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Transformative teaching practice through a design thinking approach in social settings: A reflection on the delivery of a design research methods module in a graphic design programme at undergraduate level

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Transformative Teaching Practice Through a Design Thinking Approach in Social Settings

A Reflection on the Delivery of a Design Research Methods Module in a Graphic Design Programme at Undergraduate Level

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An acknowledgement of the transformative nature of education; one in which design educators are seen as active agents of change, is not new. However, acknowledging the importance of such a phenomenon is fundamental to exploring academic practice in design education. In relation to social contexts and transformations, meeting stakeholders' needs is increasingly significant to how universities set out graduate options and outcomes for students. Higher education is expected to play a key role in developing the multiple skills and capacities of design and creative subject students for future work in the creative and cultural industries (Ashton, 2017; Naudin, 2013; Nesta, 2007). The paper reflects the need to critically align with the key concerns of design thinking led education, in fostering "student's creative and reflexive capacities" (QAA, 2019); subsequently developing student's critical understanding and active participation in learning, through an emphasis on the development of critical pedagogies. The objectives of this paper are to: 1) Introduce the method and approaches of design thinking in learning environments. 2) Explore the challenges academics face negotiating curricula, learning outcomes and assessment while focusing on design thinking approach to learning. 3) Reflect on teaching practice through design thinking approach in social settings.

Keywords: design thinking; approach to learning; mindful of process; cognitive skills; culture of prototyping; assessment on design process

1. Introduction

Design has been described as a discipline, a field, and a profession, as well as a process (Best, 2015; Press and Cooper, 2003; Stamm, 2005). Interdisciplinary in nature, it is focused on a future that does not yet exist, and the very work of design involves solving problems for multiple stakeholders in a complex changing world (Friedman, 2019). As such, Higher education establishments are charged with nurturing the requisite skills and functions of design and creative subject students, which will enable them to successfully engage and flourish in an ever-changing political and social environment.

In order to prepare upcoming designers to be able to operate successfully in increasingly complex work settings, the Graphic Design programme at the University of Chester, U.K. is teaming up with external organisations to provide L5 students with industry focused project-based learning. It has also brought to light a number of important issues associated with ethics and the very transformative nature of education itself. As such, from an educator's perspective, the paper reflects the need to critically align with the key concerns of design thinking led education, in fostering "student's creative and reflexive capacities" (QAA, 2019, p. 6). Hence, helping to develop student's critical understanding and active participation in learning (Buckingham, 2003), through an emphasis on the development of critical pedagogies. This has clear implications for the students themselves who, through self-reflection and peer learning initiatives, seek to explore their own relationship with the subject and the world around them.

The objectives of this paper are to:

1. Introduce the method and approaches of design thinking in learning environments.



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2. Explore the challenges academics face negotiating curricula, learning outcomes and assessment while focusing on design thinking approach to learning.
3. Reflect on teaching practice through design thinking approach in social settings.

2. Background: The Design Research Methods Module

The design research methods (DRM) module under reflection is a 40-credit core module for Level 5 (L5 - RQF, 2015) Graphic Design subject students, in Art & Design Department, University of Chester, UK. Its aim is to provide diverse approaches to a multitude of real-world issues and practice design thinking in a wider community environment. Central to its ethos and delivery, is an understanding that teaching content is determined by the expertise of the individual team members and the needs of the students. The module team chooses aspects of the curriculum it can consistently deliver, reflects on delivery, and attempts to understand and contextualise it.

The DRM module is designed to stress the impact of design implementation in a social environment; particularly promoting innovation for project development to meet industry needs. The study takes many forms, such as: ways of thinking about design goals and structures; new understanding of design - user interaction and considerable emphasis is placed on the links between marketing and brand building. At this point, the challenge is to fine-tune dimensions and definitions to establish a conceptual framework, and then transfer that knowledge to the context that has been developed.

Accordingly, it is imperative that the essential educational elements which reflect a wider and deeper understanding of the different kinds of knowledge that are needed by the design professions in the current climate are explored (Aston & Deng, 2006; Deng, 2013). A number of research studies (Best, 2015; Norman, 2012) suggest that it is important for design educators to understand that design education must be developed to recognise, and subsequently incorporate, a range of influences policy making, labour market trends, perceived needs of employers and resources within the institution (i.e., students, university staff and facilities). Therefore, it must afford more consideration to whether it has the appropriate balance between the internal and external focus. To successfully set up an educational system to support the design industry, academic developers must be sure that the needs in the two regions are similar (Aston & Deng, 2006). Through the DRM module briefs, students are challenged to use their creative design thinking and visual communication skills to identify, celebrate and then instigate interest and support for the visual arts in Chester. In so doing, they are asked to propose a design rationale for a campaign of activities, events and interventions that will instigate changes in the actions and attitudes of the residents and stakeholders in the city.

