

The Design And Evaluation Of Online Learning Resources For Digital Literacy Skills

Claire Bradley
Learning Technology Research Institute
London Metropolitan University

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Introduction

This paper reports on a project to develop and evaluate the use of online learning resources (OLRs) for digital literacy skills. Digital literacy skills (DLS) are a crucial attribute for today's students: one of the early symptoms of failure to acquire digital literacy skills manifests itself in poor student retention and progression (Beetham, 2011). The JISC-funded 'Anytime Learning Literacies Environment' (ALLE) project created an OLR to help students acquire DLS, in the form of a learner journey (<http://alle.uwl.ac.uk>). The journey is comprised of a series of individual multimedia learning objects (Boyle, 2003), brought together and accessed through a single entry point, which enable learners to embark on their own interactive journey and help them develop their learning and literacy skills (<http://hermes.UWL.ac.uk/learnerjourney/index.html>). The learner journey is in three parts, each including a number of resources:

- **The academic journey:** mind mapping, note making, writing for academic purposes, referencing, plagiarism.
- **The library learning journey:** accessing and using information, understanding a reading list, finding a library resource, using and evaluating journal articles, evaluating information sources.
- **Digital tools for learning:** using Prezi, e-portfolios, VLEs, social media. collaborative document-writing, podcasting.

A prototype of the learner journey has been used and evaluated by over 300 first-year business students at LondonMet and The University of West London (UWL) using contrasting teaching approaches. At LondonMet, students were encouraged to use the journey according to their needs, whereas UWL has 'scaffolded' the journey within the curriculum. This paper discusses the design of that journey, its use and the evaluation feedback.

Design and development of the resources

The concept behind the learner journey was to support DLS development and acquisition through either a formal experience or through a personalised ‘pick and mix’ model. Designed as a sequential and linked learner journey, quality reusable learning objects (RLOs) were used to create a set of individual, granular resources to provide bite-sized scaffolding for individual learning literacy concept acquisition (e.g. learning to learn, meta-cognition, academic practice, study skills; information literacy; communication and collaboration skills; media literacy), accessed by the learner as required. Learners can undertake the digital journey as a complete learning experience as many times as desired, or select individual components of the journey when appropriate for their individual learning. The journey thus enables 24/7 access to structured learning literacy support.



Figure 1: “The Academic Journey”

This project sought to effectively deliver sector ‘best’ pedagogy knowledge and resources. Drawing on expertise from the RLO-CETL in developing reusable learning objects (www.rlo-cetl.ac.uk), the project also drew on findings from an earlier JISC-funded project ‘Learning Literacies for a Digital Age’ (LLiDA) (Beetham et al, 2010). Existing learning objects were identified for the competencies presented in the LLiDA framework. Where no object was readily available for reuse in the journey we commenced storyboarding objects and searching more widely for appropriate materials to re-purpose. In the spirit of Open Educational Resources (OERs), learning objects selected or created for the learner journey had to be eligible to be freely used, re-used and re-purposed, thus making the learner journey available for adaptation and re-badging by other institutions, both nationally and internationally.

Tutors can use the learner journey as it stands, or adapt it, along with the contents of the individual resources, to suit the needs of their students. This is made possible because the resources have been created using the GLO Maker learning object authoring tool developed by LTRI at LondonMet (www.glomaker.org). GLO Maker is free to download, and enables tutors and learning technologists to make changes to a resource by opening it in GLO Maker, editing and re-packaging for use.

Student use and evaluation

Over 300 first-year undergraduate Business students used the learner journey at LondonMet and UWL from October 2010 - February 2011. At UWL, approximately 300 students from the BA Business Studies, BA Accounting & Finance and FdA Business Management courses taking a core First Year module took the journey, along with 60 students taking a core First Year Business module 'Studying Marketing and Operations' at LondonMet.

