

Exploring Web 2.0 for virtual design studio teaching

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Following the development of e-learning platforms, the virtual design studio (VDS) has become a new method for implementing studio-based design education in online environments. With the rise of Web 2.0, the ways in which people engage with digital technologies has been transformed. The studio model of teaching and learning is a dynamic area of e-learning development. Although this is a broad-brush term for a model of constructivist learning across art and design fields, it is not as generic as it may seem. The unique skills and knowledge of different design fields necessitates diversity resulting in subtle differences in the form of studio teaching and environments. This paper presents the position of a working doctoral research project that is concerned with the design of web 2.0 online environments for VDS teaching. The scope of the PhD investigation is to understand the needs of teachers within VDS teaching environments in the hope of enhancing the teachers' experience and encouraging the usage of such e-learning systems. Drawing on Broadfoot and Bennett's pedagogical guidelines, with an integration of Donald Schön's physical design studio, and Thomas Kvan's virtual design studio theory, this paper argues for the importance of observing the teacher's role in both the physical and virtual design studio. This paper then aims to identify the research position and related theories that are informing the project's evolution.

Keywords: virtual design studio, design teaching practice, e-learning

Introduction

On-line studios have been flourishing since the mid-1990s, a period that is described as a 'watershed in Virtual Design Studio (VDS) evolution' (Laiserin, 2002, p. 141). There are many debates about traditional studio-based learning systems and VDS. Generally, the debate is more focused on the side of learning, with little investigation of the teacher's experiences or expectations. There is a need to consider digital technologies' potential in studio-based higher education and the impact of such technologies for teaching practices.

Currently, online teaching environments can be classified two different ways: the Web 1.0 versions such as Course Management System (CMS), and Web 2.0 versions, 'Social Networking' and 'Social software' enabled platforms, such as wikis and blogs. By transforming internet websites into platforms, E-learning in Web 2.0 has shifted from on-line publishing to a more personal, social and flexible approach, labelled as 'architecture of participation' (O'Reilly, 2005).

As the development of Web 2.0 continues to transform e-learning environments, this doctoral research aims to explore how media, web technology and studio pedagogy can be integrated within VDS environments with a particular reference to how this relates and informs the practices of design teachers. This paper presents the working progress of this doctoral research investigating the implications of this engagement for design teaching practices in higher education. There are five major areas covered in the following paragraphs: Virtual design studio; Web 2.0; Design studio teaching; The teachers' role in design studio; The implication of Web 2.0 for design studio teaching.

Virtual design studio

Virtual Design Studio (VDS) can be explained as a networked design studio. There are several characteristics of VDS: broadening time and space boundaries; designing and communicating with computer-mediated and computer-supported platforms; representing the process and outcomes with electronic forms; accessed through the Internet; providing asynchronous and synchronous communication; supervision by professional practitioners (Maher, Simoff, & Cicognani, 2006, p. 2).

Collaboration on VDS projects among institutions, clients, and interdisciplinary practitioners has flourished since 1992. The first main VDS asynchronous project was initiated in 1992 entitled 'Distanced Collaboration' by the University of British Columbia and Harvard University. The International Design Studio was another significant project. The major aim of this trans-national project was to enable collaboration and sharing design concepts and beliefs through a single task (Maher et al., 2006, p. 4). The first largest graphic VDS project, OMNIUM 1.0- Small Red car, was established in 1999 by the University of New South Wales. It was a collaborative project involving fifty students from different countries and was facilitated by a custom-built network interface (Bennett, 2001). Currently, Creative Waves 2005, is a global online design project involving art and design students, teachers, practitioners and writers. This group aims to confront the challenges of individual and collaborative studios through a dialogical mode of interaction (Bennett & Dziekan, 2005). Many VDS models were initially started from architecture schools, and have been adopted by some other design disciplines. However, there has been little discussion about the effectiveness of the application of these models to the communication design studio in particular.

The development of VDS since the 1990s influences not only the role of educators but also pedagogical models and outlooks. Traditionally, in physical classrooms, the description of the teacher's role and the pedagogical model can be summed up by 'All eyes up front' (Luke, 2000). However, the rapid growth of on-line education, will bring out new modes of teaching practice. Luke (2006) suggests that 'Hyphenated or Multiple Literacies' is needed for a new pedagogy. He also advocates that, 'Unless educators take a lead in developing appropriate pedagogies for these new electronic media and forms of communication, corporate experts will be the ones to determine how people will learn'. (2000, p. 71) Not only are teaching materials shifting from the printed page to digital form, but also the methods for transmitting information, evolving from linear (synchronous) to parallel (synchronous and asynchronous) form. Obviously the role of the teacher in VDS environments needs to be repositioned.

Web 2.0

The evolution of Web 2.0 has had a profound effect on the design, development and use of the internet. Central to Web 2.0 is the concept of social platforms that have been breaking down barriers for sharing information efficiently. Rather than focusing on the introduction of new technology, Web 2.0 aims to facilitate sharing and collaboration among users. This new approach to internet services and communities has inspired innovative online teaching environments. In the past, most Course Management Systems applications were designed for the tool-centric orientation, but were not user-friendly for image-orientated fields such as design. The structure of social networking software or platforms, such as *MySpace* and *Facebook*, are much more flexible and more readily taken up by young practitioners who have come to adulthood with these digital networks as part of their everyday lives. Clearly, this characteristic of Web 2.0's openness provides an innovative foundation for VDS, benefiting from this level of social engagement, which reflects the traditional structure of a design studio.

Although 'World Wide database' or the 'semantic Web' (Berners-Lee, 1998) is predicted to be the next innovative approach of Web 3.0 (Markoff, 2006), we should investigate the conditions and principles for better teaching and learning in a VDS environment before embracing those powerful technologies in studio teaching.

