Uncovering problematics in design education - learning and the design entity

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Abstract

This paper attempts to articulate some of the challenges for the curriculum, teaching methods and assessment in design education arising from research currently underway in London and Australia. Taking a phenomenographical approach, the research asks whether the experience of learning and teaching in design education, both for students and teachers, is consistent with conceptions shared, within the educational community, about the professional world of designers. We believe that there is substantial variation in the conceptions held by both students and teachers about what design is and how it should be learned. These variations in conceptions have a significant impact on how students learn and how teachers teach.

In the original 'Improving Student Learning' (Gibbs, 1992) project, nine strategies were identified as having the potential for improving the quality of student learning. Their success, however, was predicated on whether they embodied the four key elements: a motivational context; learner activity; interaction with others; and a well-structured knowledge base, identified by Biggs (Biggs J, 1989) as the key features in promoting a deep approach to learning.

This paper develops work already published (Davies A, 2000, Reid A, 1999) and work currently underway (Reid A and Davies A, 2000). By using perspectives emerging from this research, it examines the role played by Biggs's four key elements, questions several of the methodologies often used in learning and teaching in design education: project-based learning; the public critique; and studio-based teaching (one-to-one) and considers issues that arise in curriculum construction and assessment design.

A substantial body of research in learning and teaching in higher education recognises a range of guiding principles. In particular, that students go about learning in qualitatively different ways and that the way they go about learning is directly related to what they think learning consists in. That is, their *approach* to learning is, to a large degree, determined by their *conception* of learning. Most of the literature, to date, has focused on learning that requires students to interact with propositional knowledge within a subject context and also that their engagement with this knowledge is reported in written, usually essay, format. Learning, in these contexts, is often qualitatively differentiated by two approaches; 'deep' and 'surface'. Whilst a deep approach is associated with a student's intention to make sense of the tasks in hand, a surface approach is associated with a focus on the 'signs' of learning: the words used, isolated facts, etc (Marton & Saljo, 1976) , often with the intention of memorising them in order for them to be used at a later date. Whilst these concepts might resonate in contexts which do not rely heavily on text as the principal medium of learning, nevertheless, little comparative research has been undertaken in practice-based subjects to ascertain whether these constructs are equally valid. There is now a growing body of research which recognises that there is similar variation in the way in which teachers understand what learning and teaching consists in. Again, there is little research related to teachers' approaches to learning and teaching in the arts.

Reid (Reid, A 1996 and 2000), whilst researching into music students' and teachers' approaches to learning, found that there is significant variation in the way in which musicians understand their professional world and that this is related to their understanding of the teaching and learning of music. She found that musicians and their students describe their experience of the professional world in three hierarchically related ways. In this context it has become known as the 'Music Entity' and the three dimensions may be defined as:

> *Extrinsic Technical* which describes elements of music making that are literally 'outside' the participant. Music is understood as a combination of technical elements related to either an instrument or musical notation.
>
> *Extrinsic Meaning* describes a more integrated view of music making where the focus is the production of meaningful musical sound for communication.
>
> *Intrinsic Meaning* describes music as a vehicle for expressing personal artistic truths. The focus of this dimension is on the relation between personal understanding of the world of music and the consequent re-interpretation of it through a communicative process.

Although characterised as an entity, it is very much a mental construction – a set of beliefs about the world of music which underpin the intentions which a student formulates in relation to their learning about the subject. The most sophisticated category of the music entity, the Intrinsic Meaning, is seen to include the other categories albeit from a different perspective. Students who demonstrate this in their approach to learning also focus on the technical but as the means to an end which is the expression of personal meaning. This category also includes the intention of communicating with an audience. Students whose conception can be characterised as Extrinsic Technical do not reveal an understanding of their active engagement in the broader context of music making. Learning the notes or getting the composition perfect is seen, for them, as an end in itself.

Current research (Reid, A and Davies, A, 2000) is beginning to reveal parallels in design education. In interviews, some students express beliefs about what they ought to be learning which can be equated with the Extrinsic Technical category. They see the acquisition of specific skills and crafts, which are directly related to their study, as being the principal interests of an education in design. Based on somewhat limited assumptions about the professional world, they see the purpose of design education as acquiring, what they perceive to be, the requisite skills for employment. Such students speak of learning such skills in order to be able to recall them when they are in the workplace.

