Design collectives in education: evaluating the atelier format and the use of teaching narrative for collective cultural and creative learning, and the subsequent impact on professional practice

Key words: Design collective, design pedagogy, design narrative, atelier, professional design practice.

Abstract:

This paper reviews the case for 'cultural and creative design collectives' in design education. Higher education taught design courses use a diversity of studio models ranging from the atelier format in which students have their own shared studio space, through to hot-desking and, increasingly, no-desking formats. Drawing on observation and experimentation with pedagogical and organizational formats and case studies in industrial design and architecture, the authors investigate whether peer group excellence is best achieved by encouraging and facilitating a cultural and creative collective among students, in which ownership, learning and definition of the course increasingly falls to the student group, leaving staff to act as catalysts and enablers, while offering students an objective critique. Through examples, the authors examine how this collective-peer approach in education impacts on the ability of graduate designers entering practice to work flexibly and in modes in which competition and collaboration can co-exist.

1. Introduction

The body of recent research into design pedagogy considers a range of contemporary issues. These include: design methods (Green, 2004), future directions (Trathen, 2009), the impact of technology (Barker, 2010), preparing students for globalization (Barker, 2009), (Novoa, 2009), knowledge economies (Teixeira, 2009), thought processes (Chen, 2007), and sociology (Cheng). The authors found that there appears to be little research into the contemporary design collective in education. This paper contributes further to the contemporary design discussion by considering ways in which a design collective in education can be supported pedagogically.

Pedagogic models typically contrast between modular and continuous learning, each with practical advantages and disadvantages: for example, on student capacity and convenience of institutional timetabling. The various educational models arise through any combination of historical, financial resource, cultural or pedagogical reasons. However, most formats are challenged in terms of how to ensure a good collective student experience, maintain opportunities for collaboration and creative serendipity, and also track student progress as they develop their learning.

The authors consider that 'Learning narrative' and the 'Collective environment' also impact on design education, particularly when students are in an early, liminal state. In this state, students can benefit from a philosophical scaffolding, supplied by the learning narrative, that will eventually be replaced by their own unique methodology.

The paper describes the models for design learning environments and then considers the collective experience. Through examples, authors argue that a collective environment needs to achieve a balance of both competition and collaboration. Such coexistence is understood to underpin the prospects for success in practice of design collectives, either loosely or tightly knit, satisfying both the individual and the group creative needs.

2. The research question

In the context of design collectives, the key research question that the authors considered was as follows: what are the key components of collective environments that a pedagogical process can embrace? Furthermore, within this question are the four sub-questions: How is culture and creativity *affected*? Can the formats be realistically achieved? What is the relationship to narrative? What is the impact on professional practice?

The authors investigated the key question and the sub-questions by reviewing a number of case studies which are described and discussed in this paper. The authors also had a goal of looking for answers that had practical application within the constraints of contemporary global higher education systems.

3. Diverse models

Art and design education has broadly settled on two categories of pedagogical frameworks, both evolutions from historical precedents. The first of these categories is driven by the spirit of the 'design collective', and comprises the art school studio or atelier model. This was established by the private Florentine art schools of the renaissance from around the 15th Century (King, 2003), always with a focus on making as well as learning from the group – from both peers and Masters. Later, this model of learning through practice carried over to the art schools of England: in his 1858 inaugural address for the Cambridge School of Art, John Ruskin (Ruskin, 1858) spoke about the relative futility of formal teaching per se and instead the pressing need for students to learn by repeated and applied making. For applied craft and design, this studio approach was the method under the influential Bauhaus School (1919-1933) in Germany (Droste, 2005). The second category derives from the teaching of industrial arts and is typically driven by the far greater student volume processing needs of the institution. This category comprises the 'hot desking' or increasingly the 'no-desking' model, with large taught classes in lecture format, and occasional

group tutorials. Such a model is often the norm for universities' academic courses. The model spread to the creative courses that were more typically offered by polytechnics in the UK. The first polytechnic dates back to the early nineteenth century (Fox, 1832-1854), although most were established in the 1960's with a remit of applied education in industry and science for work. In many countries, the term 'technical college' is the same as a polytechnic – in both the UK and Australia, many of these colleges converted into universities in the last 30 years.

A summary of the various design environmental models follows. The interaction level between students for these is judged by the authors as, most interaction first: atelier/studio; workshop; hot desking; no desking; remote learning; self-learning.