Each university took a contrasting implementation approach: UWL integrated and scaffolded the journey within the curriculum, whilst at LondonMet students were encouraged to use the journey according to their self-identified needs. At LondonMet, although the learner journey was not as heavily scaffolded and integrated into weekly activities as at UWL, it was integrated into the module's own VLE, and the participating student cohorts were repeatedly briefed and saw demonstrations about the learner journey's existence: additionally, some students had an opportunity to experiment with the journey in class. They were thus able to pick and choose from the topics on an 'as needs' basis.

Evaluation data was gathered from students before and after use of the learner journey via pre- and post-test questionnaires, designed to gather background data about the students and to ask them to rate their skills in the topics covered by the learner journey. A total of 118 students completed both questionnaires (93 at UWL and 25 at LondonMet). In addition, six students at UWL took part in a follow-up focus group, whilst one student was interviewed at LondonMet as no other students were forthcoming to participate in a focus group. The tutor at each institution was also interviewed.

Results and Conclusions

The results are presented by university, as the questionnaire data revealed some differences.

The majority of students were aged 30 or under (100% at LondonMet, 90% at UWL). An average 58% were female (76% at LondonMet, 53% at UWL).

LondonMet students had a higher ownership of digital technologies such as computers, internet access, mobile phones, laptops, digital cameras and MP3 players. All the students at LondonMet had their own computer with internet access, compared to 82% at UWL. They also used computers and the internet more frequently and digital technologies more, in general than students at UWL (e.g. social networking, wikis/blogs, and download podcasts) more in general.

The majority of students had used online resources before to support their learning (77%: 96% at LondonMet, 72% at UWL), with positive comments from 69 out of 74 students about them.

Students' use and views of the learner journey

At LondonMet, 88% of students used some or all of the learner journey, compared with 80% at UWL, although only 13% at LondonMet and 2% at UWL said they used all of the materials. This indicates to some extent that students used the journey as we intended, taking a 'pick and mix' approach to use the materials according to their needs.

There were 66 student responses to a questionnaire question about what they thought of the learner journey, of which 59 were positive. Common words used were "useful" and "helpful". Comments made, also reprised in the follow-up sessions, show that many students liked that the journeys were easy to use, interactive and therefore 'better' than reading books or hand-outs, and that they were available online so could be accessed when desired and also used at home.

Students' skill ratings before and after using the learner journey

Students were asked to rate their skills in each of the topics covered by the learner journey on a five-point Likert-scale at the beginning of the module in the pre-test questionnaire, and then again at the end in the post-test questionnaire.

In the pre-test questionnaire, students from LondonMet consistently rated their skills more highly in most topics than the UWL students. If we believe that they rated themselves accurately (and there is evidence from the student at LondonMet who was interviewed that this may be true in her case), then it is possible that these students do indeed possess more developed skills in these areas and/or that they have higher confidence levels of their skills. This is suggested by the responses to the question 'Do you think you needed the learning journeys?', where 83% of students at LondonMet said they needed to learn about some or many of these topics, compared to 96% at UWL. Higher skill-ratings at LondonMet in some of the digital tools' journey topics could be explained by their higher use and ownership of digital technologies in their personal lives.

Whether their initial self-ratings were accurate or not, a comparison of results from the pre-test to the post-test shows that, for nearly all topics, students' skill levels had increased at the end of the module. At UWL, students' skills increased in all topics. At LondonMet there were two exceptions: '*Using social media*' where the average decreased by -0.2, and '*Concept or mind mapping*' which remained the same. However, there was a greater increase in students' skill levels from the pre- to the post-test at UWL, and these students have therefore showed greater progression in their digital literacy skills. This could be attributed to the fact that the module was more heavily scaffolded, and that the learner journey was more embedded, with frequent referrals for students to use certain materials. As the UWL tutor commented in the interview, they were also practicing many of the learner journey skills throughout the module, for example, referencing, understanding plagiarising, developing an e-portfolio, engaging in collaborative document-writing, creating podcasts. It is only reasonable to anticipate an increase in these skills with opportunities to practice them. In this respect, our data indicates that the more heavily scaffolded approach at UWL has produced more dramatic and therefore effective results.

