any pictures, so I bought a couple of
24 disposable ones on the way to the station. When I had arrived there, I also bought
25 some breakfast and made my way to boarding the train. In my bag I had a newspaper
26 article which I pulled out to read on my journey to meet the Pilot. The article was
27 about an aeroplane which had recently crashed down before landing. I sat on the train
28 and glanced down at the bold heading of the article which read: "Crash planes
29 altimeter was faulty, says experts". The article was about a group of experts who had
30 been investigating a Turkish Airlines crash that had left nine people dead. It read the
31 following:

32
33 "…a faulty altimeter, which checks altitude, led to the plane stalling. At
34 1,950ft (600 metres) the device registered the plane, which was on autopilot, at
35 being at about ground level, so fuel to the engines was reduced and the plane
36 lost speed. By the time the pilots realised it was too late. The Boeing 737-800
37 crashed near Amsterdam's Schiphol airport on 25 February. Pieter van
38 Vollenhoven of the Dutch Safety Authority said the jet had had altimeter
39 problems twice before, and Boeing had been told to warn clients."

40
41 (The Guardian 2009)

42
43 I sat with the article on my lap, reading over and over the words on the page. I wanted
44 to try and make some sense of this tragedy. Why had the altimeter registered the
45 aeroplane at being at ground level when it was clearly 1,950ft in the air? And why had
46 the aeroplane pilots taken so long to realise that the altimeter had failed? I thought that
47 my respondent, the Pilot, would perhaps have some answers to these questions. Or
48 maybe I would find answers to them, by actually having hands on experience of flying
49 a real aeroplane myself? I guess I wouldn't find out anything unless I continued on
50 with my journey to meet the Pilot.

51

52 I arrived at Berkhamsted train station, just past Watford. The Pilot had agreed to pick
53 me up there and drive me to the airbase. The airbase was about 40 minutes drive from
54 the train station, and the Pilot told me about some of the history of the local area as he
55 drove me along in his car. The car journey was very relaxed, and I enjoyed chatting to
56 the Pilot about the things he had been doing since we had last seen each other. First he
57 told me that he had recently retired from doing commercial flights, and later he spoke
58 about some of the things he had been working on leading up to his retirement. There
59 were a couple of things he said in particular which struck me as very interesting. He
60 told me about some of the work he had carried out in providing support to those
61 wanting to improve or modify the autopilot systems installed on aeroplanes. I never
62 had my Dictaphone switched on for this, but here I shall try my best to recall what he
63 said in the following sub-section of this transcript. Let's take a look.

64

65 *Designing Autopilot: Plugging the Pilot's knowledge into a system*

66

67 Aeroplane pilots don't just fly planes all day. There are many other things they are
68 involved in which is part and parcel of being a pilot. They often attend meetings,
69 conferences, training events and they are involved in training other pilots too, as well
70 as being involved in the examination process for new pilots. Pilot's often advise, teach
71 and consult those who are learning about the aviation industry and they are a key part
72 of its ongoing development. There are for example, always new aeroplanes being built
73 and there are always new systems being implemented on these new aeroplanes, as
74 well as existing aeroplanes. The Pilot told me about the development of a new
75 autopilot system which computer programmers are currently working on. And he told
76 me about how he was used to consult the computer programmers in order to put
77 together this new autopilot software.

78

79 The Pilot, along with other pilot's had sat in a room and were asked a number of
80 questions about flying aeroplanes. The idea seemed to be that one could extract all of
81 the knowledge from the aeroplane pilots, and plug it into a system which could do all
82 the things the aeroplane pilots could do in order to fly the plane. One of the questions
83 they were asked, says the Pilot, was to "name all the different types of emergencies
84 which they might come across when flying an aeroplane". The Pilot explained that he
85 came up with sixteen different emergencies he could think of. One of them was
86 "spilling coffee over the laptop system" in the flight deck and losing control of some
87 of the instruments and information he is provided with. The Pilot gave other
88 examples, but he said that there were an "infinite number of emergencies" which
89 might arise which he could never possibly think up until it actually happened. He told
90 me that he had tried his best to support these researchers who were collecting data to
91 develop autopilot systems but he doubted that a system could ever "capture all the
92 skills and knowledge that a real pilot had". This raised some interesting questions.
93 Why can't an autopilot system replace the expertise of the aeroplane pilots? Why does
94 the Pilot doubt a system can capture all the skills and knowledge that real pilots have?
95 Perhaps I would learn more about this myself once reaching the airbase.

96

97 *In the briefing room at the airbase: meeting the young pilot cadets*

98

99 When we arrived at Cranfield airbase, the Pilot pulled out of his car a huge black brief
100 case, which I later realised was something that all pilot's seemed to have. I guessed it

101 held all their information in for flying the various aeroplanes etc. We left the car and
102 walked into an office-like building which had a few people working there. The Pilot
103 took me into a place called the “briefing room” where there were two young trainer
104 pilots sitting. I think they are called pilot cadets. They seemed to be studying from the
105 pieces of paper they had in front of them. They both recognised the Pilot, who quickly
106 introduced them to me as a researcher studying for my PhD. I used this opportunity to
107 ask the young pilots some questions about flying aeroplanes. I thought recording these
108 conversations would be valuable, but I was uneasy about asking the pilots if I could
109 record them as this went against some of the ethical considerations I had set out at the
110 beginning of my research, such as giving potential respondents adequate time to think
111 over whether they wanted to be involved in my research or not. Besides this, I thought
112 asking them could I switch on my Dictaphone would have just interrupted the
113 naturally occurring conversation we were having about flying aeroplanes, so I decided
114 to just simply take in as much information as I could without the use of any such
115 recording equipment. I hadn’t planned for this meeting, so I had to think off the cuff
116 what I could ask them. One of the things I thought to ask was how much time they
117 had to study inside the classroom in contrast to flying the aircraft up in the sky. They
118 were keen and happy to talk to me and said that the majority of their time was spent
119 studying and unfortunately they have much less time actually up in the air. I asked the
120 young pilots some more questions whilst the Pilot sat down at a large desk and started
121 filling out some forms.

122
123 After a few minutes the Pilot turned towards us and started to join in the discussion.
124 He began to give some advice to the young pilots about flying aeroplanes. “Be in
125 control of your own aeroplane” he said. “Get a feel for flying it” he continued. The
126 Pilot stood up from his seat and held out his hands in front of him, as if he were flying
127 his aeroplane there and then. He continued to tell the pilot cadets to “get a feel” for
128 their own aircraft. “Even under an examination”, he said, when “you have senior
129 pilots or examiners sitting around you having their own conversation, you should not
130 be afraid to make your own decisions in flying your aeroplane”. “It doesn’t matter if
131 it’s the right decision, just as long as you make a decision”. “That’s what’s important”
132 he said.

133
134 I later reflected on the interaction between the Pilot and the young pilot cadets. It
135 seems he had wanted them to feel in control and have the confidence to know how to
136 fly their own aircraft in whatever way it felt right to them. There seemed to be
137 something very personal about flying an aircraft and I realised then that there was
138 something very special about flying an aeroplane. I had always thought that flying
139 aeroplanes was based upon following a set of procedures and instructions for taking
140 off, flying and landing etc. But there was more to flying than just this, and the Pilot
141 had opened up a whole new world of flying that I could never have imagined.
142 “Getting a feel” for your aeroplane doesn’t come with instructions or a set of
143 procedures. And I guess if it did then anyone could fly an aeroplane. The young pilot
144 cadets seemed inspired by the Pilot’s advice and interesting suggestions and seemed
145 to be taking in everything he was saying.

