

A Question of Connection: the potential of peer learning to enhance the higher education experience for undergraduate design students

Carol Carter

Sir John Cass Department of Art, Media and Design
London Metropolitan University

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Introduction

The term 'designer' covers a very broad range of activities. Product design, graphic design, furniture design, web design, fashion design – each field of operation has its own distinct area of expertise: materials, processes and skills vary enormously from one field of operation to another.

But what they share is a common approach, a philosophy of aesthetic/human interface in conjunction with function. All classic designer phrases started life as passionately-held beliefs rooted in this functional aesthetic: Less is more (Mies van der Rohe). A house is a machine for living (Le Corbusier). Do not have anything in your home which you do not know to be useful or believe to be beautiful (William Morris).

In this respect, design is more than the sum of its parts. In a modular system of higher education [HE], helping our students how to learn the constituent parts is what dominates our focus, but more difficult is how to convey the fundamental cognitive aspect: which is essentially one of adopting a creative approach to problem-solving, developing analytical, cognitive and interpersonal skills, and applying them to the practicalities of design.

In his recent article on 'Unleashing Creativity', Kraft (, 2005, p19) observed that

'originality is not a gift doled out sparingly by the gods. We can call it up from within us through training and encouragement' (Kraft, 2005, p18). Training proposed to nurture a 'creative mind-set' includes 'wonderment', 'intellectual courage', 'motivation' and 'relaxation': 'Take the time to daydream and ponder, because that is often when the best ideas arise.'

Hence, there are several inter-related areas of learning to be supported in Design in HE: the development of creativity, practical skills and a social awareness and engagement. The latter is particularly important as all fields of the design profession rely on being able to communicate with the society in which it operates, and it is essential for designers to be able to work as part of a team.

As identified by Hager, some of the main forces for change in academic knowledge are 'advances in technology leading to rapid change in workplaces' (Hager, 2000, p54). In design there are now so many hi-tech options for realising design ideas that computer technology has rendered it possible for a superficially functional piece of work to be produced, but which lacks the cognitive depth required to address the necessary functional dimension. Additionally, with the ever-increasing range of visualisation technology now available, the analytical challenge required to select the most appropriate tool for each job has also increased. In such a climate, the development of a personal design philosophy acquires an even greater level of importance in terms of the potential for a designer's work to be seen or heard above the competition.

There are thus two further concerns:

- the development of a personal design philosophy and an intellectual, cognitive approach to problem-solving
- what kind of learning experience do we want to provide for our students?

In both of these areas, it will be seen that peer learning can play a key role.

Variants of Peer Learning

For the purposes of this paper, the broadest sense of the term 'peer learning' is explored in order to determine the benefits in a Design context, and is used as an umbrella term for learning activities which include collaborative learning, action learning and problem-based learning. The underpinning principle is the exploration of strategies which extend individual learning through social interaction. Specifically, it entails the interaction with peers to challenge ideas and test out thoughts – where the definition of 'peer' is somebody on the 'us' side of a perceived 'them' and 'us' divide.

There is a strong tradition in Design of using authentic tasks and problem-based learning as the vehicle for the development of key skills, with a large proportion of the curriculum revolving around the setting and completion of project briefs at the three undergraduate levels. At Intermediate level the project briefs are often set by external organisations, and by Honours level students work in teams on 'live' projects for 'real' clients. This forges a clear link between the broad concerns of Design in HE and those of Vygotsky's social constructivist learning theory, according to which '[i]ndividuals create meaning through their interactions with each other and

with the environment they live in' and where 'meaningful learning occurs when individuals are engaged in social activities' (Kim, 2001).

The range of learning and teaching strategies applicable in a social constructivist approach includes 'reciprocal teaching, peer collaboration, cognitive apprenticeships, problem-based instruction... and other methods that involve learning with others' (Kim, 2001). This broad range also embraces Action Learning:

Action learning is based on the relationship between reflection and action. It involves regular meetings in groups (known as sets) where the focus is on the issues and problems that individuals bring, and planning future action with the structured attention and support of the group. Put simply, it is about solving problems and getting things done. (Fry et al, 2003, p142)

Problem-based learning (PBL) is succinctly defined by Harland (2003: 263-264) as follows:

Students learn in a PBL curriculum through tackling real-life problems... Students work with the problem as they undertake systematic enquiry and the group is guided by a tutor. The aim of PBL is to allow students to develop relevant content knowledge and the metacognitive skills that will enable them to become good learners and problem-solvers... Facilitating learning in PBL groups challenges the traditional teacher's role and teaching becomes more like research supervision or mentoring.

Like PBL, collaborative learning (where students work in groups toward a common academic goal) enhances critical thinking. As Gokhale (1995) explains:

collaborative learning fosters the development of critical thinking through discussion, clarification of ideas, and evaluation of others' ideas... if the purpose of instruction is to enhance critical-thinking and problem-solving skills, then collaborative learning is more beneficial [than individual].

Again, the role of the instructor is key, underlining the importance of the organisation of the activities to derive the greatest benefits from peer learning.

The principles of social constructivism also feature in Bandura's Social Cognitive Theory which 'is rooted in a view of human agency in which individuals are agents proactively engaged in their own development and can make things happen by their actions' (Pajares, 2002).

The social context in which we live demands that the notion of 'human agency' be extended to include collective agency: 'People work together on shared beliefs about their capabilities and common aspirations to better their lives'. Central to

Bandura's theory is the concept of self-efficacy, where '*unless people believe that their actions can produce the outcomes they desire, they have little incentive to act or to persevere in the face of difficulties*' (ibid.).

