

# DEVELOPMENTS IN DESIGN PEDAGOGY

**Michael TOVEY**  
Coventry University

## ABSTRACT

There is a long tradition of teaching design through design practice in universities and colleges. The end goal for graduates is to achieve a level of capability to function as designers in the professional world. This paper describes recent design education research by the author and others. It has taken a number of directions, focusing on the designer, the design context and the design interface. The end goal is programmes which are directed towards equipping graduates for entry to the community of professional practice. With the engagement of practitioners in the process, various teaching strategies can accommodate these approaches. The studio, tutorial, library and crit. are the traditional components, but using them effectively requires a deep understanding of the designerly way of knowing, and success depends on facilitating the agile navigation through the design process. Learning experiences should develop natural motivations to create a resilient, informed and sustainable capacity. Transformative learning is the key to gaining entry to the various practitioner communities. Each has its signature pedagogy and tutors support their students to become designers in ways specific to particular disciplines. They approach their teaching in qualitatively different ways, and engaging with the social practices and visual codes which constitute the particular design practice, illustrating them through case studies.. This can be approached by strengthening studio culture to provide safe spaces for creative and problem-centred learning and 'gateway' strategies of assessment. Key to sustaining motivation in this context is the toleration of design uncertainty as a threshold concept. Negotiating it successfully involves entering a liminal space in order to develop confidence and skills. Students need the time, space and structure to immerse themselves into a design brief, engaging in a reflective process to resolve the contradictions of a dual processing cognitive model. This work has been brought together in a recent publication which provides a synthesis and overview

*Keywords: Pedagogy, design education research, Communities of Practice, CETLs.*

## 1 INTRODUCTION

The work which is reported on here is based on the observation that in our universities and colleges the established approach to teaching design is through practice. For most students their ambition is achieving proficiency equivalent to designers in the professional world. Recent research into design teaching has focused on its signature pedagogies- those elements which are particularly characteristic of the disciplines. Much of the most productive work has been based on core design theory, although this has often been enlivened by philosophies and approaches imported to the area. Most importantly such work has utility when it recognizes the visual language of designing, the media of representation used, and the practical realities of tackling design questions. Increasingly the 21<sup>st</sup> century sees these activities in a global context where the international language of the visual artefact is recognized. Much of the work which has been collected together is based on studies undertaken during the period of special funding for centres of teaching excellence in the UK up until 2010. Two of those in design have provided the basis for research and innovative developments reported on here. They have helped to enliven the environment for design pedagogy research in other establishments which are also included.

Between 2005 and 2010 in England there was major funding for the development of teaching and learning in universities. The Centres for Excellence in Teaching and Learning (CETL) initiative represented the funding council's largest single funding initiative in pedagogy. It had two aims: to reward excellent teaching practice, and to further invest in that practice so that CETLs funding could deliver substantial benefits to students, teachers and institutions. [ 1]. 74 centres were funded across a range of universities, and within them a huge variety of types of pedagogic research and development

was undertaken, across all discipline areas, much of it interdisciplinary and collaborative. The number of centres which had a direct location in design schools was small, and two of them covered work which focused directly on the development of practice based education as a preparation for entry to the design profession. They were the Creative Learning in Practice (CLIP) CETL at the University of the Arts London, and the Centre of Excellence for Product and Automotive Design (CEPAD) CETL at Coventry University. CLIP had the specific aim to identify, evaluate and disseminate effective practice-based teaching and learning in the context of the creative industries. Similarly CEPAD was specifically orientated to facilitating the creation of portfolios which provided access to the community of international industrial design practice. Since 2010 staff who had been involved in those centres have carried on with developments in these areas. Complementary work in other establishments is also covered to provide a compilation of related design education research and a synthesis of the approaches used.

## 2 PRACTICE BASED TEACHING

Both CLIP and CEPAD operated in contexts where the pedagogy is predominantly studio based. Traditionally art and design teaching is predicated on learning through doing, usually through the simulation of a professional situation by the means of a project brief. Students are neophyte designers engaged in the journey towards entering the community of professional practice of design. The approach which is typical of practiced based design teaching has a number of characteristics [ 2]. Students are from the outset practitioners, often with long periods on projects, usually calling for a number of technical skills and much activity is studio and workshop based. Assessment and feedback is usually through the 'crit' or 'critique' augmented by much peer learning. With less emphasis on formal knowledge there is acceptance of open-ended solutions, varieties of practice and tacit knowledge. Students are expected to become independent, self analytical, critical thinkers, in an environment which does not emphasize theory, but does embrace key skills. Often a good proportion of the teaching staff are also practicing artists or designers.