146 147 *Meeting the flying instructor*

148
149 After a short time in the briefing room, the Pilot introduced me to a man who had just
150 walked in. The Pilot’s acquaintance’s name was Rob and he was a flying instructor at

151 Cranfield airbase. He had kindly agreed for us to look at a flight simulator, used for
152 training pilots. This was very opportunistic, as this had not been arranged, but the
153 Pilot had somehow managed to get us this access to a simulator through knowing his
154 acquaintance. We quickly left the building and walked outside and across the airbase
155 passing many aeroplanes of different shapes and sizes. We entered another building
156 and into a dark room, with a relatively small simulator which sat in front of a white
157 screen. It was the kind of simulator you might see at fairgrounds where the public pay
158 money to have a go inside. By now I was very intrigued and very excited. I was eager
159 to get into the simulator and hopefully, have a go.

160
161 ***Flying in the simulator***

162
163 It took a few minutes for Rob (the instructor) to set up the machine. But after a little
164 while, he invited the Pilot and me to go inside. The Pilot told me to climb into the left
165 seat, so I walked into the simulator, climbed over the back of the seat and sat down.
166 Apparently, the left seat is always the main Pilot's seat, with the co-pilot sitting
167 always in the right seat. I guess that flight simulators are designed to be just like real
168 aeroplanes in every way possible. The Pilot then climbed in and sat in the seat next to
169 me. The instructor Rob was sitting behind us. He seemed to be controlling what was
170 coming onto the screen, such as weather conditions, other planes, mountains, flying
171 birds and so on.

172
173 The following is a transcript of the conversations inside the flight simulator, from the
174 moment I had turned on the Dictaphone. This lasts for approximately 24 minutes.
175 Let's take a look.

176

177 <u>Key</u>
178 B = Brian
179 P= Pilot
180 R= Rob (flying instructor at Cranfield airbase)

181

182 (The Pilot is in mid conversation with Rob)

183

184 P: Oh even better, there's been a lot of controversy over taking 757 into here.

185

186 R: They've got a couple parked up over there.

187

188 P: (He turns to me and points to the computer screen) That's soil and that's sky.
189 That's the indicators seeing how much... We don't do much more than fifteen degrees
190 of (cannot hear). So five or ten... so that sort of region... You've got the air speed
191 there and anything less than 120 knots and your in trouble... (he turns to Rob) Is that
192 correct on this beastie? (he then turns back to me) And the altimeter, and that's
193 (cannot hear) as much as that as possible.

194

195 R: There's some lights as well if you want. Rotation is (cannot hear)... There's a flap
196 lever in front of you. On the panel, so pull up and select 'approach flap for take-off'.
197 Do you want to do that?

198

199 P: Yep.

200

201 (The Pilot pulls some switches and presses some buttons)
202
203 P: There's some flap indications telling us how much we've got.
204
205 R: There's some lights as well if you want.
206
207 P: We've got one fitted in the Cherokee and I've not had chance to play with it
208 enough.
209
210 R: There's all kinds of courses which run on how to use this software. It's all very
211 easy, when you know how of course.
212
213 P: Of course.
214
215 B: How old is this software do you know?
216
217 R: Software? The software on the system was updated no less than three months ago.
218
219 (Rob the instructor starts to tell the Pilot which buttons he should be pressing)
220
221 R: So if you would like to just increase the thrust to just below the red line.
222
223 P: Very good.
224
225 R: (cannot hear)... So the flight director's giving you... pitch up altitude after take
226 off...
227
228 (The aeroplane starts to take off)
229
230 B: Hahaha... Brilliant isn't.
231
232 R: Pull it towards you and then up.
233
234 B: Oh right ok (I pull a switch up).
235
236
237 (Cannot hear)
238
239
240 P: Heading selector.
241
242 R: Heading selector.
243
244
245 (Cannot hear)
246
247
248 (Large bleeping sound)
249

250 P: A bit too much power. (He pulls on a switch and the bleeping sound stops). What
251 do you think of it so far then Brian?
252
253 B: (laughter) Good.
254
255
256 (The Pilot has control of the aeroplane and is flying it up into the air)
257
258
259 B: Are these just as exactly the same as a real aircraft?
260
261 P: That's right.
262
263
264
265 (The computer sound of travelling through the air)
266
267
268
269 P: Take your hands on the controls, and have a little play.
270
271 B: (Laughter).
272
273 P: If you turn to the right.
274
275 B: (pointing to the instrument screen) So is that purple bit the bit where I'm flying?
276
277 P: That's where you're flying into but I wouldn't worry about it for the moment
278 because it's not flashing. We are just flying visual.
279
280 P: So you are just having a play, so do a right hand turn, about fifteen degrees (cannot
281 hear). Pull back on the control column to stop the nose going down. Pull back a little
282 bit, and that's absolutely great. Now you are going nose up. See how little it is?
283
284 B: Yeah.
285
286 P: That's good, now you can take a left turn if you want.
287
288 (I turn the aeroplane to the left by turning the yoke to the left)
289
290 P: We'll stop it at eight thousand feet so just bring the nose down. Now we are just
291 coming down a little bit, not very much. (Points to the screen). So you want it just a
292 little bit above the zero. Push the nose forward.
293
294
295 (I follow the instructions I am given by the Pilot)
296
297
298 P: That's plenty, so you're looking at the altitude between... (cannot hear).
299

300 (Rob is on a phone call in the background)
301
302
303 P: Quite impressive isn't it?
304
305 B: Yeah. So how does this compare to the real thing?
306
307 P: Very good.
308
309 P: Whack it to the left. Bring the nose up a little bit so you bring that to the zero
310 (points to screen). That's good. We'll give you a little bit more speed. (The Pilot
311 controls a small lever to my right which seems to increase the speed). The nose is
312 going down. See how you're going into the ground so you need to pull it up. That's
313 enough. Now try and get that little lever above there and we'll come up.
314
315 B: It's very slight isn't it?
316
317 P: It's very slight indeed.
318
319 P: Bring the nose up a little bit because you don't want to hit the floor.
320
321 B: (Loud laughter).
322
323 P: This is the problem, because you've got all this information you don't look outside.
324 So vice versa, when you're looking outside you don't look at this either. And because
325 it's very subtle. Now if I do this, you're not even aware. I'm taking the power off.
326 You keep the altitude. Keep the altitude up here. Watch this. Just keep going like this.
327 What's this happening here? (Points to the right side of the screen which shows the
328 height at which the plane is in the sky).
329
330 B: Oh we're dropping!
331
332 P: And that's exactly what happened to the Turks. Power's back. They didn't know it
333 was back. They kept the altitude going like that. And they kept going and they
334 eventually stalled... (He then instructs me again on how to fly the aeroplane) Put the
335 power back up. Put it back up to eight thousand feet. So about that sort of altitude.
336 About eight degrees. And you're going up to eight thousand. I'll bring the power
337 back. My guess is it's about that. Bring the nose over. So you're fine at eight thousand
338 feet. The speed indicator will come down to zero. Speed is coming up. We want about
339 210 knots.
340
341 B: So if this is height, what's this other one? (point to screen).
342
343 P: That's the speed as we are going through the air.
344
345 B: Oh ok, so we are going at 200...
346
347 P: Nautical miles per hour.
348
349 (Cannot hear)

350
351 B: (Laughter).
352
353
354 P: So put the nose down a little bit, not very much. So we'll stop it at eight thousand
355 feet....
356
357 (I continue to fly the aeroplane)
358
359 P: This is far too much more complex than what we ever had on the seven-five. Do a
360 good turn, go on wrap it round. That's it. Give it a bit of welly. As you turn, you'll
361 notice that the nose goes down, so what you've got to do is you've got to pull the nose
362 up a little bit. I'll give you a bit more power and there she is. (he turns to Rob) It's a
363 very responsive little beastie isn't it.
364
365 R: Lovely.
366
367 P: Very responsive.
368
369 R: (Speaks behind but cannot hear).
370
371 P: Yeah, excellent. This is a lovely little toy. I want one of these at home.
372
373 R: (cannot hear, some laughter)
374
375
376 (Heading towards virtual mountains)
377
378 (Large bleeping and vibrating sound seems to indicate that something is going terribly
379 wrong)
380
381
382 P: Now that's telling you it doesn't like it because you are below the ground. What are
383 you going to do about that?
384
385 B: Pull it up?
386
387 P: Yeah. Keep going up.
388
389 (Bleeping sound stops)
390
391
392 P: That's very good. If we can recover from all that, fantastic. It's like driving a car
393 isn't it Brian?
394
395 B: I don't drive! (Laughter)
396
397 (Cannot hear)
398

399 P: Well you were looking out of the car when I picked you up at the station, every
400 time we went through a junction there was a (cannot hear)...