3.1 Atelier / Studio

In this model students are each allocated their own desk and workspace often with storage and are expected to spend their entire time while not in lectures working in this environment. In this model design is taught in a vocational manner to mirror industrial activity and practices.

3.2 Workshop

The workshop is arguably the oldest form of design and making education with roots beyond the apprentice and guild systems. John Ruskin and William Morris evolved this model at the end of the 19th century to embrace creativity and craft in harmony. This model continues to be used but the outputs are craft and skill related breaking with mainstream industrial design requirements in the early to mid 20th century. Examples include the John Makepeace school at Parnham and Rycote Wood in Oxfordshire, UK.

3.3 Hot Desking

The hot-desking model has been adopted relatively recently and is due to a number of factors including space resource issues alongside design course evolving from more traditional university environments outside of the art school model where students attend class but do not have dedicated spaces. A room is allocated to a particular cohort but the space is too small for each student to have a well defined personal space. In this model students work in whatever free spaces they find. Students without workspaces are often forced to work at home where this becomes habitual and contact with peers and staff is lost. The collective environment in this case exists for a defined space without personal ownership.

3.4 No-Desking

In the no-desking model students are timetabled across various faculty rooms according to occupancy. They are requited to transport model, drawing and prototypes for each session with

them. Students typically only engage with each other for the duration of the session then disperse. The lack of storage space discourages exploration through three dimensions due to the difficulties of storage and transportation. The collective environment in this case is transient and temporal, only existing for the duration of the allocated.

3.5 Remote or Distance Learning

This model has mainly been used for skills based education in Industrial Design around areas including software, computer CAD modeling and critical writing. It has been used in some cases for entire degree programmes, such as the UK's Open University courses (http://www.open.ac.uk/), and online with Open Universities Australia (https://www.open.edu.au/wps/portal/oua/home).

3.6 Self-Learning

This is effectively outside the scope of the research as it takes place without an educational involvement. However, it is worth noting that design learning continues as a lifelong activity for all graduates who go on to practice professionally.

While the workshop model has value in craft-based design, it has less relevance now in 'design for manufacturing' courses such as product design as today's workshops can only hope to maintain equipment for model-making and test rigs as opposed to all the diverse manufacturing options. Remote learning due to its skills based format and lack of collective environment in current models is restricted in offering a more sophisticated pedagogic collective environment for peer interaction. As noted, self-learning is also outside the scope of this paper.

4 Narrative and Collective Experience

Two aspects of the pedagogical process are further described below. Each of these is considered important by the authors in achieving an optimum learning environment. Both aspects are, to an extent, co-dependent.

4.1 Narrative

In using the term 'narrative', the authors are referring to the teaching process, as distinct from the narrative that may be present in the actual design work of students. The authors consider that learning narrative is an important tool for encouraging students to be motivated to self-evolve in a teaching environment. The narrative gives the student a feeling of progression, or stepping stones. Narratives can take a linear, modular progression. They can also be more complex and run themes in parallel or non-sequentially.

Variations in the design environmental models described in the earlier section occur between undergraduate and postgraduate experiences where students move between taught models, such as directed and self-developed approaches. Many undergraduate programmes evolve linear narratives where modules or projects are constructed in a way that implies a narrative of practice (Bradt, 2009), where capstone projects tie together the conceptual skills in a final display of design competence. An alternative approach found at masters level is in which a non-linear pedagogic model (Hall, 2009) is developed where the disparity between scale, approach of conceptual verses practical, team to solo and technology created spaces for innovation and self-reflection aimed at forming a personal approach to problem solving rather than the absorption of a fixed methodology.

In the instance of a design collective environment, there may be one over-arching narrative that is used to constitute the studio's *raison d'etre*, which is then articulated individually and collectively by the students as the studio progresses, resulting in multiple interwoven strands that enrich the whole. The authors believe that the most successful use of narrative occurs when the design tutor launches a narrative and subsequently becomes a catalyst to instigate these multiple narratives.