## 3 FURTHER DEVELOPMENTS

This initiative to support a major investment in research and development for teaching and learning in English Universities with 2 centres where the pedagogy of design practice was a primary focus, served to embrace and utilise the idea of a community of practice, as providing the arena for effective teaching and learning. This had particular resonance for the pedagogy of design practice with its natural emphasis on utilising members of the relevant professional communities within the teaching and learning arrangements. It also gave a focus to realising the explicit ambition of students of achieving the means to enter such communities of professional practice. These can be seen to require particular arrangements for studio teaching with partnership working. For some the crucial ability is to travel through an uncertainty threshold to achieve the transformative learning which is a key component in a community of practice. The legacy of these initiatives is not only the implementation of curriculum arrangements which embody these developments but also continuing research into the pedagogy of design practice.

## 4 SETTING THE SCENE

Design education research has provided the basis for these developments. The development of research in design education can be through the designer, the design context and the design interface (3). Given the problematic nature of design education research, the essential requirement for continuous curriculum development and the difficulties of making effective research contributions in this context, it is important to provide a framework of key concepts. For example central to the notion of a 'passport to design practice' is the recognition of the existence of groups as 'communities of design practitioners'. (4). Where such communities are national and wear the badge of a professional body or society then they are easy to identify and quite visible. However there are other less formal international communities of design practice whose influence can be just as profound. Students who wish to become proficient as designers devote their time to engaging with design project activity. This develops in intensity and detail and as students become more experienced they are able to tackle progressively more complex design problems. Typically the end goal is that of achieving a level of

capability to function as designers in the professional world. That is, they wish to become part of the community of design practitioners

The designerly way of knowing makes use of various forms of intelligence, particularly visuo-spatial thinking. It is a peculiar and complex process which typically addresses those questions which are not precisely formulated and developed, or 'wicked problems'.(5) Design thinking involves the use of parallel lines of thought deploying serial and simultaneous cognition. Such a model is consistent with a 'solution led' approach and this is fundamental to its being a creative activity. Reflective practice is identified as an approach in which tacit knowledge can be deployed in reframing both the problem, and the solution. Various teaching strategies can accommodate these approaches. The studio, tutorial, library and crit. are the traditional components, but using them effectively depends on the approach being informed by a deep understanding of the designerly way of knowing. A number of key contributions are developed from this basis.

## 5 MOTIVATION AND THE LEARNINGSCAPE IN DESIGN

Designers are trained to deal with conflicting requirements and opportunities, and their ways of investigating problems and prototyping ideas are frequently aimed at exposing conflict to bring it out into the open. This requires a familiarity with a multidimensional landscape of design and designing (6) Developing motivation in design education today presents some particular difficulties and opportunities. Students can develop their personal motivation through strategies such as stimulating conflict, embracing failure and effective self-management that are sympathetic to design ideation and creative evaluation. In essence motivation supports effective creative and analytical thinking. The most powerful rewards in design are often those associated with being part of successful innovation, working as part of a team to successfully get a product into the marketplace where it's well received. It's here that undergraduate design courses can overlook such 'emotional' motivation and, even worse, create irrelevant reward systems. Garner and Evans make a case for prioritizing the development of motivation in young designers. This is all the more urgent as forces conspire to erode motivation by swamping design tasks with information. Designers need support for the agile navigation of the world of design. We need learning experiences that tap into students' natural motivations but which professionalize motivation to create a resilient, informed and sustainable capacity. Since motivation is not one distinct force but is shaped and coloured by numerous cognitive forces and emotions, it seems logical that any attempt to develop motivation should acknowledge its diversity.

## 6 RELATING PRACTICE AND TEACHING: HOW SIGNATURE PEDAGOGIES SUPPORT LEARNING IN DESIGN

The characteristics which are required to prepare students for professions in design can be developed through engaging with the disciplinary ways of thinking, acting and being (7). Learning in the professions has particular characteristics which enable teachers to support their students to enter into the profession. These can be termed these 'signature pedagogies', ways to teach that enable people to develop disciplinary ways of thinking and being, or in other words, helping them to become certain kinds of professionals. These signature pedagogies were distilled from the Landscapes project, which covered a range of disciplines. However, the principal of engaging others to learn to become part of a community of professional practice underlies the approach to teaching and learning in design. The principle of signature pedagogies provides a number of ways in which tutors support their students to become designers which are more specific to particular disciplines, but help to illustrate the concept of signature pedagogies. Many of the mainstream characteristics of design education feature as key ingredients, such as the studio environment, project work, the materiality of activity, professional dialogue, the critique and contextual project research.