3. The Context: Design Thinking Methods Application in Teaching and Learning

3.1 Design Thinking: A Problem-Solving Approach

Design thinking has been applied to socially ambiguous problem settings, dealing with every day-life-problems, which are nonetheless difficult to solve – Horst Rittel (1972) published the “wicked problem” concept. Rittel's idea points toward a fundamental issue that lies behind practice: the relationship between determinacy and indeterminacy in design thinking. “Wicked problems” defined a “class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing.” It suggests that the process is divided into two distinct phases: problem definition and problem solution, sharing a mutual interest in a common theme: the conception and planning of the artificial.

In the author's previous research study, from the design profession point of view, “design thinking” means inventing, testing, developing and redeveloping designers via an iterative process involving the definition of a brief and definition of a problem. It demands research into both the users/customers and markers/organisation's requirements, and prototypes the modelling of partial/potential solutions and multiple feedback loops. What is valued is the iterative, prototype view of the creative process (Deng, 2013). Moreover ‘It is first these designers' skills that are required: foresight, the abilities to transfer knowledge from other fields and abilities to anticipate and imagine...’ (Borja De Mozota and Dong, 2009).

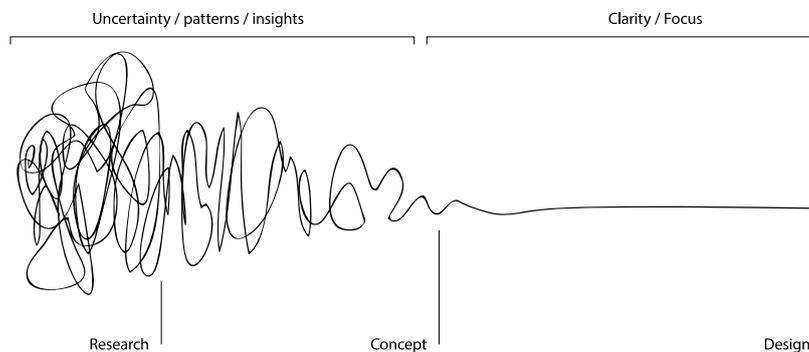


Figure 1. The Design Squiggle by Damien Newman

The Design Squiggle by Damien Newman (Figure 1) represents the journey of researching, uncovering insights, generating creative concepts, iteration of prototypes and eventually concluding in one single design solution. It begins on the left with mess and uncertainty and ends on the right in a single point of focus: the design. Later, Newman pitched the process of design using the terms: Abstract, Research, Concepts and then Design.

Hence, as explained above, design intends to offer a concrete solution to a complex problem that is socially ambiguous and neither easy nor certain to comprehend (Lindberg et al. 2010). Design thinking provides a method of teaching problem solving, teamwork, and presentation skills. Modelling the curriculum on the process used by designers enhances the development of skills such as analysis, modelling, and communicating; i.e., the skills required by the industry. Most importantly, Design Thinking “focuses on developing student’s creative confidence.” (Carroll, 2010, p. 38).

Through studying the module, students begin to understand the design process and how they play a part in creating solutions. This understanding develops meta-cognitive skills and encourages them to become risk-takers, express creative confidence and collaborate with other students (Carroll, 2010).

3.2 Creative Thinking: Solutions and Progress in Learning

Amabile (1998) concluded that creativity is a function of three components: expertise, creative-thinking skills, and motivation. Expertise is knowledge – technical, procedural and intellectual. Creative thinking skills determine how flexibly and imaginatively people solve problems. Motivation is an inner passion to approach the problem at hand leading to solutions far more creative than external rewards. Nevertheless, creativity as ‘capability’ is not discipline confined. It has relevance to most human activities (Parkinson, 1999) and is attributed as a ‘essential’ characteristic in the design field.

Figure 2 sets out some key points of observation of the relationships between the respective elements. This model builds upon the five-dimensional model of creative thinking proposed by the Creative Thinking Strategic Advisory Expert Group (OECD, 2017).

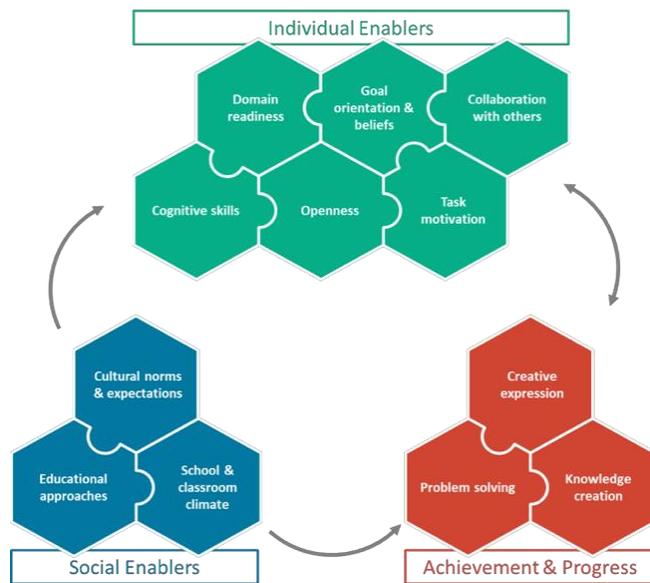


Figure 2. Enablers and manifestations of creative thinking in the classroom

'Individual enablers', essential internal resources for engaging in creative thinking, teaching and learning activities can influence several dimensions including: cognitive skills; domain-specific knowledge and experience; openness to new ideas and experiences; willingness to work with others and build upon others' ideas; and task motivation.