401
402 B: (Laughter).

403
404 P: Put the nose down and go left. Let's go and find some terrain.

405
406 R: Mont Blanc over there.

407
408 P: I think we can find something before then... This is wonderful.

409
410 (The Pilot keeps chatting with Rob)

411
412 (Cannot hear)

413
414 P: They used to say that I would go to work for one reason only. That's to get a decent
415 insult, and I was really disappointed. It's crazy how people can insult you very well.

416
417 R: Another guy you might know (cannot hear)...

418
419 P: Oh really, lovely.

420
421 R: He just lives just around the corner.

422
423 P: How very useful.

424
425 R: He's already done a lot of (cannot hear).

426
427 P: Has he.

428
429 (The Pilot turns to me)

430
431 P: See this person down here Brian. Do you want to have a better association with
432 him?

433
434 (Laughter)

435
436 (Bleeping sound)

437
438 P: There you are, it's telling you that you are very close to the ground.

439
440 (I keep flying the aeroplane upwards)

441
442 (Laughter)

443
444 R: What we usually do (cannot hear). We take them around here and let them fly
445 around Mont Blanc (cannot hear)... Get your skis out the back. Your skiing holiday
446 starts now.

447

448 P: Oh how wonderful. What fun. What real fun! Oh I think this is great! How much
449 do you charge them for a half hour session.
450
451 R: Well it starts at around £50 for one, for one hour.
452
453 P: That's reasonable.
454
455
456 (I keep flying)
457
458
459 P: Cup of coffee Brian?
460
461 B: No I'm fine.
462
463 (Loud bleeping again)
464
465 P: Best thing to do is to take the power off and turn the nose up. We are flying to
466 Mont Blanc.
467
468 B: Oh, ok.
469
470
471
472 (Rob and the Pilot talk behind me as I fly the aeroplane).
473
474
475 P: I want to see Mont Blanc.
476
477
478 (Short silence)
479
480
481 (Cannot hear)
482
483 P: (Talking to Rob) I've actually flown over Mont Blanc so many times I can actually
484 see the cross on top of it, but I've never been this close.
485
486 R: You probably won't see the cross on top of it.
487
488 P: (Talking to me) Where are you flying now Brian? See that hole in between the
489 mountains, aim for that.
490
491 B: (laughter).
492
493 P: That's a good boy, go on. Get the feeling now. Don't be nervous. I'm terrified but
494 you don't need to worry about that.
495
496 B: (Loud laughter).
497

498 R: If you need to pull up, then do pull up because if you crash I need to reset
499 everything and start it up all over again.
500
501 P: Go over there Brian.
502
503 R: That's the only draw back, it shuts everything down.
504
505 P: (Turning to Rob) I can well believe it, we don't want to crash it, it's not good.
506
507 P: (Turning to me) You're going up to Brian, your not even holding it level.
508
509
510 (Rob chats again with the Pilot in the background)
511
512
513 P: No that's a bit too low.
514
515
516 (Rob chats again with the Pilot)
517
518 (The Pilot then turns again to me and instructs me on how to fly)
519
520 P: Now put the nose over and you go over the edge.
521
522 (I fly the aeroplane over the white snowy mountain top and dip the aircraft over it)
523
524 P: Gentle, gentle, that's perfect.
525
526 B: Wow.
527
528 P: Hello skiers!
529
530 P: What do you think?
531
532 B: Brilliant.
533
534 P: (Again he asks) So what do you think of this then Brian?
535
536 B: Brilliant, yeah. (laughter).
537
538 R: If you look at that valley, I mean it's so realistic isn't it.
539
540 P: Yeah.
541
542
543 (I continue flying the virtual aircraft)
544
545
546 P: You can go right here. Hard right turn, pull it through. That's it. That's very good.
547

548
549 (I continue flying the virtual aircraft)
550
551
552
553
554 (I keep flying the aircraft)
555
556 P: This is a superb visual.
557
558
559 (I keep flying)
560
561
562 B: (Laughter)
563
564 (We've probably been flying now for ten or fifteen minutes)
565
566 R: If you don't mind, I need to get back.
567
568 P: Of course.
569
570 R: If I put you on a ten mile final.
571
572 P: Perfect.
573
574
575 (Rob is pressing some buttons behind us)
576
577
578 R: Now just wait because it will freeze for a second. I'll put you on a ten mile final.
579
580
581 (The screen changes)
582
583
584 R: See the lake in front of you over there.
585
586 P: Yes, I got it.
587
588 R: That's where the airport is.
589
590 P: Oh my goodness. Is that the (cannot hear)
591
592 R: Yes.
593
594 P: Ok.
595
596 R: I'll just make sure the runway lights up for you so you can see it.
597

598 P: Do you see the runway up ahead Brian?
599
600 B: Oh yeah.
601
602 R: Drop it back a little bit. Go around 190 knots. Pull the gear down now.
603
604 P: So the gear is that one (points to the switch).
605
606 R: Pull up and down.
607
608 B: (I pull the switch up and down).
609
610
611
612
613 (I keep flying the virtual aircraft towards the runway)
614
615
616
617
618 R: There we are.
619
620 P: Now just bring the nose up a little bit and... (cannot hear).
621
622
623
624 (Rob chats again with the Pilot in the background)
625
626
627
628
629 P: Now see just left of the runway there are some white lights with a white bar. Two
630 reds and two whites.
631
632
633
634 (The aeroplane is descending)
635
636
637
638 P: I'm letting the aeroplane sink and also bringing the nose up as well at the same
639 time, and the speed is falling off.
640
641 B: We are two thousand feet now aren't we?
642
643 P: That's right, and the airfield is eight hundred feet or something? (He asks Rob)
644
645 R: That's right... (cannot hear).
646
647 P: The first one's gone red.