As defined by Bandura, self-efficacy can be fostered by interpreting information primarily from four sources:

- Mastery experience: where people learn from their own experience
- Vicarious experience: where individuals learn by observing others
- Social persuasions: asking questions of others and picking up on positives
- Somatic and emotional states: where strong emotional reactions to a task fuel the anticipation of success or failure.

For each of these sources, positive experiences of peer or collaborative learning can help strengthen self-efficacy, particularly where there is a perception of safety through the non-judgmental context of being 'in the same boat' as each other.

Also related to self-efficacy is the work of Fazy and Fazy (1997) which examines the question of motivation, identifying the reason that people choose to act, or not, as being a balance between *value* and *expectancy*, where 'value' is the individual's perceived value of the outcome of the potential action, with 'expectancy' being the individual's assessment of the likelihood of achieving the desired outcome. Three elements of the HE environment identified by Fazy and Fazy as important in motivation for achievement are:

- the facilitation of personal control and responsibility
- the provision of a climate that encourages the adoption of adaptive
- the promotion of individuals' expectations of success and a value system that will sustain the motivation for life-long, higher level learning

achieved through student-centred teaching that affords students opportunities for choice, personal reflection and support for their learning needs (see also Trigwell, 2002).

Peer Learning Issues

For all the potential benefits for peer learning, there is a danger of negative experiences weakening students' sense of self-efficacy. This is a particular challenge in implementing peer learning in an undergraduate context, where individuals are at an early stage of developing their own identity and interpersonal skills.

The best way to mitigate against this is through the careful planning, implementation and monitoring of any peer learning strategy. The goal should be to structure situations that bring success: challenge is positive – but a set-up for failure is not.

Specific issues to be alert to include:

- Imbalance of power within a group: this can be down to dominant personalities or perceptions of competence/mastery, consolidating existing levels of self-efficacy;
- It is important to establish a balance, providing support without undermining benefits of peer learning
- A willingness to engage with the activity is essential for any peer group to sense a common purpose.
- Students need to be supported, need to know they're actually learning something, not just left in a room and told to get on with it (Lea et al, 2003)
- Bridging the credibility gap: the perception that 'I don't know what I'm talking about so why should my peers?'
- Peer assessment must be handled with care: benefits of engaging with the assessment process could damage motivation if it is believed to be unfair; benefits can be gained without peer marks actually contributing to student grades (Carter, 2005).
- Peer feedback must also be introduced carefully, with clear guidance on key principles to guard against negative emotional impact
- It is possible to 'hide' within a group and students may rely too much on working with others: a variety of learning activities is required to achieve the balance.

Application to the context of Design

As note by Jackson (1997), many of the positive aspects of peer learning are embedded within the tradition of art and design teaching: learning is active, students work in groups and have some control over their activities. As he points out:

All of these features - learner activity, working and discussing with others, and control over your own curriculum - are factors which are known to be associated with deep approaches to learning. It should also be remembered that the questions which the study of art and design poses are not ones which lend themselves to simple right/wrong answers: students have to develop a concept of the relativity of knowledge early on in their studies, and should be able to resist believing tutors have all the answers! (Jackson, 1997)

But there is great potential for further development, particularly through establishing peer support schemes. Implemented in different HEIs under various terms – Peer Assisted Study Support, Peer Support, Peer Assisted Learning Support, Supplemental Instruction - such schemes are frequently targeted at courses or subjects 'that were considered to be high- risk, either because of attrition rates or because they contained 'difficult' subject elements, in which cases improved grades and skills development are reported benefits. (Capstick, 2004).

In the experience of the author, it is also possible to introduce small peer learning initiatives which can result in significant benefits, for example:

- sharing experience in ICT: how to use and choose programmes appropriate to the task in hand
- introducing a mock conference for a module in which students were asked, in the role of delegates, to discuss between themselves specific aspects of the course and report back their findings to the 'conference' in order to clarify assessment criteria
- introducing fortnightly group meetings for Honours-level students working on individual final projects in order to share their experiences of their studies.

Conclusion

The social constructivist theories of Vygotsky and Bandura help to throw light on the potential of peer learning to foster students' academic and personal development. In a Design context, these can be seen as helping to:

- nurture creativity
- extend intellectual skills: develop personal design philosophy
- develop interpersonal skills
- enhance the student experience by introducing an element of fun
- encourage students to take control of their learning, make it part of their life rather than just a series of assessment hoops to jump through in order to get a qualification.

But peer learning is not without its hazards. Simply putting students together and instructing them to engage in peer learning will not generate the desired benefits (Lea et al, 2003). The importance of careful facilitation and tutor guidance is fundamental to the success of any programme (Harland, 2003; Biggs, 2002; Gokhale, 1995; Fazey and Fazey, 1997; Lea et al, 2003). The careful preparation and monitoring of by a facilitator is the surest way to avoid key issues and to enhance the higher education experience for undergraduate Design students.

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Biographical note

Carol Carter, a self-employed graphic designer, has contributed to the BA (Hons) Design course as a visiting lecturer with the Sir John Cass Department of Art, Media and Design, London Metropolitan University, since 1994. After completing the Postgraduate Certificate in Learning and Teaching in Higher Education last year, Carol is continuing the MA programme. Her current research interest is in learning and teaching strategies which support and enhance student understanding of the cognitive demands of design as key to shaping the practical skills of professional practice. **Email:** carol.carter@londonmet.ac.uk