Interestingly, culture norms implemented at different levels of educational approach and education system, 'Social enablers', demonstrate the broader cultural environment and represent distinct social environments for students. They can all influence the extent, the value and investment in students' own creative abilities, and provide a platform for overcoming obstacles to engaging in creative thinking.

The model also shows that creative solutions and progress in learning can refer to communicating one's internal world through the design thinking process, i.e. mind mapping, writing, sketches, music or other arts, and knowledge creation (i.e. generating knowledge that is new to the group and understanding in a process of collaborative enquiry), or problem-solving (i.e. finding design solutions to a variety of problems across domains).

Taking the context into consideration, understanding the ways design thinking is taught will lead to a better understanding of the human capability of solving complex problems and creating "a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system" (Woodman, 1993). The value here, in the outcome, is derived from the process and design thinking exposes the 'invisible' process of design and brings to the surface what happens once it has been undertaken.

3.3 Design Thinking Approach to Learning: The Approach

Design thinking approach to learning therefore addresses the five-dimensional model beginning with the process of learning and the creation of knowledge, based on highly iterative proceedings. These proceedings can be seen as analogous to learning concepts, which in turn is linked to Kolb's (1984) Experiential Learning Theory.

Kolb believed that "Learning is the process whereby knowledge is created through the transformation of experience" (1984, p. 38), which, in turn, was more narrowly defined as "learning through reflection on doing" (Felicia, 2011).

Kolb describes the learning process as a repeated cycle of four stages, namely concrete experience, reflective observation, abstract conceptualization and active experimentation. As outlined in Figure 3 below, this experience forms "the basis for observation and reflection" and the learner has the opportunity to consider what is working or failing, and to think about ways to improve at the next attempt. Every new attempt is informed by a cyclical pattern of previous experience, thought and reflection.

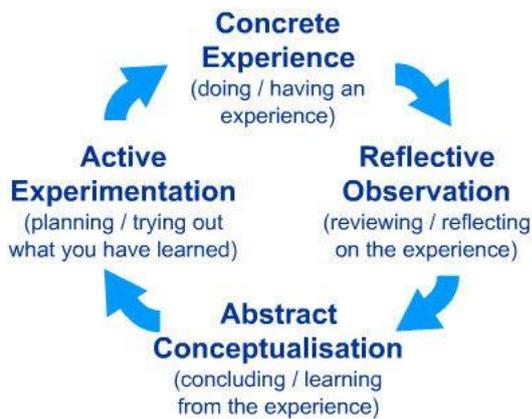


Figure 3. David Kolb's Experiential Learning Model (ELM)

In other words, experiential learning begins by doing something, then through reflection the practitioner examines their experience and uses this to make sense of the situation and learn from their experience, which reinforces the belief that practitioners, and designers in this case, learn best “by doing”. As different forms of reflection, Schön (1991) identified two types that are particularly relevant in the development of thinking practice. The model presents the concept of 'reflection in action' and 'reflection on action': Reflection, according to Schön, is the ability of professionals to ‘think what they are doing while they are doing it’. He believes professional practice requires the ability to think on the run and apply what has been learned through previous experience to contemporary problems, whilst manoeuvring often novel and unfamiliar conditions and environments.

Similarly, evaluating design thinking process in learning helps to understand relevant parameters of design knowledge and design creativity. Therefore, in summary, the “four-stage-cycle” is assumed to be located close to the process of design thinking approach to learning. Effective learning is seen when a person progresses through a cycle of four stages of design thinking: of (1) having a concrete experience followed by (Abstract) (2) observation of and reflection on that experience which leads to (Research) (3) the formation of abstract concepts and generalizations (Concepts) and (4) used to test a hypothesis in future situations, resulting in new experiences (Design).

4. The Teaching Practice: Through Design Thinking Approach in Social Settings

4.1 Design Thinking is Being “Mindful of Process”: Problem Solving Through Reflective Teaching Practice (Allen and Rooney, 1998; Hunter and Tan, 2005; Lande, 2010; Mason, 2003)

Within the design thinking approach to learning context, the L5 DRM module is driven by understanding theory and applying it to projects in different ways and then reflecting on it. The teaching team believe that this provides students with an excellent basis as it fits within a social context and can be taken in the direction they want to go in. For example, the brief is associated with Chester council to promote visual arts in the city. The first component of the project is carried out through team work, enabling the students to explore who they are and examine their own strengths and weaknesses. These ideas, knowledge and skills sets are then taken with them and, through a process of continuous reflection, honed, adapted or discarded, in response to the current situation in which the students find themselves. The focus is on the transferable nature of design education through reflective practice, allowing students to apply what they have learned to any conceivable situation.