648
649
650 (The lights along the runway change colour)
651
652
653 P: (taking hold of the controls). Keep your hands on the controls and follow through
654 with me and see how it feels.
655
656 B: So what kind of speed do we hit the runway at?
657
658 P: At about this.
659
660 (We continue descending)
661
662 R: Am going to put this on right pilot now because it will be easier for you to fly from
663 right pilot (He changes the screen slightly so the Pilot has a full screen in front of
664 him).
665
666
667 (The Pilot flies the aeroplane down towards the runway and lands the aeroplane. He
668 continues with some exchanging comments with Rob behind)
669
670 (The plane has now landed and is slowly moving along the ground)
671
672 P: You need about ten knots in the ground to keep it going.
673
674 (The Pilot is parking the aeroplane on the ground)
675
676 P: See the big aeroplanes over here? What do you think?
677
678 B: Brilliant isn't it? I didn't expect all this.
679
680 P: I didn't expect it either.
681
682 B: Can I take a picture of this?
683
684 P: Please do.
685
686 (I take a few pictures whilst sitting there. We then get up to leave and I take a few
687 more pictures)
688
689
690 (We thank Rob and leave the room with him. We then walked back across the airbase)
691
692 P: So Brian, do you fancy flying now or having some lunch first? How hungry are
693 you?
694
695 B: I'd quite like to get up there now and have lunch afterwards. I'm not too hungry at
696 the minute. I had some breakfast at Euston station.
697

698 (I'm excited about going up in a real aeroplane. We walk to another building)

699

700

701 Section 2

702

703 *Flying in the Cherokee aircraft*

704

705 We arrived at a small office-like building within the airbase. The Pilot was very
706 familiar with the staff who worked there. He carried a large black briefcase, along
707 with some headphones, and he then collected a folder from the man at one of the main
708 desks. He thanked the staff and we walked out the building towards the aeroplanes.

709

710 It was now fairly cold with grey clouds all around, with only very small glimpses of
711 blue sky. The Pilot had commented on how disappointed he was that the weather
712 couldn't be any better for us, but I wasn't really bothered. As we approached the
713 aircraft I was so excited to be going up that the cloudy dull weather did not matter to
714 me at all.

715

716 There were many aeroplanes at the airbase, but we kept walking until we came across
717 three aeroplanes sitting next to each other. They all seemed to have the name of the
718 company the Pilot had worked for printed on the side of them, half covered by cloth
719 that draped over each aircraft. I assumed that these were used to keep the aeroplanes
720 in good condition, and prevent any kind of weather erosion etc. The Pilot explained to
721 me that he could use any of the planes that belonged to his company, but that he
722 mainly used two of them in particular. We then walked towards the aeroplane in the
723 middle of the three planes. The aircraft was light blue with a dark blue cloth covering
724 the rest of it.

725

726 The Pilot puts down his briefcase and folder, and starts to lift the cover off the plane.
727 Underneath the front wheels of the aeroplane were two wooden blocks, and
728 underneath the wings there were hooks and chains which tied the aeroplane down to
729 the ground. The Pilot removed the blocks and unfastened the chains.

730

731 The Pilot then walks around the plane to check that everything was ok. I use this
732 opportunity to take some pictures of the aeroplane and I asked the Pilot to take a
733 picture of me, which he kindly does. He opens the door of the aircraft by climbing up
734 onto its wing. With the door left open he then walks back to the rear of the aircraft and
735 lifts what seems to be the back wings of the plane. This he said was called the
736 "elevator". As he pushes the elevator up and down, he points to what I called the
737 "steering wheel" but is actually a "yoke". As he lifts the elevator, the yoke moves up
738 and down. I realised that the yoke controls this part of the plane. The Pilot then walks
739 to the wings and similarly lifts what I think are called the "flaps" on the side of either
740 wing. As he moves these up and down, the yoke turns left and right. I realised that this
741 is how the aircraft can turn in the sky. I remarked to the Pilot that this seemed to be
742 remarkably simple and very straightforward and he replied by saying I was quite
743 right.

744

745 The Pilot climbs into the aircraft and I join him. He tells me not to stand on the flap
746 part of the aeroplane's wing. The Pilot sat in the left seat which is the main pilot's
747 position, and I sat in the right which is the co pilot's seat. This was very different to

748 sitting in the simulator. There I was allowed to sit in the main pilot's position. I was
749 of course quite happy to be second in command to the Pilot on the real aircraft! Once
750 in the aircraft the Pilot tells me to close the door. There are two locks on the door.
751 One was at knee level and the other was up at the side of my head. The Pilot leans
752 across, and makes sure all the locks on the door are fastened securely.
753
754 The Pilot explains to me that he was always told never to fasten his seatbelt until just
755 before taking off. If the plane happens to go up in smoke after turning the engine on
756 both Pilot and Co-pilot, and any passengers have a chance of getting out more quickly
757 with the seatbelts unfastened.
758
759 The Pilot starts to press the controls. He gives me a set of headphones and puts his
760 own on too. The engine seems to start up and I switch on my Dictaphone. The
761 propeller on the front of the Cherokee aircraft starts up and is spinning around. I
762 record the things which were said whilst moving along the ground, but once we were
763 up in the air the noise was just too loud for the Dictaphone to record. Let's take a
764 look.
765
766
767
768 (Very noisy)
769
770 (Cannot hear)
771
772 (The Pilot tells me about the information he has regarding our flight)
773
774 P: (cannot hear) 2 kilometres, which is good enough for us... (cannot hear)... two
775 hundred feet... (cannot hear) Two degrees and seven degrees... (cannot hear). The
776 engine is liable to get ice in them. The air comes into them and it gets super cold. And
777 because it gets super cold we get an icing problem. And we can offset that by putting
778 the carburettor heat on, which is pretty good. And that's reducing the power because
779 we are putting hot air into the carburettor which the carburettor doesn't like but it
780 stops it getting icy (cannot hear).
781
782 B: Oh right.
783
784 (The Pilot tunes into a radio and listens. He writes information down onto a scrap
785 piece of paper attached to a clip board)
786
787 P: What I got there was the weather. Sorry you didn't hear that. The pressure is
788 101.12. Oh sorry is 101.11, which is quite high... (cannot hear).
789
790 (Cannot hear)
791
792 B: Where did you get this information from?
793
794 P: I got it from the radio just then.
795

796 (The Pilot checks the time which was 12 midday. He writes down 12.05 as our take-
797 off time onto his piece of paper, and then finishes writing information onto his piece
798 of paper and puts the paper and clipboard behind where we are sitting)
799
800 P: (Points to a map sitting on his lap). We'll go over to (cannot hear)... over towards
801 near Oxford (cannot hear)... We might just... (cannot hear)... And then back again.
802 It's quite a busy bit of airspace so we'll see how we go. This will take us about 35
803 minutes which is fine... (cannot hear)... Right...
804
805 (Cannot hear)
806
807
808 P: Am squeezing (cannot hear) into the... (cannot hear)... Right.
809
810 (Cannot hear)
811
812 P: (The Pilot gets authorisation from the command centre to fly from a particular
813 runway. He uses the term 'Romeo' to refer to us and our aircraft).
814
815 (Cannot hear)
816
817 P: (Pilot shouts something loudly as he starts the plane moving towards the runway)
818
819
820 (The Pilot steers the aeroplane to the runway by using foot pedals. I remain silent
821 whilst I watch what he is doing. This continues for several minutes)
822
823 (Cannot hear)
824
825 (At this point the aeroplane is still on the ground, and the Pilot is steering the
826 aeroplane about. We arrive at the runway and the Pilot turns the aircraft around so that
827 it is facing the right way up the runway. There are red and white lights along the side
828 of the runway which are *lit up very brightly, even though it was about midday and*
829 *wasn't dark.* The aeroplane picks up speed and takes off. I never felt as much
830 sensation as I thought I would, other than a small rumbling behind me, as if somebody
831 was nudging the back end of the plane. The aeroplane picks up speed and seems to
832 take off the ground very gently and naturally, as if it had been swept up into the air by
833 a gust of wind. The noise becomes much louder, and the Dictaphone picks up very
834 little of our talking up in the air.)
835
836 ***Up in the Air***
837
838 We went further and further up into the air. The views were fantastic. I could still see
839 all the roads with cars and traffic below me. The Pilot pointed out to me a very large
840 long road which was completely straight. "This is a road the Romans had built", he
841 said. The aeroplane was very noisy, but we had radio head phones which meant we
842 could talk to each other fairly clearly. The Pilot tells me to grab hold of the controls.
843 As I do so he lets go of his. I realised I was actually flying the aircraft myself. I was a
844 little nervous at first, and concentrated on keeping the aeroplane level. "I'm going to
845 have a little sleep" says the Pilot. "What was that?" I said. "I'm having a little nap and