4.2 Collective Experience

The studio collective experience provides a support network of shared experience and reflection with like-minded individuals engaged in similar activities. Cybernetic approaches (Robinson, 1979) have shown that 'requisite variety' is a central concept of collective learning and that this can only be facilitated in a collective environment with certain level of interactions between students. The density of these interactions soon exceeds those of the lecturer resulting in accelerated learning and broader exposure to ideas, approaches and cultures. There is even a physical/spatial aspect to this: McGregor (2003) defines the 50ft / 15 meter radius as being the maximum effective zone for continuous working in a co-located design team, beyond which point teams split and divide their activities and performance. Online collaborative working attempts to reduce distance through virtual means, using video conferencing and document editing tools such as Caltech's Evo (http://evo.caltech.edu/evoGate/) and Google's Wave (http://wave.google.com/about.html). Within the collective, students strive to be 'the best', while also co-operating and trading knowledge. In other words, competition and co-operation go hand in hand.

In the collective environment, teaching can occur in a number of ways: formally addressing the whole cohort, team tutoring where small groups of 3-5 students discuss their work with a tutor, one-to-one tutoring of individual projects and peer review processes where students discuss and assess their own work providing formal or informal feedback to tutors.

The authors have observed that cultural and creative learning take place very easily in design collective environments. Both of these benefit from immersive environments in which culture and creativity can be considered, interpreted and understood from multiple viewpoints or facets. The collective facilitates debate and contrast – and given the 'soft' aspects to both culture and creativity, in that they do not have singular methods or solutions, this is a key advantage. This is in contrast to a lecture format that will typically tell all students the way to do something, often illustrating how it was done by a tutor.

5. Case Studies

The following 3 case studies have been selected to illustrate a range of design collective environments that the authors organized and investigated for collective educational projects.

5.1 GoGlobal eArtisans

A collaboration between the Royal College of Art Innovation Design Engineering (RCA IDE) Masters, London, UK, and Kwame Nkruma University of Science and Technology (KNUST), Ghana, Africa. Undergraduates and Masters.

The GoGlobal eArtisans project fused interdisciplinary teams of innovation design engineering masters students with wood, metal and rural industries students from the KNUST in a three week module in Ghana, May 2009 (Barker, 2009). The project aimed to develop a design enterprise model - uniting craft, design and manufacture with global digital distribution to enable wealth creating for developing economies. The value of the collective environment in this context was crucial in the mediation of cultural transfer between traditional values and exportable consumer products. The RCA IDE and KNUST students were able to achieve these goals via intensive collaborative working in a studio environment that allowed rapid generation, sharing and development of ideas with regular lecturer support. Working in a collective, students could also take part in innovative competitive brainstorming techniques (Barker, 2010). During the 10 day creative project phase, 60 students designed and made 26 functioning products, validating the intensive collective pedagogic model. Some of the product outputs are shown in Figure 1.

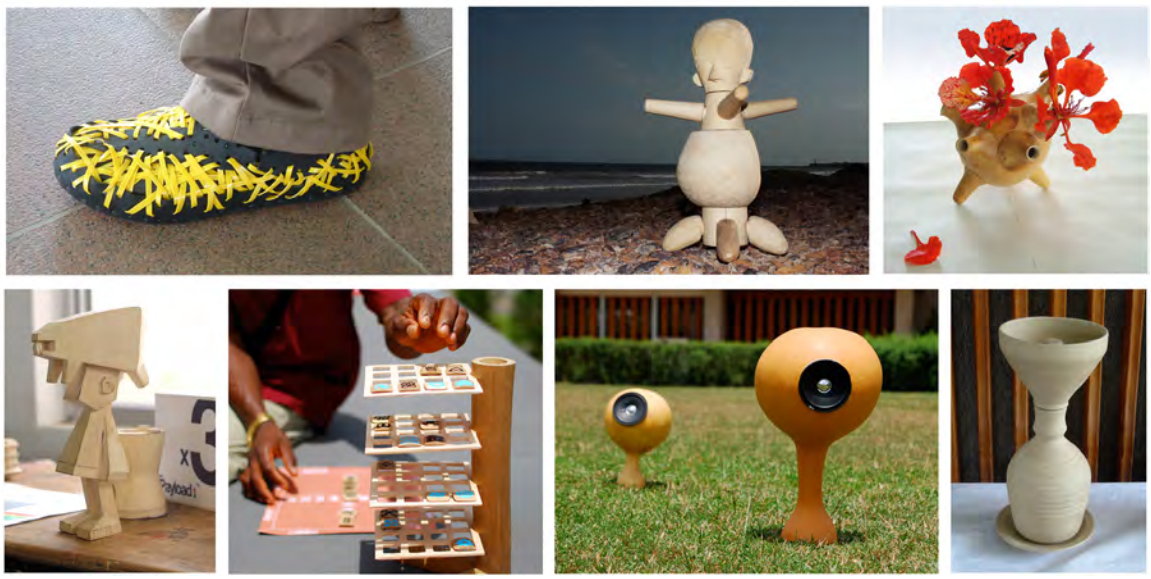

Figure.1. GoGlobal Ghana selection of the 26 final products 2009.