At this point, the project need not focus on individual roles, as there is a great deal of team work and roles are varied. As industries change and converge, design education systems need to supply a stream of highly qualified and capable graduates who not only have an appropriate and useful mix of skills and experience, but also and appreciation of their place within differently skilled design teams; in order to drive innovation. It means applying the knowledge the students receive within teams, in order to encourage the individual skills to emerge through negotiation with their peers. This allows students to ‘domain shift’; i.e., a graphic designer is no longer limited to a graphic design role as they will have the opportunity to choose the direction they would like to take; e.g., art directors, marketing researchers. Moreover, it empowers students to take responsibility for their own learning and evidence suggests that they are more likely to engage if they feel part of the decision-making process.

By continuously exposing students to creative challenges and encouraging them to question and scrutinise

their initial beliefs, research claims that they are more likely to develop confidence and competence in their own creative behaviour. This requires the teaching team to offer ongoing support and advice in order to prevent students from struggling while dealing with the uncertainties of the creative process. This is helpful in reassuring students of their own abilities and creative behaviour, as is being mindful of the design thinking process – raising awareness of the tools they have at their disposal to identify and solve the situation at hand.

4.2 Design Thinking is Having Metacognitive Awareness: Encouragement of Students' Cognitive Skills (SEEC, 2016)

The role of creativity and tacit knowledge to design education is critical. As industries change and converge, teaching teams must seek to provide students with an appropriate mix of skills and experience, to supply differently skilled design teams; in order to drive innovation. The author's own experience suggests that acquiring transferable skills and an understanding of wider career possibilities should be the priority of the students' educational achievement.

As such, a large part of the teaching activity for this module is concerned with creativity and tacit knowledge and it demands quite a leap of faith on behalf of the students when carrying out a new brief. Dealing with things that are largely intangible, and subsequently assessing them is quite clearly a high-level activity yet is the most valuable. One way of assisting students on their journey of exploration is to teach the design process holistically through application and reflection, which renders the skills visible. By reflecting on the process, students will be in a position to examine what they have learned and what they need to improve.

The learning outcomes of design education are no longer based on exercises intended to teach students how to reproduce or improve selected objects. Instead, the project facilitates the retention of theory and concepts through the demonstration of relevance in applied settings (Goorha and Mohan, 2010); as a 'design' student must be equipped with the intellectual tools of the 'knowledge economy'. This includes: analytical, logical and rhetorical tools; problem solving tools; and the tools of business. As a result, the students preferred more emphasis being placed on the module that cater for the development of specific applied skills (e.g., teamwork, communication), as well as for interaction with industry representatives.

Students who are exposed to greater uncertainty are more likely to respond iteratively and flexibly within the design process. For example, by giving students a vague problem statement (open brief), the challenge they are exposed to is not only concerned with finding the right design solution, but also identifying the design problem. These problems are referred to as 'wicked problems' and are examined above, in 2.1 (Rittel, 1972). It is purposely to change student's behavior from process-led thinking to a more situation-based mode of working. They achieve this themselves by recognising that the individual steps in the process are only stages within a flexible process.

4.3 Design Thinking is Creating the Culture of Prototyping: Teaching and Learning Methods Are Used for Different Learning Aims (Bourner and Flowers 2001)

During the module practice, the mindset of creating and maintaining a "culture of prototyping" focuses on being highly experimental, experiential, building to think, and engaging people with artefacts.

During the early stages of DRM module, students were exposed to a basic set of methods and tools for each part of the design thinking process. As they go on learning, more tools and methods are introduced. At first, the tools are used on a one-to-one-basis, meaning that for each step in the design thinking process students get one tool in the beginning. For example, "brainstorming" is introduced as a primary tool for the ideation phase where students are required to generate creative ideas.

As the project progresses, additional tools are required, reacting to the situation at hand. These tools are provided by teaching personnel based on their own experience and learned through design thinking methodology like the 'The Field Guide to Human-Centred Design Toolkit' (IDEO 2015). Irrespective of the kind of design challenge involved, students will move through three main phases: Inspiration, Ideation, and Implementation (Figure 4). They will diverge and converge a few times, and with each new cycle students will come closer to a market-ready solution.