846 will leave it to you” replies the Pilot. I laughed as I realised the Pilot was joking. But
847 nevertheless I was in control of directing the plane, and I felt I had enormous
848 responsibility.
849
850 The weather was dull and we saw bits of terrain heading towards us. The Pilot told me
851 to turn: “Swing it to the right” he said. “That’s it, and as you turn, pull it up a little
852 bit” the Pilot said. I turned the plane to the right, by turning the yoke to the right side.
853 It did seem similar to a car (even though I’ve never driven one of them either!). A
854 major difference I suppose is that you can go up and down as well, by pulling or
855 pushing the yoke in front of you. As I turned the yoke to the right, I pulled it back as
856 well. I could see the ground through my left window as the whole aeroplane turned.
857 The Pilot told me he “felt sick”, but I knew he was only joking because I was in
858 control of the aircraft. I just laughed and carried on flying. After a short time the Pilot
859 pointed out to my right. “That’s Milton Keynes down there” said the Pilot. “Oh I have
860 a friend from Milton Keynes” I said. I kept on flying the aircraft.
861
862 We avoided the rain for a short while but eventually we hit it. The rain belted against
863 us, but it never seemed to make the familiar sound that rain usually makes. It seemed
864 to pour over the nose of the plane and up over the window in front of us. I guess we
865 were travelling so fast that we were hitting the rain rather than the rain hitting us.
866 After a little while we escaped the bad weather and I could see below me much more
867 clearly again. The Pilot said that I had some kind of “relationship with the ground”,
868 and it was “rather unhealthy”. This was his way of telling me to fly the aeroplane
869 higher into the sky. “See those electricity pylons in front of us” he said. “Well we
870 don’t want to hit them do we” said the Pilot. I laughed but at the same time pulled
871 back on the yoke, taking the aeroplane to a higher altitude. Suddenly, a message came
872 on over the radio. It seemed to be coming from a control centre. “Are you ok out
873 there” a voice said. The term “Romeo” was again used to refer to us. “We are fine”
874 said the Pilot. The voice explained that there was some bad terrain and wasn’t sure
875 how experienced the Pilot was in dealing with it. The Pilot, with forty years of flying
876 experience was of course fine. However, given the harsh weather conditions, the Pilot
877 suggested it was probably best to start heading back to base.
878
879 The Pilot told me to head towards my right. He switched on a Satellite Navigation
880 system, though he said he had rarely used this particular one. The screen was mainly
881 black with green lines indicating various places. In the centre of the screen was a
882 symbol of an aeroplane. This was us. Ahead of us was a circle. “Head for that circle”
883 said the Pilot. “Somebody has been using this before us” said the Pilot. “They’ve
884 programmed in where they’ve wanted to go” he added. He told me just to fly the
885 plane towards the circle, just so I could get a sense of how satellite navigation actually
886 worked. I flew the aeroplane to the circle, which represented some place below us,
887 like a lake, park or something like that. He then told me to turn the aeroplane to the
888 left and fly us back towards the airbase. I had no idea where we were, or how to get
889 back to the airbase, but the Pilot just seemed to know. I just followed what he had told
890 me to do.
891
892 It wasn’t long before I saw the large runway ahead. The Pilot had his hands on the
893 yoke in front of him but told me to keep my hands on mine. He pressed some of the
894 controls in front of him. I think he was getting the flaps out so the aeroplane’s wings
895 would become larger and the aircraft would slow down to land. In front of us was the

896 runway. It was lit up with mainly bright white lights. But as we approached the
897 runway some of the lights changed colour. "See the lights have changed pink" said the
898 Pilot. "Yes" I replied. "Well fly the aeroplane down keeping the lights pink all the
899 time". I realised that the lights changed colour depending on what angle you were
900 approaching the runway and that this light indication helped to guide aeroplanes to the
901 ground safely. I kept hold of the yoke nervously. I hoped the Pilot hadn't left me to
902 land the aircraft. This was probably the most frightening time of being aboard. I
903 thought if we crash we're dead! But at the same time I had complete confidence in the
904 Pilot and was never ever really concerned about crashing. The Pilot told me to hold
905 the yoke to feel how he lands the aeroplane. At first I held it tightly, but then I eased
906 off the yoke so the Pilot knew he was in total control. By holding onto the yoke whilst
907 the Pilot was flying, I could experience what the Pilot was experiencing. There were
908 tiny subtle movements of the yoke which were mainly forward and backward, pulling
909 and pushing the plane so it was tilting up and down. The movements were constant.
910 The yoke never seemed to stop moving around until we actually hit the runway.

911
912 When we did hit the runway we seemed to bounce, but this was just the suspension
913 kicking in as we rolled along the ground dropping our speed. The flight had lasted
914 about 45 minutes. After landing the aircraft we parked it up, and I helped the Pilot to
915 put the covers back on. I was keen to get a chance to talk to the Pilot about flying the
916 aeroplane.

917 918 **Section 3**

919 920 ***In the Car: Talking with the Pilot***

921
922 We went to find a spare briefing room but there were non available, so we walked
923 back to the Pilot's car and I spoke with him there. I switched my Dictaphone on and
924 the following conversation emerged:

925
926 (Cannot hear, the Dictaphone is switched on and placed on the dashboard of the car)

927
928 We started speaking about the Turkish Airlines crash:

929
930 P: What it's called really is 'what's it doing now', which is the bug bear of all
931 aviation. The machinery and the sophistication of the vehicle is becoming so
932 sophisticated that it in fact it's almost cloned to human comprehension. And when
933 something goes wrong, because it is so complex of a system, you may not recognise
934 that it's failing to do what you want it to do. And this is exactly what's happened with
935 this Turkish thing. It seems that the radio altimeter on the left had side which on the
936 737 drives everything failed. There's all sorts of reasons why it failed, it could have
937 got a wrong signal from somewhere, because it's only a radio altimeter. It just sends a
938 signal down and then it comes bouncing up. Maybe someone had a mobile phone
939 underneath it, it could be anything that caused it to go down to eight feet. Now if the
940 aeroplane is at eight feet, it says 'oh we're near the ground' and it reduces the thrust
941 levers and the Pilots failed to see that the thrust levers are coming back, and when
942 they did it was almost too late and they put it up again but then let go of them and put
943 it back again to idle and that was it, there was no way, they were just going to crash.
944 And that's what the aeroplane did, it pitched up, because that's what it keeps doing, it
945 holds its altitude. And when it pitched up, it filled up with steam and fell out of the