Implementation of the learner journey

Feedback from both students and staff at each institution suggest that materials need to be more embedded within the module, and probably built into lessons and/or the assessments for them to be sufficiently used and to have maximum impact. It is important to attract the attention of students to materials that may be beneficial to them, but they also need to be integrated into seminars or assessments in some way, otherwise they will not be perceived as necessary, and students will not invest the time in viewing or using them. However, there was much debate amongst students about finding the correct balance between making such materials compulsory or optional: forcing students to do things may turn them away and would increase their workload in modules that already seek to include much in the first semester at university. Students are acutely aware of the time pressures on them so tend to focus on assessments and what is required to do them successfully. Tutors need to be aware of the overall workloads that students have, particularly in modules such as these which occur at the beginning of their time at university, when there are a lot of other things for them to take on board.

Tutor feedback on the learner journey

Following on from the comments regarding implementation, both tutors were conscious that they could have embedded the learner journey more than they did. At LondonMet the suggestion was that it could be scheduled into a face-to-face session earlier in the module. At UWL the tutor thought that more links and reminders could be made to learner journey topics throughout the module, both in the VLE and in classes. At both institutions, tutors found that introducing the learner journey in the first week of teaching was not easy, when there were so many other

elements they were introducing to their students (such as the VLE and assessments). The learner journey could become 'overshadowed' as a consequence, as it competes with other time pressures of covering all necessary areas and providing all students with the help and support that they needed.

The tutor at LondonMet liked that the journey was "easy to use, but not simple". It acted as a "consolidatory package", containing most of the core skills being taught in the module. At UWL, the tutor most liked that the learning materials were all in one "coherent" place, making it possible to refer students to the appropriate parts of the journey, as and when they need to develop or practice those particular skills. It then becomes vital "support", particularly for students who need higher levels of support. The learner journey removed the need to cover or keep reprising the same topics in class, time and time again.

In terms of impact, the tutor at UWL who had worked on a similar module in previous years, noticed that students had developed their DLS more quickly. At the time of interview the students' grades were not finalised, but there was a noticeable difference in that, so far, more students were passing, and more were getting higher grades. Whilst the tutor recognised that these improvements cannot be solely attributable to the learner journey, she believed that it played "...a very important part in the bigger picture".

Conclusions

Trying to determine and measure students' digital literacy skills is not an easy process, and the emphasis on this project was to create the learner journey, to use and evaluate it with students, rather than on finding the most effective methods to do so from the outset. We designed our simple and manageable approach on students rating their own skills. Whether these self-ratings were accurate or not, there is for 14 out of the 16 topics covered in the learner journey, an increase in student skill levels at the end of the module at both universities. However, a comparison of the results from the two universities shows that this increase in student skill levels is more pronounced at UWL. This suggests that the approach at UWL has been more successful, because the learner journey was more heavily scaffolded in the module, and students also had to use and practice many of those skills throughout it. This is certainly a possibility, but it's also possible that it's because they were starting at a lower level of confidence and skill. Perhaps the materials were more appropriate for these students, or perhaps there was just more scope for improvement.

However, students and tutors were largely positive about the learner journey. Students see it as a valuable and useful resource, and the majority of students used all or some parts of the journey, largely as we intended, taking the parts they needed when they needed them.

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Biographical note

Claire Bradley (MA) is a Research Fellow at the Learning Technology Research Institute at London Metropolitan University. For the past 14 years she has worked on a number of UK and European research projects involved in mLearning, eLearning, online communities, multimedia and the general application and evaluation of digital technologies in teaching and learning and has co-authored a number of journal articles and papers in these areas.

Email: Claire Bradley c.bradley@londonmet.ac.uk