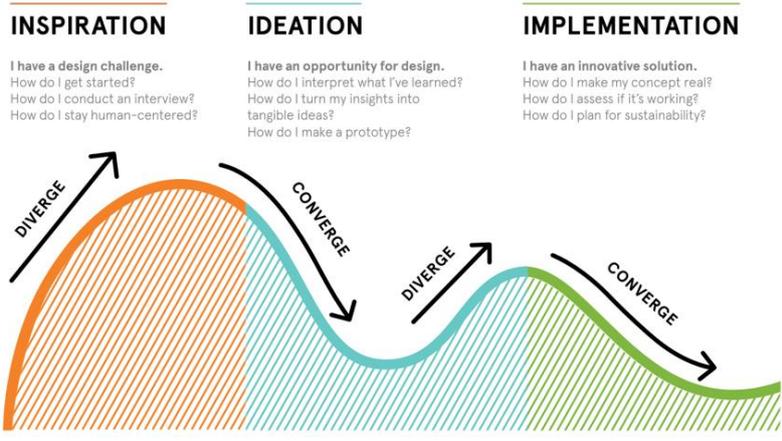
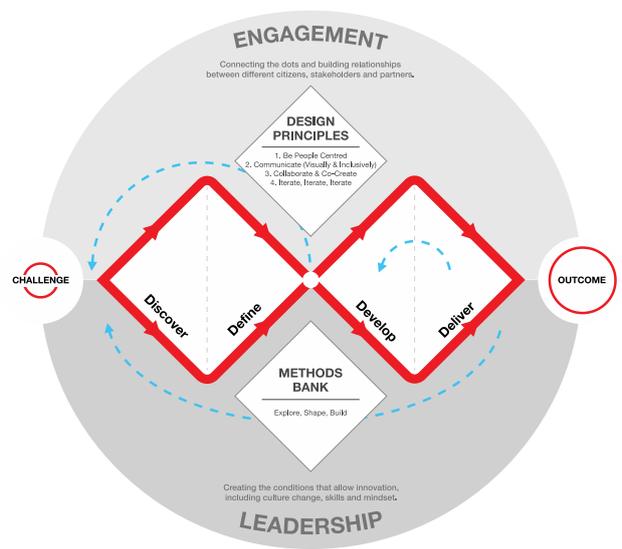


Figure 4. The IDEO Design Process (Photo Credit: ideo.org)

The double diamond design process method (Figure 5), involves the creation of a number of possible ideas ('divergent thinking' before refining and narrowing down to the best idea 'convergent thinking'), and this can be represented by a diamond shape — the Double Diamond is a simple visual map of the design process. It is important to state that the 'Double Diamond' indicates that the process happens twice — once to confirm the problem definition and once to create the solution; the creative process is iterative.

The way in which the method is approached and employed depends on both the teaching team's experience and the students' personal background and interests, meaning tools and mindsets can be varied to foster the required skills. The prototype allows students to turn their ideas into a physical form so that they are able to experience and interact with them and, in the process, learn to develop more empathy for those around them; both practitioners in the field and the wider community. During the module, "show don't tell" takes traditional visualisation a step further, as it includes sketching, mood board, traditional prototyping, digital communication and storytelling.



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Figure 5. Double Diamond Design Process Model (British Design Council in 2005)

4.4 Design Thinking is Assessing the Design Process: Formative vs Summative Assessment
 Through the module study, the assessment techniques are associated with Bloom's taxonomy and the more recent Anderson & Krathwohl (2001) taxonomy.

Formative assessments entail sampling student learning and providing feedback to guide the learning process. Students require personalised and timely feedback during one-to-one tutorials, and emails, encouraging them to reflect on what they have processed. This facilitates metacognition because they become more aware of their strengths and weaknesses (Sewell, Frith, & Colvin, 2010). Reflection and self-assessments, in the form of narrative postings, typically prompt learners to use critical thinking and reflection. For learners, the ability to recognise which concepts they understand and which concepts they have a tenuous grasp of and subsequently need to improve, is an important skill (Kayler & Weller, 2007).

Moreover, through formative assessments, information can be obtained about progress toward learning objectives, which are tightly aligned to the outcomes (Biggs, 2003). For instance, an appropriate formative assessment of students' knowledge of acid-base balance might be in the form of an in-session task or the muddiest point technique used to assess knowledge. Studio opinion polls and self-confidence surveys are more useful to assess affective learning: values, attitudes, and self-awareness. Case studies are often used to assess critical thinking by asking students to solve ill-defined problems reflecting real world issues, without a clearly identified correct answer (Yin, 2003). Lastly, learners' responses to instruction may need to be assessed; in which case, email, feedback forms, and focus group are useful techniques to obtain feedback in this instance.

Summative assessments whilst teaching L5 students, grading rubrics are used to communicate criteria to learners and facilitate the instructor in providing fair and timely feedback to the learner (Angelo & Cross, 1993; Thaler, Kazemi, & Huscher, 2009; Walvoord & Anderson, 1998). Also, they specify the level of performance that students need to achieve learning objectives. Having a mix of both allows the provision of written and oral corrective feedback. Similarly, the extent to which an explanation of a particular technique has been understood, can be ascertained.

5. Discussion: Challenges of Teaching Practice Through Design Thinking in Social Settings

5.1 Teaching and Learning Styles

A fundamental issue may be an apparent mismatch between the expectations of the students and design educators & education establishments. Academic practice is heavily influenced by local tradition and the preconceived ideas regarding teaching and learning contexts. Students and staff bring with them their own, often dissimilar, views of the world, including what constitutes appropriate educator and learner roles and which approaches, methods and techniques are favourable to learning (Killick, 2017). In particular, the ideas which underpin the concepts of design thinking approach to learning may be novel for overseas students brought up in an entirely different environment and contrast dramatically with teaching and learning constructs in other parts of the globe (Curro & McTaggart, 2003; Sowden, 2003). As diverse intellectual traditions converge, the definition of what constitutes best educational practice becomes blurred and without an understanding of the context of academic convention, students will find it almost impossible to engage in the teaching and learning process (Dorneyei, 2014).