## 7 TEACHING CREATIVE PRACTICE: CONCEPTIONS AND APPROACHES TO LEARNING LINKING VARIATION AND THE COMMUNITY OF PRACTICE

The conceptions of teaching held by academics in departments of design are linked to the conceptions and the communities of practice associated with the subject context.(8) This study focuses on the qualitatively different ways that teachers of design experience their teaching in practice based subjects in design. Much of the work that has examined teachers' conceptions has built on research frameworks

that also explored students' conceptions and approaches to learning. The important feature of this analysis is the community of practice dimension, in particular how teaching is perceived as contributing to engaging with the social practices which constitute the particular design practice. The community of practice dimension is further explored in relation to how teachers may enhance the experience of learning and the learning environment by developing strategies which address the application of knowledge in practice based settings as well as their activity systems. Participation in a community of practice is a key premise to understanding learning to practice, including learning the values and appropriating an identity related to that practice.

## 8 DESIGN AND TRANSFORMATIVE LEARNING

Teaching design practice effectively involves a process of transformative learning (9). Becoming a successful designer depends strongly on individual capability to think in a designerly way, as well as the specialist design skills and knowledge to translate and develop ideas. Core to this is a process that requires the integration of both holistic and linear ways of thinking in a dual processing model, through engaging in practice. Typically this involves design projects, experiential problem solving and creative experimentation. Central to the approach is the development of mechanisms which help students to surmount a threshold of uncertainty. This is typically connected to the troublesome experiences that are encountered when engaging with design problems and solutioning. By embedding the activity in a studio-based culture that engages students through practice and experiential learning it can be handled effectively and productively. What is required is a learning environment, which overcomes the fragmentation that can occur on modular curriculum structures and provides most significantly 'safe spaces' for problem-based learning.

## 9 INDUSTRIAL DESIGN AND LIMINAL SPACES

The threshold concept theory posits the idea that within disciplines there are conceptual gateways or portals, which - due to their troublesome nature - can make it difficult for students to progress. (10) This notion of a threshold concept is seen as distinct from 'core concepts' - or building blocks - within disciplines, as it engages with the notion of transformation. Grasping, experiencing and understanding a threshold concept will irrevocably transform a student's understanding, and this transformation can relate to the particular subject. Of key importance is the concept of liminal spaces in relation to a creative curriculum. It is argued that for student designers, liminal spaces can be unsafe places as they will not have the skills, experiences and confidence necessary to negotiate them successfully and so a curriculum, which firstly identifies its 'jewels' and secondly builds safe spaces surrounding them can only enhance students' creative abilities. Design students need the time, space and structure to immerse themselves in a design brief in order to enhance their creativity and design solutioning ability.

## 10 DEVELOPING TOOLS TO SUPPORT TEACHING AND LEARNING IN THE USE OF SKETCHES, DRAWINGS, MODELS AND PROTOTYPES

Both design thinking and design communication make use of various forms of representation including sketches, drawings, models and prototypes which can be drawn together as a taxonomy indicating their varied functions.(11) Tools to support design education from 3D modelling to colour specification which have been validated through use by designers in professional practice are introduced to design studio teaching. Such tools are needed to overcome the barriers to communication during product development between industrial designers and engineering designers. The research was undertaken in four phases. Barriers to communication were identified through semi-structured interviews with industrial designers and engineering designers at a number of industrial design consultancies. The nature of design representations was categorised (as sketches, drawings, models or prototypes), and the differences in use between the two groups identified. By the use of a process of information design to translate the findings and data from Phase 2 into the card-based CoLab design tool that included the taxonomy it was possible to identify when the design representations were used by industrial designers and engineering designers and for what types of information. This has provided considerable scope for educators to integrate these resources into their teaching as required. It is a tool which illustrates both the disciplinary differences between the two

communities of professional practice of industrial design and engineering design, and provides a basis for teaching strategies to deal with and capitalise on those characteristics.

## 11 LEARNING THROUGH CASE STUDIES

Case studies provide a rich insight into design proposals which are often grounded in real life and complex situations (12). It is argued that they offer the potential to understand design methods through good design practice when there is a clear context underpinned by sound empirical evidence. An audit of 223 design case studies in four of the leading design research journals with a detailed analysis of the type, subject and field of research provided examples to describe how case studies are employed within the curriculum to identify and draw out design methods and approaches. The research concludes with guidance on the use of case studies in design education. They have a very effective role in the development and acquisition of advanced, and professionally relevant, design skills and competences in the context of preparing graduates for entry to their community of professional practice.