5.2 Esemplastic

A multidisciplinary collaboration at the University of Technology Sydney, Faculty of Design Architecture and Building, Australia. Undergraduates and Masters.

'Esemplastic' is about having the power to shape disparate things into a unified whole. The dialectic process views contradiction in conflicting factual positions and looks for resolution, or accepts the contradiction as a necessary part of their interaction. The word esemplastic was coined by the poet Coleridge (1772-1834), and was later reinforced by Frank Zappa (1940-1993). It takes the acceptance of juxtapositions to a further stage and considers imaginative unity as an organic and dynamic interdependence of these conflicting elements, where the disparity is necessary for the survival of the whole, as a unity. Relating detail to the whole isn't new: Socrates was promoting this in the third century BC with the transition from the many to the one. But the increased crossover and 'noise' between design and policy, politics and planning, sociology and business, offers further opportunities to make a difference.

Esemplastic was run as a graduate workshop in 2009 in this context, and drew together students from architecture, interiors, visual communications, fashion and industrial design. The studio problem was posed in a manner that it was impossible to succeed without extensive multidisciplinary collaboration, as well as catalyzing competition and co-operation. The focus of the workshop 'problem' related to the use of urban digital media to create a richer, more vibrant campus life for students. The complexity and need for designers to be at ease with contradiction and partial solutions was summarized pithily as: 'basically, nothing really rocks like when you think of everything, but not everything is an easy fit.. which is fine'.

5.3 Material Computation

A collaboration with Royal College of Art Innovation Design Engineering (RCA IDE) Masters, London, UK, and the Architectural Association's Design Research Laboratory M.Arch (AADRL), London, UK.

The material computation masterclass ran in 2009 as a collaboration between the RCA IDE and the AADRL graduate students aimed at uniting architectural and industrial design physical and conceptual skills in a materials computation masterclass. It was focused around the use of latex and plaster to explore flexible forming of components and structures. The value of the collective environment was leveraged through the interfacing of architectural notions of structure and programme with Industrial design process, manufacturing and component detailing inputs. During the 5 day workshop 60 students used 2 tonnes of plaster to make over 100 castings in a continuous evolution of forms (see Figure 2). The *modus operandi* began directly with making as a conscious strategy to quickly integrate the groups. The final outcome allowed students to collaboratively explore tactile empirical forms of form making outside of CAD environments and to realize that some forms and their methods of generation fall outside of the digital domain.

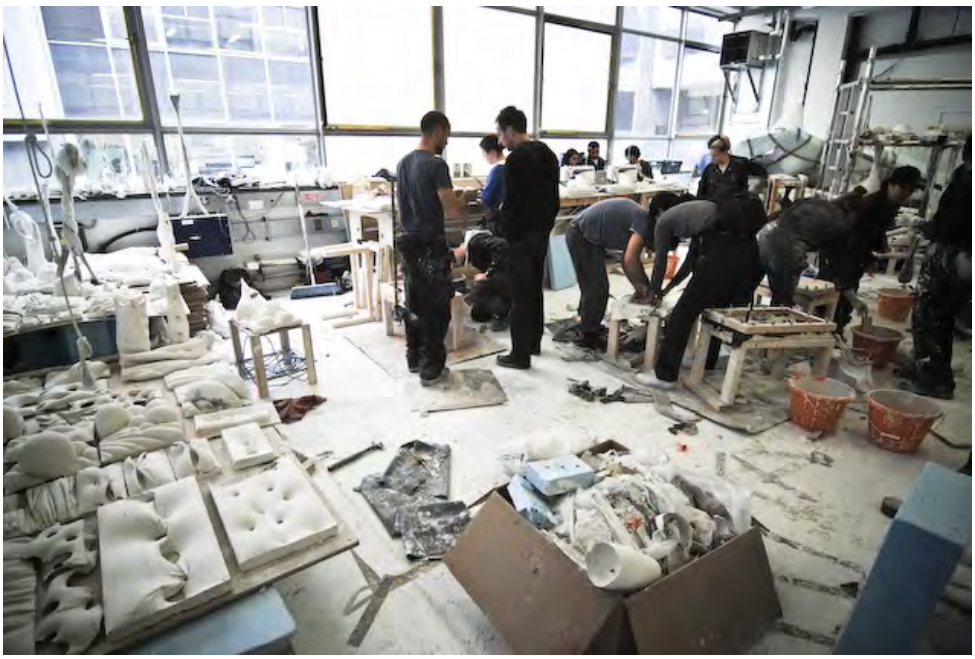

Figure 2. IDE-AADRL Collaboration, work in progress.