However, it is evident that many students from the UK also experience similar problems to those from overseas; particularly where students come from less traditional backgrounds and via less conventional routes (Carroll and Ryan, 2007; Hinton-Smith, 2012; Marshall, e.t. al, 2016). Whilst feelings of uncertainty may be compounded by the distance international students are asked to travel, from one academic culture to another, home students also exhibit signs of discomfort or confusion (McClure, 2007). All students, irrespective of national culture, appear to move through a process of acculturation in which they explore, accept or reject new frames of academic reference. This suggests that more may be gained by focusing on the universality of the learning process itself rather than simply seeking to attribute pedagogical and cultural differences to barriers of learning and engagement (Biggs, 2003; Bartram and Bailey, 2009). Learning environments may often appear alienating to all and research does suggest that feelings of isolation and uncertainty are not uncommon amongst home students as they struggle to come to terms with the "many hidden agendas" (Deuchar, 2008) involved.

Moreover, the student-centred approach to learning that prevails in HE institutions may be disconcerting and destabilising for all students who have been schooled in teacher-led, knowledge-based pedagogical environments. This is in direct contrast to the andragogical perspectives espoused at university, which place an emphasis on project-based, experiential, self-directed, reflexive learning. Although project-based learning has been accused of being without a knowledge base, it still requires highly structured knowledge acquisition (more pedagogical in nature), but in the context of negotiated problems which motivate the learner. As such, the learning is derived from the process of working on a particular problem, which accentuates how learners'

process experience based on the theory that action follows thought.

Successful participation in a problem requires particular kinds of learning styles and this is where the transfer from pedagogy to andragogy comes to the fore as university practitioners encourage students to take responsibility for their own learning. This transition is somewhat of a sea-change for many, who have previously excelled in settings where knowledge has been broken down into manageable chunks, with a view to sitting narrow, heavily controlled examinations. Action/reflection modes of learning prevail in design education environments within HE establishments and individuals who have experienced a consistent diet of this kind of teaching strategy tend to amend their preferred learning style to that which achieves success in that particular environment. In addition, the method recognises that individuals in different professions may have different learning styles and therefore different problem-solving approaches (Leask, 2015).

5.2 Cultural Roles

Culture is a body of learned behaviours and acts like a template for society and, as highlighted above, best practice is based on socio-cultural norms and will therefore differ from culture to culture. This has clear implications for the role of design educators as change agents as, in line with encouraging students to examine their learning styles, scrutinising personal and cultural belief systems may prove demanding and destabilising. For example, issues pertaining to the impact of cultural norms on the acceptance of risk and freedom of action, which current thinking assumes is required to encourage creativity, may be fraught with difficulty. Yet, the implementation of creativity is fundamental to fostering future designers with a scope of global civilisation, understanding of culture, and should be readily integrated into the demands of the current info-economical era.

5.3 Practical Issues

However, change which contradicts prevailing attitudes to design education may be stilted; particularly where certain skills are practised, and valued, above others. There is a fear that teaching groups that appear slightly too homogenous (i.e., from similar academic backgrounds, espousing comparable approaches to teaching and learning) may actually stifle the very creativity amongst the student population that the objectives set out to achieve. Students need to be exposed to a variety of tasks, communication techniques and knowledge basis and be able to subject their own beliefs on design education to rigorous scrutiny in order to be equipped with the requisite skill-set to enter an incredibly diverse, global work environment. Unfortunately, as Norman (2012) argues, it is too often the case that working within design communities with like-minded people reinforces rather than challenges these learning preferences and results in the polarisation of learning styles and ways of thinking. Although this may not pose immediate problems, particularly when designers work within closed design environments; for example, design studios, those who are required to communicate effectively with designers and colleagues across disciplines, they are likely to be disadvantaged.

6. Conclusion and Recommendations

The DRM module examined above invests in design subjects which work alongside, and in collaboration with, other disciplines; in this case business. A multi-disciplinary approach is seen as a guarantee for success because the assumption is that the approach will better deal with the complexity that characterises innovation, across diverse disciplines, into managing design. It is important to appreciate and acknowledge the needs of the multi-disciplinary cohort; students are expected to know about markets, business and users, and employers look for specialists who can work across disciplines, whilst also having more tacit knowledge and high-end skills they would need to operate in both an educational and professional context.

There is also rich potential to exploiting the students' own academic experiences in the studio, under controlled social settings. This makes the teaching and learning context more immediate, being personal, as it is able to tap into the knowledge students have already gained on their subject specific programmes.