## 12 AMPLIFYING LEARNERS VOICES THROUGH THE GLOBAL STUDIO

An understanding the construction of autobiographical processes is an important aspect of gaining entry to the community of professional practice.(13) A central part of constructing such a narrative is learning how to tell appropriate stories about oneself to prospective employers. Consequently it is argued that design students must learn to tell their own stories. The commonly utilised master-apprentice model which is highly useful in areas such as skills acquisition is not optimally effective in aiding students to tell their own stories. Other approaches are required if we are to equip future design graduates with the necessary reflexivity to be able to negotiate the increasingly complex world of the knowledge economy. The Global Studio aims to propagate a student-led pedagogic model in which tutors purposefully try to maintain their distance so as to encourage autonomy. The aim is to introduce learners to “complex project situations” and consequently to prepare them for contemporary working life. It is operationally different from “tutor-led” design education as lecturers are more “distant” in teaching and learning activities. Students construct conversations and outcomes primarily via interaction with peers..

## 13 CONCLUSIONS

Designers, for the most part, get on with designing, and leave design research to the academic community. One of the key questions this work addresses is whether or not there are links between design research and design teaching. Clearly the conclusion is that there are such links, and maybe they could be closer. The strand running through the work is that design research does support design teaching, and it shows a number of ways in which this is the case. This is a good reason for undertaking design research. If there is a close link with design teaching, particularly if design research supports effective design teaching, then that will gives design academics good reasons for doing such research.

Design education research has taken a number of directions, focusing on the designer, the design context and the design interface, each of which provides a useful agenda for developing such research. Many see the end goal as that of achieving design programmes which are directed towards equipping graduates for entry to the community of professional practice. This in itself justifies the engagement of practitioners in the process. Various teaching strategies can accommodate these approaches. The studio, tutorial, library and crit. are the traditional components, but using them effectively depends on the approach being informed by a deep understanding of the designerly way of knowing.

The community of practice notion is a major theme running through this work. The principal of engaging others to learn to become part of a community of professional practice underlies how most staff approach teaching and learning in design. Different design areas have their signature pedagogies and tutors support their students to become designers in ways which are specific to particular disciplines. Thus teachers may approach their teaching in qualitatively different ways, as it is perceived as contributing to engaging with the social practices which constitute the particular design practice. Participation in a community of practice is a key premise to understanding learning to practice, including learning the values and appropriating an identity related to that practice.

There is an emerging range of well researched proposals for templates for practice-based design education, aimed at producing graduates well suited to their various professional communities. Given the particular nature of the design disciplines there is a core need for the students to be enabled, and well motivated. In order to establish their identities as designers they will need to be able to tell their own stories. Such identities will relate to the particular signature characteristics and will depend on their having travelled through a transformative learning experience and overcoming the barriers which are particular to creative design practice. They will need to experience real world design cases with the visual language which is characteristic of different types of designer. The developments reported on here have been brought together in one volume entitled 'Design Pedagogy' to demonstrate how this can be achieved.

## REFERENCES

- [1] HEFCE *Summative evaluation of the CETL programme: Final report by SQW to HEFCE and DEL HEFCE*, 2011, Gloucester.
- [2] Shreeve, A., Learning development and study support – an embedded approach through communities of practice. *Art, Design and Communication in Higher Education*, 2007, Vol. 6 Number 1, Intellect Ltd (London).
- [3] Norman, E., (2015) Design Education Research: Its Context, Background and Approaches in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [4] Tovey, M., (2015) Design Education as the Passport to Practice in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [5] Tovey, M., (2015) Designerly Thinking and Creativity in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [6] Garner, S. and Evans, C., (2015) Fostering Motivation in Undergraduate Design Education in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [7] Shreeve, A., (2015) Signature Pedagogies in Design in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [8] Drew, L., (2015) The Experience of Teaching a Creative Practice: An Exploration of Conceptions and Approaches to Teaching, Linking Variation and the Community of Practice in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [9] Bull, K., (2015) Transformative Practice as a Learning Approach for Industrial Designers in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [10] Osmond, J., (2015) Industrial Design and Liminal Spaces in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [11] Evans, M., Campbell, I. and Pei, E., (2015) Developing Tools to Support Collaboration and Understanding during Industrial Design Practice in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [12] Roworth-Stokes, S. and Ball, T., (2015) The Use of Design Case Studies in Design Education in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).
- [13] Ghassan, A. and Bohemia, E., (2015) Amplifying Learners' Voices through the Global Studio in *Design Pedagogy-Developments in Art and Design Education*, Ed Tovey, M., Gower (Farnham, UK).