Design studio teaching

Design studio is generally considered as a physical place where students learn to become practitioners through learning by doing rather than the more conventional transmission of knowledge content. One of the earliest theorists of design education, Donald Schön (1985), suggests that studio masters are obliged to examine their knowing, make 'systematic descriptions of their practice and coaching', and embed self-reflection in the learning process (1985, p. 7). Moreover, Schön suggested that 'architectural studios are prototypes of individual and collective learning by doing under the guidance and criticism of master practitioners' (p. 6). He formulated the studio method as 'reflection-in-action'. Although Schön's theory mainly describes the activities within architecture studios, the principles can be applied to communication design studios, which have also long valued the spirit of learning by way of professional novices working with masters practitioners.

Leonard J. Waks, has summarised Schön's taxonomy of acquiring professional knowledge: self-instruction, apprenticeship and the practicum (1999, p. 307). Among these three methods, apprenticeship and the practicum have a reliance on the guidance from teachers or people with mastery skills. When skilled practitioners encounter problems, they could exploit their competence (knowing-in-action) to

accomplish the loops of reflection-in-action process. In this way, the teacher/master is able to guide the student in their professional development.

Schön's theory is thought of as canonic in design studio education. Educators guide the amateur (beginner) by adopting the process of reflection-in-action to promote students through a trial and error process to detect and solve systematic problems. For sophisticated practitioners, 'analogues' reflect their experience and professional knowledge. In their design studio practice, a tutor's guidance creates 'analogues' for learners which can be analysed and discussed in order to stimulate awareness in the amateur's judgment. Without such guidance, the experiences in 'indeterminate zones of practice' (Schön, 1985, p. 25) for beginners will be time-consuming and 'wicked' – a situation involving many factors that are too complex to be solved by rational systematic processes (Rittel & Webber, 1973; Whelton & Balla, 2002, p. 375).

Teacher's role in design studio

In studio teaching teachers play different roles. These can be summarised as the senior manager (outlining the brief/ project), the client (assessment) (Davies, 2004, p. 169) and the professional practitioner. The teacher is the insider who knows the practice, including the operational moves (demonstrations) and the associated ways of thinking and talking (descriptions/explanations) (Waks, 1999, pp. 309-310). Particularly in VDS, the studio masters often play more than one role while participating in a learner's evaluation.

As Schön argues, the teaching of design practice is different from the teaching of other disciplines. Teachers should bring meaningful dialogue into studios. He says: 'Design is learnable but not didactically or discursively teachable' (Waks, 1999, p. 309). Studio teachers communicate in the 'language of design' which comprises esoteric dialogue (description) and operational movements (drawing and gesture). After interviewing twenty award-winning design studio teachers in Texas, Attoe & Mugerauer (1991) suggest several principles for studio-based teaching practice that enables successful professional development: encourage interdisciplinary discoveries; encourage collegiality through group projects; and build interest and enthusiasm for beginners, then evoke professional thinking and objectives for advanced students. Moreover, one successful and widely-adapted strategy is based on the Socratic method, a dialogical communication method which focuses on the processes of thinking and observation that enables students to see the developmental nature of their professional capabilities. The teachers in the physical studio play the role of guide for 'analogues'. Through their movements and dialogue, they convey a knowing ability through similar situations to learners.

The implication of Web 2.0 for design studio teaching

In the past, teachers engaged in online education have delivered their teaching materials through content management systems, such as Blackboard. Nowadays, Web2.0 has enabled an innovative mode for online courses through the use of social networking platforms based on the principle of collaboration and co-development. This shift from delivery to collaboration has resulted in the role of teachers transforming from provider to participant in the learning process.

One of the pertinent pedagogical approaches toward VDS for this researcher's project was proposed by Thomas Kvan in 2001. There are two major propositions in his framework: deliberation and collaboration. Instead of focusing on the final product, deliberation emphasizes the design process which encourages students to review and evaluate their learning process. For collaboration, Kvan (2001) enhances the collaborative context idea in VDS and argues that the studio master 'is also participating in the socialization of the student into the ways and concerns of the profession.' Learning from peers and building trust are the key lessons in team work. By integrating the theory of Schön (physical) and Kvan (virtual), Broadfoot and Bennett (2003, pp. 9-10) devised four criteria for both traditional and contemporary design studio settings: learning by doing; one-to-one dialogue for tacit knowledge experience; a collaborative context for building relationships; and a focus on process throughout design practice.

In order to investigate the possibilities of the new on-line environments for design studio teaching, this research will employ a strategy of investigating present teaching environments and the possible development in the future, whilst also building on the theoretical propositions of the researchers listed above. Investigation into current studio teaching will reveal the fundamental characteristics required in achieving successful design studios. Seeking the relationship between new trends in Internet evolution and on-line studio environments will establish a new framework for building virtual studio teaching

environments. To achieve this goal there are various qualitative and design research methods that will be conducted within both physical and virtual environments; these include observation, cultural probes, interviews/conversations and self-reflection.

Conclusion

The trend of Web 2.0 poses more challenges and opportunities to the development of the virtual design studio. Through its emphasis on communication and collaboration, Web 2.0 advocates an online platform that allows information formed by users. With this development, the distinction between content providers and receivers is gradually diminishing. This is an important shift in the way that we think about and undertake the development of technology-based learning environments and the teacher/student dynamic. In network-driven learning environments, teachers and students study together and form learning groups. Schön's (1973) notion of the 'Learning Society' is being realized within the broader context of the internet, but what does this mean for the practice of teaching online design courses? It is essential that VDS engage with and serve the new social and technological demands that impact on educational practices. This research project will explore what this means in design education through an exploration of the teacher's role, and the experiences and innovations of teaching in both the actual and the virtual design studio.

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