946 sky. Tragic. Absolutely and totally utterly tragic. Now spy in the sky is the next thing
947 I am going to add to that which is these UAV, Unmanned Air Vehicles. The military
948 have got them up and they are working around very seriously now. They also want the
949 civilian sphere and they want these things because they are big, to fly in civilian air
950 space. You know, coming from the States to Afghanistan, they've got to get there
951 somehow so they've got to go up into civilian airspace. What happens on the way up,
952 what happens on the way down, what happens whilst they're on route. They are
953 controlled from a box which is deep under ground in Nevada. How do they
954 communicate with air traffic control? They don't do it by voice. And that's one of the
955 major ways we know what other aeroplanes are doing because we can hear other
956 aeroplanes making transmissions. And therefore we can have a picture of where we
957 are but with UAV you don't have that because it's all done electronically, through
958 data links and things like that. It's a real bug bear and it's dangerous and today we
959 were flying around a little aeroplane in uncontrolled air space perfectly entitled to do
960 what we were doing. If the police forces or civilian forces want to put out one of these
961 UAV's how would we know it was there? We wouldn't. It relies on see and be seen.
962 We rely on see and be seen and you can't see these things, they can only be a few
963 kilo's weight. Itself would have some sort of system which would try to avoid other
964 aeroplanes, but it depends on us to try and make some sort of transmission. So
965 sophistication of the systems that we'd have on our little aeroplanes means that people
966 would spend a great deal of money to put those in, and why should they. They have
967 every right to fly around in uncontrolled air space without having any radio, so why
968 should they have this? Little microlites, they don't have a generation of power to put a
969 suitable piece of equipment. There's nowhere to put it. (cannot hear) at any rate.
970 Gliders, that's another thing. They don't have transponders on them. There's just one
971 of these interrogator type systems. They just don't have the weight, or the battery
972 power and nor do they have a generator. So this is the sort of thing that happens, and
973 we worry about these UAV's. What happens is if they have a radio altimeter failure
974 and there's nobody there to check it, because although the Turkish accident was an
975 absolute tragedy I can assure you, every twenty flights, thirty flights somebody has to
976 make a manual input to over-ride the computer because the computer is doing
977 something that they don't understand. And we are at least trained, or have been
978 trained to fly the aeroplane. So it means to take everything out, fly the aeroplane
979 manually, put the power on, push the nose down, push the nose up, turn left,
980 whatever. A computer can't do that, it's just too much. A human computer can but not
981 the physical one. The sort of computing power is just not there. So if these things fail,
982 bump, bump, bump. You may have several failures...

983
984 B: So how would you know if you were in trouble or you come into land, and using
985 the example of the Turkish airlines...

986
987 P: Well, somebody would have had three pairs of eyes on this thing, of which the
988 most senior one was a training captain, so you would expect him to be really on the
989 ball. You'd expect somebody to be thinking 'well this aeroplane is not doing what
990 we'd expect it to do'. It's not at the right altitude. You saw in the simulator today.
991 You just had a bit of the nose up, when you were flying along, just a few degrees.
992 That was keeping you straight and level and if you didn't do that you were either
993 going down or going up. It was quite clear. And you didn't know how much to put up
994 or to put down to correct it, but you were starting to get the idea. Hey, in fifteen
995 minutes flying on that thing, you have learnt more than some of these kids taking a

996 hundred hours of practicing. You were doing really well, you were really smart. I was
997 impressed with that. And that is something you have to learn in yourself. When you're
998 at an approach it's going to be that sort of angle. You're going to listen to that much
999 sound that will be coming out of the engines. You can see that the engine instruments
1000 are going to be in that sort of mark. You're expecting all these numbers and those
1001 numbers go into your subconscious and that's where they stay. And when you're
1002 actually doing something and they're not in those numbers, especially in a public
1003 transport aeroplane then you really start to get worried. Light aeroplanes have got a lot
1004 more flexibility. 'A' they don't go as fast and they have quite a good speed range.
1005 And when they are going into a dangerous position they're altitude is really quite
1006 marked. A light aeroplane, when it stalls the nose is a long way up. So high, you think
1007 oh I can't see out the window. With a big aeroplane that's not the case. It can be very
1008 subtle, and the nose can keep going up and up and up. But you've still got visibility
1009 because they design it that way. Although we are starting to put the nose sort of over
1010 that way (cannot hear). But you can have this danger. With computing the way it is, I
1011 think there is a real problem and we've got to go back to basic flying and learning
1012 how to do power, altitude, thrust and there's all these various things which they've
1013 gone into. They aren't going to like it. Because if you're flying an aeroplane
1014 manually you're going to use more fuel. Not a great deal but you are going to use
1015 more fuel because you are going to be more robust about putting the power on. You
1016 won't put just enough. You won't take off just enough. Whereas a computer can do
1017 that because that's a relatively easy sum for it to do. And therefore the accountants
1018 would rather us spend more time using the autopilot. Well we don't have the
1019 sophisticated systems yet to cope with every situation, so you can't plan for every
1020 situation you have to plan for only a few. In which case you still want pilots
1021 physically capable of flying the aeroplane. We had a wonderful system in aviation
1022 where you used to do instrument rating test. We did it every thirteen months. And
1023 what it was on the seven-five' and seven-six', everything was failed except the basic
1024 instruments. And you had to fly around with very little information, and you did that
1025 every thirteen months and it was great. If you had no autopilot, you flew without the
1026 auto-throttle, you didn't have the flight management systems, you only had basic
1027 instruments and you had to do a take-off and go into cloud immediately so this was
1028 about 200 feet on, your on instruments. You had to do an airways route, you had to go
1029 into a hold which is quite a complex manoeuvre to either lose time or gain time or just
1030 hold in position. You wait for your approach time and come round. You make an
1031 approach right down to minimums. Having done a missed approach from that, from
1032 minimums because you wouldn't see the runway. Go round and do another approach
1033 using another (cannot hear) and that was probably the end of your instrument rating.
1034 And you did that every thirteen months and it was real good practice. It also gave a
1035 great deal of confidence to 'I can actually fly this thing as a basic aeroplane'. And
1036 gradually over time they got rid of it. You do all these elements but they are now in
1037 the simulator check-right every six months. You may do an air approach, you may do
1038 another landing (cannot hear), you may do an airbase route, you may do a hold, but it's
1039 not all part of one exercise, which took about an hour and a quarter to do each one.
1040 You may do it over a four day period. Fifteen minutes here, ten minutes there, five
1041 minutes there.

1042
1043 B: So these guys on the Turkish Airlines thing, they should have had hold of the
1044 flying instruments...?
1045

1046 P: They should have been spatially aware, which is a big expression. You have it in
1047 driving, you have it in everything we do. What is around you. If you hear a strange
1048 noise what is it? Wo wo... (Respondent turns his head and looks around us in the car).
1049 Today we just got an aeroplane up behind us. It doesn't worry me it's not a problem.
1050 But if somebody's just walked by, you look. You have to look, because you don't
1051 know if they are a threat or not because we are still basically animals and animals are
1052 very aware of their situation. They have to be because something could jump out and
1053 eat them. Well we are no different as human beings and when we do something
1054 dangerous like flying aeroplanes it's as exactly the same as that. You've got to be
1055 spatially aware, and 'that doesn't sound right', 'that doesn't feel comfortable', 'are
1056 you sure that's what he said'. All these questions and you're doing it all the time.
1057 Where the difficulty comes in is, are you tired? What have you done so far, have you
1058 done a long day already? Is it three-o'clock in the morning where you'd rather be in
1059 bed but you've still got a challenging amount of work to do.

1060
1061 (Brief silence)

1062
1063 B: Good. Good. One of the things I was going to ask you about in addition to asking
1064 you about that plane was the Hudson Bay landing, and what you thought about that?

1065
1066 P: They were very, very lucky. Very skilled, dead lucky. A day like today they
1067 wouldn't have seen it. They went up to three thousand feet thereabouts, that's when
1068 they hit the two birds, that's when the both engines, one of which failed. And the
1069 other one they said went back into idle. Total clear day. They could see where they
1070 were, they could see the obstacles, i.e. all the big buildings. And he didn't have any
1071 choice, he was running out of height and he was running out of energy so he decided
1072 to put it down in the Hudson. He was extremely lucky because one of those engines
1073 was still giving him hydraulics and also electrics. Because of that he had a flying
1074 machine. Maybe a glider but it was a flying machine. He had instruments, he had
1075 controls. He could put the flap out because if he didn't have any of that, then the only
1076 thing that would have come out was a ven-air turbine which is a little turbine at the
1077 back of the aeroplane, when the hydraulics fail, it pops out and it whirls. And it runs a
1078 little pump, and that's enough to give you flying controls. But it doesn't give you very
1079 much more. He had an idling engine which gave him hydraulics and electrics which
1080 means he could put the flap out. And instead of flying at 200 knots which is the
1081 minimum speed with the standby generator. He has to have 200 knots in order for it to
1082 go fast enough to give you the power.