Furthermore, by allowing the students to work together, in a design thinking approach to teaching and learning, they are already in a more favourable position to gain first-hand experience of working in real-life settings. The use of experiential learning and reflection techniques further enhances learning as they focus on process, rather than product, and can be used as both formative and summative assessment tools.

In line with this, The University of Chester (UK) has embarked on a joint venture with a local government body - CWAC (Cheshire West and Chester Council) to create a "Design Hub". Located within the Chester High Street Heritage Action Zone, it is a design research and practice hub that encourages students to conduct applied activities and theoretical research into art & design projects; exploring people, places and their interactions. It sets out to provide diverse approaches to a multitude of real-world issues and practice design thinking in a

wider community environment and offers the potential for further reflection and research on current and future design education practice.

In short, despite the shortcomings alluded to above, there is clear evidence that transformative teaching practice through a design thinking approach in social settings is instrumental in preparing students with wherewithal to successfully engage in, and meet the challenges of, an increasingly diverse and global environment.

References

- Allen, R. & Rooney, P. (1998). Designing a Problem-Based Learning Environment for ESL Students in Business Communication, *Business Communication Quarterly* 61(2): 48.
- Amabile, T. M. (1998). How to Kill Creativity: keep doing what you're doing. Or, if you want to spark innovation, rethink how you motivate, reward, and assign work to people, *Harvard Business Review*, September-October pp: 77-78.
- Anderson, L. W., Krathwohl, D. R. & Bloom, B. S. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives (Complete ed.)*. New York: Longman.
- Angelo, T. A. & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers (2nd ed.)*. San Francisco: Jossey-Bass.
- Ashton, D. (2017). Media enterprise education: professional practices and everyday creativity. In B. De Abreu, P. Mihailidis, A. Lee, J. Melki & J. McDougall (Eds.), *The international handbook of media literacy* (pp. 289–304). Abingdon, Oxon: Routledge.
- Ashton, P. & Deng J.Y. (2006). An Investigation of the Transferability of Design Management Education from the UK to China, D2B - *The 1st International Design Management Symposium*: Shanghai 2006.
- Bartram, B. & Bailey, C. (2009). Different students, same difference? A comparison of UK and international students' understandings of 'effective teaching'. *Active Learning in Higher Education* 10/2: 172-184.
- Best K (2015). *Design Management: managing design strategy, process and implementation*, Bloomsbury.
- Biggs, J. (2003). Teaching for Quality Learning at University. *The Society for Research into Higher Education and the Open University Press*. Buckingham: OUP.
- Borja De Mozota, B. & Dong, H. (2009). Towards a Theory of Design Management: Can theoretical Models Define Its Territory? *A Trans-cultural Conversation between Design and Management, Design 2 business 2009, and Tsinghua International Design Management Symposium*, Beijing, China. pp. 362-370.
- Bourner, T. & Flowers, S. (2001). Teaching and Learning Methods in Higher Education: a glimpse of the future. <http://www.bbk.ac.uk/asd/bourne.htm> (Accessed 10.01.21).
- Buchanan, R. (1992). Wicked Problems in Design Thinking. *Design Issues*, Vol. 8, No. 2, (Spring, 1992), pp. 5-21: http://web.mit.edu/jrankin/www/engin_as_lib_art/Design_thinking.pdf (Accessed 13.01.21).
- Buckingham, D. (2003). *Media Education: Literacy, Learning and Contemporary Culture*. Cambridge: Polity.
- Carroll, J. & Ryan, J. (2007). *Teaching International Students: Improving Learning for All*. Oxon: Routledge.
- Carroll et Al. (2010). Destination, Imagination and the Fires Within: Design Thinking in a Middle School Classroom. The entity from which ERIC acquires the content, including journal, organization, and conference names, or by means of online submission from the author. *International Journal of Art & Design Education*, 29(1), 37-53.
- Curro, G. & McTaggart, R. (2003). Supporting the Pedagogy of Internationalisation, paper presented at the *17th IDP Australian International Education Conference 2003*.
- Deng J.Y. (2013). Postgraduate Design Management Education in China: An Investigation into the Transferability of Design Management Knowledge, Curricula, Teaching and Learning Strategies from the UK to China, Degree of Doctor of Philosophy.
- Deuchar, R. (2008). Facilitator, director or critical friend? contradiction and congruence in doctoral supervision styles. *Teaching in Higher Education* 13/4: 489-500.
- Dörnyei, Z. (2014). Researching complex dynamic systems: 'Retrospective qualitative modelling' in the language classroom. *Language Teaching* 47/1: 80-91.
- Felicia, P. (2011). *Handbook of Research on Improving Learning and Motivation*. p. 1003. ISBN 978-1609604967.
- Friedman, K. (2019). Design Education Today - Challenges, Opportunities, Failures, Chatterjee Global Lecture Series.
- Goorha, P. & Mohan, V. (2010). Understanding Learning Preferences in the Business School Curriculum, *Journal of Education for Business*, v85 n3 p145-152.
- Hinton-Smith, T. (2012). *Widening Participation in Higher Education: Casting the Net Wide?* London: Palgrave