> 'you get out in the industry …..just remembering things from what you have learnt over the few years and it starts coming back to you.'
> (Student 4)

Occasionally, the skill or craft focus is compared with other aspects of the design curriculum:

> '…..but what I hunger for the most right now is to really get into the craft side of things….the Friday class is the 3D class….they have been the most fulfilling in class experiences whereas other classes you go to you will be handed work, discussion mostly, compare or show work but not that much skill taught whereas on Fridays, being the best day, because I go there, I get taught the trade, I get taught skills. That is what I want the most. Learn software programmes or any kind of craft that can help…..Because I want to become more professional, master a skill'
> (Student 7)

Other students appear to regard design as a process or set of procedures or principles which embrace a range of skills in the act of communication. These students are aware that the users of design play a part in the process of design. Again this equates to the Extrinsic Meaning category. Skills are seen as a means to an end. The end, for these students, is often user satisfaction through such outcomes as successful communication or product functionality. Skills are seen to be necessary but not sufficient.

> ‘What I like is to make things better. Like…function-wise and look-wise, like both things. Because I don’t like things that just look good, and I don’t like things that just function. I like the mix.’
> (Student 1)

> ‘….but interior designing is for the public, for people, so I think it ‘s important, there’s an important interaction with the community there.’
> (Student 3)

> ‘So I think it is probably critical to think of the equilibrium of design - like designer and user and whether you are thinking about aesthetics or function, communication or just looking pretty. I think its important to find the balance between these two’
> (Student 17)

Finally, there are those students who see design as a personally fulfilling activity. They see design as offering a transformational experience through which their world view is developed. For them, skills, meanings and communication are important factors in design but they also see design as a platform from which to explore their own perceptions of a complex world and modify them in the light of new experiences.

> ‘I think with learning you just don’t stop as a graphic designer. You learn…what it is to think in a certain way. Which is looking…looking at the bigger picture of product. For example, we were given a project about stamps, this is the turning point in the way that we started thinking…It was about keeping and caring for domestic pets….about pets on stamps….so we came up with pretty pictures and pretty ideas …we discovered that it wasn’t really that exciting.. we thought let’s think about it again…and we ended up with producing a full set of stamps which showed the responsibility that you have to have in order to keep and to care for a pet by looking at hygiene ..the way you have to tolerate each other…pet’s hairs on your socks…dirt in the bath…dribbling on the window….we didn’t care about whether somebody thought it was a pretty picture or not…it had moved into the fact that we really believed in what we were trying to say and really thought it was a valuable message to get across…
> (Students 15 and 16 : joint interview)

From the interviews, we noticed that there was a direct relation, in many cases, between students’ conceptions of the design entity and their conceptions of, and approaches to, learning. This is not surprising. Students who have a limited conception of what design is and what might be expected of them professionally will have a correspondingly limited set of expectations of what they need to learn . They often have particular conceptions of what they should learn.

> ‘I think you need to be able to step out of university and into a job and have all the skills necessary for working in the field that you have chosen’
> (Student 5)

> ‘History is very important and there is a lot of theory at the moment in my course, but what I hunger for the most right now is to really get into the craft side of things’(Student 7)

> ‘You have to get your research down to a T because it has to be correct. You do that then you do some practice runs… and you will show your teacher and she will go: “That is good” or “That is bad, maybe you could do this to improve that, maybe if you go away and do this” and you will go away and you will do that two or three practice runs and try things out and then you will do your assessment.
> (Student 14)

Students who have a more complex view of the design entity have, on the whole, a correspondingly developed view of what learning consists in and how that learning should be supported by teachers.

> ‘…when you are talking about your work it is always very personal, and when I have excellent feedback from tutors it’s because they understand that…it’s very much two-way. And when you get to a certain level of personal talk there is no problem in them saying, “This is terrible…”,.. and there is no problem with you accepting it because you have learnt to accept that sort of criticism..’
> (Student 15)

In articulating the Design Entity then, we offer the following construct:

Extrinsic Technical: Being able to apply skills appropriately - Design is about **doing**
Extrinsic Meaning: Being able to meet the needs of society - Design is about **interpreting**
Intrinsic Meaning: Being able to communicate - Design is about **living**

How then does this relate to the way in which students conceptualise learning? In the diagram that follows the design entity is mapped onto the conceptions of *learning* design. There appear to be *four* qualitatively different conceptions emerging and there is seen to be a major qualitative difference between conception 3 and 4. In conceptions 1-3 students focus on different aspects of the world around them (for instance; the techniques, the brief, the applications, the solutions, the clients) whereas in conception 4 it is about learning about themselves (but using all the previous aspects at will when necessary).

	ET (doing)	EM (interpreting)	IM (living)
outside focus	conception 1		
		conception 2	
		conception 3	
inside focus			conception 4

Conception 1: Learning Design. Learning is about developing skills, acquiring knowledge and remembering techniques. The students focus on learning enough things so that they can choose the appropriate skill when they get out to work. Design is understood to be about doing something.

Conception 2: Learning to be a designer. Learning is about applying and experimenting with skills and techniques. Students recognise the difference between learning at university and work and understand university learning to be preparatory. As in the previous conception design is understood to be about doing something.