1083
1084 B: Oh, I see.

1085
1086 P: He had the engine, therefore he could come back to the approach speed. So put the
1087 flap out, and he touched down at about 130 knots: survivable. Extremely lucky also,
1088 he wasn't full of fuel, he was only going to Charlston. I would suspect he had
1089 something like eight tonnes of fuel on an aeroplane which would take sixty tonnes
1090 which means that there's an awful lot of air in those tanks and they are sealed, so they
1091 are great big wonderful floating devices. So yes, he was dead lucky, he flew it really
1092 well, he landed it flat. One engine came off which was great, designed to do. The
1093 other one stayed on but it wasn't important.

1094
1095 B: Do they just drop out, do they?

1096
1097 P: Yes, they've got bolts which have a limited strength and you hit them hard enough
1098 and they'll break and that's what happened on that engine. And you float it, which is
1099 great.
1100
1101 B: In terms of what the pilot was doing when he was flying the plane. Did he have a
1102 better idea than what he was doing than the other guys on the Turkish Airliner?
1103
1104 P: Oh yeah, he was much more spatially aware. He knew he had to glide it. He had to
1105 keep the nose going down. He had to keep the speed up. He was absolutely aware of
1106 what was going on. He even had time to talk to the passengers and tell them to brace.
1107 He also had a chance to talk to the controllers as well. For three thousand feet, going
1108 down at about a thousand feet per minute you've got three minutes, four minutes. Not
1109 long.
1110
1111 B: Wow. Wow. One of the things you were saying last time was about the
1112 performance system on the aircraft.
1113
1114 P: Yes.
1115
1116 B: And the importance of... well I suppose two things. The first thing was before you
1117 get onto the plane, you have to get all of the information...
1118
1119 P: Exactly.
1120
1121 B: And things like weight of the aircraft and weather and stuff and putting that all into
1122 the performance or putting things like weight into the performance to work out what
1123 your going to do for that flight. But you said it was quite frustrating at times because
1124 of all the information that was coming out of it first thing of a morning when it was in
1125 the cabin room.
1126
1127 P: Yes, that's right, the crew room, yes.
1128
1129 B: But you also said that actually when you got it onto the plane it was actually quite
1130 useful?
1131
1132 P: Oh yes, absolutely wonderful. It's a wonderful system. In the old days we used to
1133 have great big books and they were massive great books of performance. And that
1134 was for each runway, for each flap setting and for the conditions. And they were
1135 difficult to hold, difficult to open up and you could make mistakes on them. At least
1136 with this computer, generally speaking if you both do independent computer inputs
1137 into it, you will agree an answer. And provided you agree an answer it was a pretty
1138 good chance that you are going to be correct. And there are systems which we could
1139 do for that, and it was a good system. And it has been improved apparently since I
1140 have left. Updates. I can't say it is wonderful now but I suspect it is much better than
1141 it was.
1142
1143 B: I know you said you were still learning things from it by pressing F3 for instance
1144 to see past performances. Was you still learning up until you retired?
1145

1146 P: Very much so. One thing about this profession and probably applicable to everyone
1147 else's is you never stop learning until the last time you do it. And that is a fact of life.
1148 There's nothing you can do about that. And if you ever think that 'oh am on top of it
1149 all, I can do it all' well you saw today, we can make mistakes, and someone got upset
1150 with us because they thought we went into their airspace. Am pretty certain we didn't.
1151 But nevertheless, we don't want to do that. You don't want to upset anybody, you
1152 want to keep out of their way.

1153
1154 B: Yeah, yeah.

1155
1156 P: Flying is difficult enough without upsetting anybody.

1157
1158 B: So with the performance system you started getting used to... towards the end...
1159 Because I know you said that when you first got it you wasn't used to it...

1160
1161 P: It was a very steep learning curve and it took a long time to get comfortable with it.

1162
1163 B: But you started getting used to it towards the end?

1164
1165 P: Yes, you do. We had it for five years, we've got to learn.

1166
1167 B: And when you were using the system on the aircraft with the other co-pilot and
1168 you're checking the performances is right and stuff like that, do you just get on with
1169 flying your plane or....?

1170
1171 P: Yes, once you've done all that and you've closed it up... because it's only a laptop.
1172 You close it up and you put it out the way... so it's not going to be... because it's two
1173 and a half kilo's of weight. You don't want that flying about on the flight deck so it
1174 gets put away, and pull it out again on the cruise for any other bits of information:
1175 latest notices, or latest information that you haven't really had a good chance to look
1176 at, you want to look at it a bit more closely, later on.

1177
1178 B: One of the other things I wanted to ask you about was in terms of the... We were
1179 speaking about it earlier on, in terms of the confidence. When we spoke to the trainer
1180 pilots in the... what room was that? In the briefing room?

1181
1182 P: In the briefing room, yes.

1183
1184 B: When we were speaking to the trainer pilots, is that what their called?

1185
1186 P: I think it's Cadets, whatever.

1187
1188 B: And you suggested to them, you were saying to them that you need to have a...
1189 Well you told them to be confident in what they were doing. And even during the
1190 exam you said to them whether you make the wrong decision or not, make the
1191 decision. Can you sort of expand on that?

1192
1193 P: Yes, you have to make a decision. And right or wrong make one. And then
1194 hopefully, because all commercial flights are done with at least one other person, you
1195 hope that they will pick up if there is a mistake or question, 'well what about that' and

1196 it may well be that you start going back on a decision. A taking a decision (cannot
1197 hear) and grade is one of them, which is you gather information, you react to that
1198 information, you assess the information, you deliver and then you go back to the
1199 beginning again. So it's a great hoop and it never actually finishes. If you've got a
1200 problem we'll go to so and so. After a little bit, 'I'm not so sure I want to that bit' and
1201 'maybe we want to go to somewhere else' but that's what the grade does for you. And
1202 everybody can put pin points in all the time. 'Oh maybe that's not such a good idea,
1203 what about if'. And that's being open minded. Very difficult but that's what makes a
1204 good pilot. Also what makes a good pilot is somebody who always makes right
1205 decisions. We are all human and even the righteous people sometimes make wrong
1206 mistakes. And hopefully because there's two of you, hopefully you are both capable
1207 and aware and awake. Awake, not in the sleeping sense but in the aspect and situation
1208 awakens, you'll come to the right conclusion. And obviously it happens. There are
1209 terrible times when it doesn't happen and they are fairly obvious.

1210
1211 B: Because one of the things I asked you last time was whether it impacts on your
1212 confidence. If you're trying to rely on this kind of autopilot or system...

1213
1214 P: This is very expensive this training here at Cranfield and it costs a great deal of
1215 money. Individuals who are paying the money for it don't want it to go on for too
1216 long and want to be certified very quickly. And because of those sorts of pressures
1217 one wonders just how confident they are when they come out of the training and they
1218 actually start flying on the line. There has been occasions when it hasn't been as good,
1219 but that's going to happen in any profession and hopefully after a year or two with
1220 some good training they'll be brought up to the speed. But you have that little bit of a
1221 worry a few times. Also these aeroplanes are designed to have two pilots. The second
1222 pilot is there for one reason and the main reason is if the other chap can't cope. For
1223 whatever reason, he gets sick or whatever, the other one is good enough to put it on
1224 the ground. You have to question these youngsters or inexperienced people, is perhaps
1225 a better way of putting it, are sure that they can do that. Well, that's one of the things
1226 the examiners have to look at.