6. Professional Practice

The authors distinguish between a design collective in practice, and formats such as design partnerships or companies. The latter are business frameworks and, although a partnership may contribute to a collective, they don't inform the collective process.

As the emphasis on innovation grows in practice, the design industry is increasingly expected to design from first principles, and there is evidence that this is better pursued by multidisciplinary groups, which include collectives, rather than by solitary designers (Barker, 2010).

In terms of the uptake of digital tools to facilitate design collectives, it is likely that practice is ahead of teaching. Design students that graduate today must cope with increasingly sophisticated and dynamic working practices, for example spanning the extremes of digital-analogue methods and global-local scales. Design teams are increasingly translocated using advanced collaboration software including Google Wave, Twitter and Scribblr (Burry 2007), alongside more traditional communication formats. Global design skills for generating 'tools for living'; ubiquitous technology products that function across cultures co-exist with the need for 'cultural produce'; of specific regions and cultural values. The emergence of the micro manufacturing revolution (Anderson, 2010) has lowered the barrier for manufacturing small numbers of uber-niche products using digital technologies. The same technologies have facilitated both remote co-design and crowd-sourcing of physical products best illustrated by the Rallyfighter car (Anderson, 2010) produced by a team of over 2000 designers working via distributed design software and remote working technologies. In addition the commodification of traditional industrial design skills has made these widely available while at the same time the shift to experience thinking has moved industrial design activity to an earlier phase of experimentation and creativity where the artifact is now the facilitation of the experience rather than the focus.

7. Discussion

The authors note that the collective atelier studio environments described have the advantages of allowing the amassing of artifacts and drawings that fortify a strong creative environment. Cross-fertilization of ideas and comparisons of creative approaches can be easily made. The advantage for tutors is to be able to 'see' the creativity and benchmark progress of cohort via the studio environment.

In contrast, the hot-desking or no-desking models have the disadvantages of losing the traditional studio collective of shared experience and peer critical feedback possible in a located place. An advantage is that it encourages reliance on digital skills and communication and it could be argued that, through necessity, it prepares students for globally dispersed design practice. In order for this to be successful however, the authors argue that teaching needs to recognize this fact and use it in an advantageous manner.

It could be interesting to propose a digital creative studio collective as a step forward to draw teaching and practice closer together in terms of tools, processes and experience. The traditional model of an 'analogue studio collective' that goes back to the Renaissance could be augmented and transferred into the emergent idea of global digitally-connected collectives. MacGregor, (MacGregor, 2003) discusses aspects of this and also provides some evidence that it is better for industry when students have more experience of dispersed design methods.

8. Conclusion

The authors have described the components of collective environments that a pedagogical process can embrace. The paper has also examined how culture and creativity are *affected,* case studies illustrating how the formats be realistically achieved, the relationship to narrative, and the impact on professional practice. The authors conclude that pedagogical methods can extract and embrace the collective learning, peer support, and processes from collective environments for highly supportive industrial design education.

Although the atelier studio model emerges as a strong pedagogic paradigm and the hot-desking or no-desking model has obvious limitations of cohort cohesion and studio experience, both are challenged by the changing nature of industrial design practice. The Atelier model struggles to cope with the increasingly displaced nature of designing where practitioners often have several creative locations alongside digital mental maps and cloud data where their laptop is often the only constant tool. The no-desking model to a certain extent prepares students for nomadic working with an emphasis on personal development and digital communication. However its weakness remains in setting the foundation level of studio based learning around mutual support and a material and artifact rich environment that stimulates high levels of curiosity, influence, collaboration, debate and curiosity.

Evolved models may be beneficial, which support the formative development of the individual designer via an atelier-based environment, yet which in later phases develops the nomadic skills and internal mental maps necessary for remote collaborative, co-design and crowd-sourced working. Such models require development through educational institutions in partnership with practitioners and are likely to rely extensively on networked digital tools.

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