Conception 3: Learning to be part of the design community. As in the previous conceptions learning is understood to be the acquisition and appropriate application of skills and knowledge. This conception is different because students focus on the social aspects of design focus their learning on learning as part of a team. Design is understood to be about doing something to solve a problem.

Conception 4: Learning to innovate and change: Learning is understood to be discovering about themselves. The focus is on self expression, reflection and integration.

Finally, a tentative analysis of the teachers' interviews suggests that teachers understand learning design in quite different ways than many of the students. Their focus on the client (and what they think client wants) seems to have a really important bearing on the sorts of things they want students to do. Thus the teacher's understanding of work within the design world, if limited to ETE or EIE, leads to the development of tasks that only 'test' these things. Further, the teachers are acting as pseudo client but with a teacher's intent and design knowledge so their criticisms of student work purport to be 'as a client' would provide a critique, but they really appear to critique from their own experience.

The alignment (Biggs, 1999) of the essential aspects of the learning situation, ie: the student's conception of learning, his or her construction of the design entity, the teacher's conception of learning and teaching, and his or her construction of the design entity, quite evidently becomes a crucial factor in the achievement of high quality learning outcomes.

Viewed from this perspective, the four key elements outlined by Biggs can only be seen to be useful if the higher conceptual levels (both in learning and design) are shared by both students and teachers. Both teacher and student might regard their relationship to be motivational but if their shared focus is on the Extrinsic Technical then the student is unlikely to engage in the higher order cognitive aspects which are characteristic of the more sophisticated levels. Learner activity, again when focused entirely on developing skills, cannot be seen as sufficient for enabling students to develop more sophisticated conceptual frameworks. The interaction with others will only be effective if these higher order aspirations are shared by the group and a well structured knowledge-base, in which new knowledge is related to existing concepts, will be of a limited nature if confined to the lower levels.

What then of the familiar teaching methodology in design?

On the basis of the research, it would appear that project-based learning will only be successful if the project is designed to develop the student's construction of the design entity as well as promoting learning at the higher conceptual levels. If the project is not designed to challenge students in this way then those students who conceive of learning as teacher-focused and skill based will continue to do so. Problematising the project, on the other hand, positions students to question both their conception of design (the design entity) and how they should go about learning design.

The public critique, often characterised by the teacher addressing each student's work in front of the group, seems in this context a dubious method of developing a student's conception of both learning and design. Notwithstanding the possibility of the limited conceptions of both learning and the design entity possessed by the teacher, the construction of the scenario clearly centres the teacher. Is this a method mirrored in the design profession? How does this crucial aspect of a student's learning experience map onto their understanding of the professional world? What construction of the design entity is being promoted in this context?

Studio-based teaching, in which a one-to-one relationship is developed between teacher and student, is often regarded as the ideal learning/teaching situation in art and design.

Sometimes disparagingly referred to as 'studio cruising', this method could be considered as embracing all four key elements. It was the subject of a seminal work by Swann (Swann, 1986, and also Swann, 1989), in which the effectiveness of the method was questioned. Much depends on the conceptions of learning and teaching held by both teacher and student and the appropriateness of the context is crucial. Philippa Ashton, in commenting about the studio method, observed that, in one-to-one encounters, the staff invariably spoke more than the students (Ashton, 1997). The opportunity for the teacher to spend time with each student and be able to focus on their individual needs appears to suggest that such close attention provides quality learning. But what if the teacher's conceptions are limited? For similarly focused students this would not be a difficulty. Attention to the skills would be seen as an example of good teaching for them. But those students who already have a developed conception of the design entity, and are looking to enhance their understanding further, may well feel frustrated and constrained by the support they receive.

What are the implications for curriculum design and assessment?

It would appear that, if the higher cognitive levels of understanding, in relation to approaches to and conceptions of, both learning and the design entity are to be aspired to in higher education then the curriculum should be designed to enable students to experience them and assessment should be designed to identify and reward them.

How should the curriculum be designed so that students develop a better understanding of the more sophisticated characteristics of the design entity and how can the construction of learning experiences by teachers enable all students to aspire to the higher levels of learning? Does a project-based curriculum which is skills focused in the first year really prepare students for the more sophisticated cognitive aspects of being a designer? What are the hidden messages of such a curriculum?

Assessment often sets the agenda for what students learn irrespective of the quality of the teaching and the nature of the curriculum (Davies, A 1999). How do we construct an assessment regime that both rewards and promotes students' engagement with the higher order cognitive challenges. How do we do it so that students ' experience of learning design is not confined to the lower levels of skills attainment and reproduction?

In essence, how do we 'cognitively align' the design curriculum, students' approaches to learning and teachers' approaches to teaching with the more sophisticated construction of the design entity?

The outcomes of the research enable us to ask these questions about design education. The answers, of course, can only come from the teachers of design.

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