1227
1228 B: So they might not be... they are trained to use the systems...

1229
1230 P: Yes, they are very good systems operators. When I've seen them in the jump seat
1231 watching them doing night training, because normally you have to have somebody
1232 who is also qualified on the flight deck just in case it gets too difficult you can see that
1233 they are great at using the systems because that's what they've done in the classrooms
1234 and also they're youngsters, they understand computers much better than us oldies.
1235 And they are very good. They can make it do all sorts of things. But when it actually
1236 physically comes to flying that is a difficult part. You saw yourself today how
1237 difficult it is to fly that little aeroplane. If I had actually noted down the barriers that
1238 you worked in, which is keep within fifty feet, keep within two degrees of the
1239 heading, you would have found it very, very difficult because you don't have the
1240 experience. I'm not sure I would have that much experience to (cannot hear) that far
1241 but how wide a band do you make that? Good question.

1242
1243 B: So the young and new, less experienced pilots. I suppose the less experienced at
1244 flying the aircraft even though they are very good at using some of the computer

1245 systems. I don't know if you know the answer to this, but when they are building the
1246 new aircrafts are they taking away some of the controls for...

1247

1248 P: Yes, to some extent you're actually right. If you take a very sophisticated piece of
1249 kit like the airbus it doesn't have a yoke which is connected to anything, it has this
1250 little side stick. Well the kids can use a side stick very easily because that's what they
1251 do their computer games with. Lots of buttons on it and they can make it go up and
1252 down. It doesn't really give the same feel as having a yoke with a feedback.

1253

1254 B: So the yoke is the thing I was flying...

1255

1256 P: Because you've got nothing in front of you. That's where you can put your laptop.
1257 When you've got a yoke where do you put your laptop? In fact on the airbus, there's a
1258 little panel, an instrument panel, you pull it out and that's where the keyboard is. So
1259 that's one way of flying through the air with computers. So that is different, but it's
1260 not necessarily a bad thing because the Hudson River was an airbus which had a side
1261 stick. They came away. They did better than the Turkish ones which didn't have a
1262 yoke.

1263

1264 B: There was another one as well recently wasn't there. Was there another crash?

1265

1266 P: Oh yes there was another one. There was an aeroplane over in New York state,
1267 Buffalo was it?

1268

1269 B: Was it?

1270

1271 P: Yes, they were coming into approach and I think they came into a very thin but
1272 active air of icing as they were doing the descent and the whole wing and the
1273 aeroplane got covered in ice and that was it, they lost control. That may well be the
1274 case, they are susceptible to it. There's been several other tragic incidents recently
1275 which is tragic in its way. But I think we do have to, going back to what I was saying
1276 about instrument rating. I think we are going to have to back actually just flying the
1277 aeroplane around. What we did today too which is something I've done in the
1278 simulator as well which gives a great deal of confidence. Ours was around Mount
1279 Blanc in which we made the aeroplane do things that would never happen in real life.

1280

1281 B: Like flying close to the mountain?

1282

1283 P: Absolutely, waiting for things to go off. And I did this in a simulator about two
1284 years ago at Inbuck. And the same sort of thing, we flew straight towards mountains
1285 waiting for the automatic planes noise to go off and then to an escape procedure.
1286 Today, everything was working fine and we thoroughly enjoyed ourselves and also
1287 gave a great deal of confidence to the individual. This is just an aeroplane, fly it like
1288 one.

1289

1290 B: It's quite interesting because you can do... Like you say you're tempted to do
1291 more... be more daring in a simulator...

1292

1293 P: Well, you were allowed to play. We were just... We were allowed to go to play and
1294 go to limits that we would never do in real life. But it's confidence boosting. Who

1295 knows? Sometimes maybe... ok you're flying over mountains, parts of Persia have
1296 very high mountains. Maybe you lost an engine at very high altitude and maybe you
1297 have only one place to go which is somewhere like Tehran. And that is already high in
1298 itself. You may find yourself down in amongst the mountains but you know you can
1299 still fly even on one engine if you do this little manoeuvre, do this and go down that
1300 valley. And having done it on the simulator, yes you can. The other thing is that
1301 everyone says that's the cut off, you can't go any lower than that. If you go any lower
1302 than that then you'll die. Well its not so quite so clear cut as that.

1303
1304 B: Just to finish off. If you were a passenger on these new planes and new pilots
1305 where they're more systems operated and they're more systems orientated, how
1306 would you feel in comparison to...?

1307
1308 P: Close my eyes and have another drink.

1309
1310 B: (Laughter).

1311
1312 P: You don't worry about that. If you worry about something. Yes, to be a
1313 professional in anything you are going to concern yourself with all aspects of it and
1314 you don't want to do anything that's going to upset anybody, endanger anybody,
1315 endanger yourself or risk anybody, but the reality of it is that just getting out of bed is
1316 dangerous. So you've got to sit back from it and let somebody else have a go. Stop
1317 worrying about what they're doing and if it's your unlucky day, it's your unlucky day.
1318 How many flights in the world are there everyday? A million, I don't know. There
1319 must be a lot of flights throughout the world. How many of them crash? One every six
1320 months. It's a pretty low number. How many cars crash? Infinitely more. So what's
1321 more dangerous? You cover yourself as best you can. You be as professional as you
1322 can. Learn the lessons you can and just deliver it as best you can. I don't know if you
1323 know the Swiss cheese analogy. Take a tube, fill it up with discs which have certain
1324 holds out of them. And you put twenty or so discs in this tube. If you start putting
1325 something in one end and it goes through one disc and one hole, it might hit another
1326 solid piece at the other end because the holes aren't all aligned. The day the accident
1327 happens is when all the holes align and you're just bloody unlucky. Because anyone
1328 of those discs beforehand... He didn't have a row with his wife before he went to
1329 work. He didn't have a problem finding a place where to park. He didn't miss the bus
1330 or the traffic lights. All these things which make these discs end up in this tube, and at
1331 stage or another it stopped, great but you would never know about it, but it's when it
1332 all goes to worms and everybody's got these holes all aligned up, that's when the
1333 accidents happen.

1334
1335 B: And it all goes. Great, if we stop it there.

1336
1337 The Pilot starts the car, and we drive off from the airbase. I keep the Dictaphone on
1338 for parts of the journey as we are travelling put it is very noisy in the car.

1339
1340 (cannot hear)

1341
1342 (cannot hear)

1343
1344 **End of Transcript**

Appendix 3 - Research Brief

The research I am carrying out is for my PhD, which I am undertaking at London Metropolitan University. My PhD is a study of people's working relationships with computing and information technology systems which are supposed to aid or even replace human experts in all sorts of fields. I would like to find out how you directly or indirectly use such systems when you are at work, and what you think and feel about them.

The research involves carrying out an unstructured interview – this will be more like a conversation than a 'tick-the-box' interview and should last no longer than an hour. I hope you will let me record the interview so that I can listen to it again several times, but you will have the absolute right to turn the recorder off if you want to say things 'off the record'.

You will appear anonymously in my transcript and analysis of the interview.

My research is for PhD purposes only. Access to my transcripts and analyses will be restricted to my supervisor of studies, Dr Chris Rhodes, and to my supervisors Dr Sam Whimster and Janet Ransom, all at London Metropolitan University. Eventually an external examiner will also read my transcripts and analyses. All are bound by professional standards of confidentiality.

Should I want to publish parts of my PhD in an article in an academic journal for example, I promise to contact you for your permission to include your interview and give you sight of the draft if you wish.

If you have further questions, please contact me via email:

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