- Macmillan.
- Hunter, M.G. & Tan, F.B. (2005). *Advanced Topics in Global Information Management*, Volume 4, Idea Group Publishing.
- Kayler, M. & Weller, K. (2007). Pedagogy, self-assessment, and online discussion. *Educational Technology and Society*, 10(1), 136-147.
- Killick, D. (2017). *Internationalization and Diversity in Higher Education: Implications for Teaching, Learning and Assessment*. London: Macmillan.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development (Vol. 1)*. Englewood Cliffs, NJ: Prentice-Hall.
- Lande, M. (2010). *Underpinnings for Learning Design Thinking: Mindsets and Processes for Becoming an Adaptive Design Thinker*, 2010 (forthcoming publication).
- Leask, B. (2015). *Internationalizing the curriculum*. London: Routledge.
- Lindberg, T. & Meinel, C. (2010). Design Thinking in IT Development? in: *Electronic Colloquium on Design Thinking Research*, Report No. 1, 2010.
- Marshall, C., Nolan, S. & Newton, D. (Eds.) (2016). *Widening Participation, Higher Education and Non-Traditional Students: Supporting Transitions through Foundation Programmes*. London: Palgrave Macmillan.
- Mason, R.M. (2003). Culture-Free or Culture-Bound? A Boundary Spanning Perspective on Learning in Knowledge Management Systems, *Journal of Global Information Management*, 11(4), 20-36, Oct-Dec 2003. Copyright © 2003, Idea Group Inc.
- McClure, J. (2007). International graduates' cross-cultural adjustment: experiences, coping strategies, and suggested responses. *Teaching in Higher Education* 12/2: 199-217.
- Naudin, A. (2013). Media enterprise in higher education: A laboratory for learning. In D. Ashton & C. Noonan (Eds.), *Cultural work and higher education* (pp. 110–130). Basingstoke, Hampshire: Palgrave Macmillan.
- Nesta (2007). *Creating Entrepreneurship: entrepreneurship education for the creative industries*. London: Nesta.
- Norman C. (2012). Design management education and work-based learning, *Art Design & Communication in Higher Education*, 2012.
- Norman, C. & Jerrard, R. (2015). "Design managers, their organisations and work-based learning", *Higher Education, Skills and Work-Based Learning*, Vol. 5 Iss 3 pp. 271-284. Permanent link to this document: <http://dx.doi.org/10.1108/HESWBL-07-2014-0028> (Accessed 10.01.21).
- OECD (2017). PISA 2021 Creative Thinking Strategic Advisory Group Report, Organisation for Economic Co-Operation and Development. [https://one.oecd.org/document/EDU/PISA/GB\(2017\)19/en/pdf](https://one.oecd.org/document/EDU/PISA/GB(2017)19/en/pdf) (Accessed 26.01.21).
- Parkinson, M. (1999). Securing Innovation and Creativity in Design Education, *Higher Education Quality and Employability*. DFEE.
- Press, M. & Cooper, R. (2003). *The Design Experience: The Role of Design and Designers in the Twenty-First Century*, Aldershot: Ashgate Publishing Limited.
- Quality Assurance Agency (QAA) (2019). Subject Benchmark: Communication, media, film, and cultural studies. Available from: https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-communication-media-film-and-cultural-studies.pdf?sfvrsn=28e2cb81_4 (Accessed 10.01.21).
- Regulated Qualifications Framework (RQF) (2015). Available from: <https://www.gov.uk/find-a-regulated-qualification> (Accessed 12.02.21).
- Rittel, H.W. J. (1972). On the Planning Crisis - Systems Analysis of the First and Second Generation, in: *Bedriftsokonomien*, 1972, Nr. 8, p. 390-396.
- SEEC (2016). <http://www.seec.org.uk/wp-content/uploads/2016/07/SEEC-descriptors-2016.pdf> (Accessed 10.02.21).
- Schön, D.A. (1991). *The Reflective Practitioner: how professionals think in action*. London: Temple.
- Sowden, C. (2003). Understanding academic competence in overseas students in the UK. *ELT Journal* 57/4: 377-385.
- Stamm, B. V. (2005). Managing Innovation, *Design Creativity*, Chichester: John Wiley & Sons Ltd.
- Woodman, R.W.; Sawyer, J.E.; Griffin, R.W. (1993). Towards a theory of organizational creativity, in: *Academy of Management Review*, 1993, Vol. 18, p. 293-321.
- Thaler, N., Kazemi, E. & Huscher, C. (2009). Developing a rubric to assess student learning outcome using a class assignment. *Teaching of Psychology*, 36, 113-116.
- Walvoord, B. E. & Anderson, V. J. (1998). *Effective grading: A tool for learning and assessment*. San Francisco: Jossey-Bass.

Yin, R. (2003). *Case Study Research: Design and Methods (3rd Ed.)*. Sage: London.

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