

# Toward a Phenomenology for Virtual Design Studio Teaching

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## Abstract

Following the development of e-learning platforms, the virtual design studio has become an alternate method for implementing studio-based design education either in conjunction with traditional face-to-face studio teaching or as a standalone method. This development has resulted in new teaching experiences. The dominant discussion around the experience in virtual design studios focuses on learners or on technological approaches; there is little mention of the experience of teachers. We believe that there is an essential need to understand teachers' experiences, and provide environments that accommodate teachers' needs. By understanding the phenomenon of studio teaching, this research aims to develop a framework for designing teaching environment within virtual design studios. Observation and formal conversation have been employed as research methods in the exploration of four teachers' experiences in teaching design studios. The exploration has been to develop a deeper understanding of the essence of studio teaching in Communication Design in higher education. The outcomes of this research will contribute to the design of teaching environments in VDS and the enhancement of teachers' experiences.

## Introduction

Following the rapid development of internet technology, many teaching activities have been gradually transferred from the physical to the virtual environments. Teachers involved in the design studio, as a typical practice-based teaching method, also find this new trend affecting their delivery of studio education. Although there has been much technological progress which has resulted in the development of virtual design studios, the shift from the physical to virtual is little exploration of what this means for design

teachers; their needs and experiences. This lack of consideration of the teachers' experience may affect the success of virtual design studios, as teachers are also the users of virtual design studios. To support teaching activities in virtual design studios, this research aims to develop a framework for designing teaching environments by understanding the phenomenon of studio teaching.

This paper presents part of a research project that is currently being undertaken. This paper includes the investigation of the context of virtual design studios, the research methods, and some findings from observations of teachers in action. Conclusions from the research to date suggests that the current design of the teaching environments in virtual design studios does not fully address the characteristics of studio teaching. There is a need to consider the essence of studio teaching in the design of virtual design studios teaching environment that incorporate-fully or partially-digital technologies. As the research works towards the development of a design framework, this paper then explains the research methods that have been used, these include observations of teaching practices and formal conversation with teachers. As part of an in-progress research project, some findings from the observations of four teachers in Communication Design is reported.

## **The Development of Virtual Design Studio**

In the mid 1970s, university courses started utilizing E-mail and video conferencing as supplementary teaching tools.(Harasim, 2006; Hiltz & Wellman, 1997, pp. 73-74) The first totally online undergraduate classroom, the 'Virtual Classroom' project, was launched in 1986 by Murray Turoff at the New Jersey Institute of Technology. By the end of the 1990s the first large scale online courses, Open University, were developed in the United Kingdom. The focus of the early development was to enable collaboration among members who were separated by long distances. These projects provided the foundation for the development of virtual classrooms including virtual design studio.

The term Virtual Design Studio, thereafter VDS, was coined by William J. Mitchell, (Wojtowicz, 1995)Professor of Architecture and Media Art and Sciences at MIT. The

idea of VDS is to create a computer supported environment for cooperative design. Design information, such as text, images, and drawings can be imported into VDS for discussion and modification across computer networks. There are at least two major functions found in VDS: sharing and communicating design information. VDS is hoped to provide ‘an environment for collaboration that has no walls, an environment that facilitates sharing design information and supporting interaction regardless of place and time’ (Maher, Simoff, & Cicognani, 2006, p. 3). 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 (Maher, Simoff, & Cicognani, 1996, p. 2); accessed through the Internet; providing asynchronous and synchronous communication; and supervision by professional practitioners. Since the initiation of VDS, the focus has been on collaboration. Although VDS has been experimented in educational settings, the teaching aspect of VDS has not been fully explored.

The first main asynchronous Virtual Design Studio was initiated in 1992 entitled ‘Distanced Collaboration’ by the University of British Columbia and Harvard University. One of the significant projects undertaken between 1995 and 1997 was the International Design Studio. This collaborative project involved several architecture schools globally (USA, UK, Singapore, Australia). The major aim of this trans-national project was that students, through a single task, were able to collaborate and share design concepts and beliefs. (Maher, et al., 1996, p. 4) The first and 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). Focusing on artists and designers, Omnium is an on-going research and platform for conducting on-line collaboration and creativity. Since 1999 the Omnium project has conducted international projects and conferences to examine the questions of design education and collaborative creativity in on-line environments. Currently, Creative Waves 2005 is a global online design project involving art and design students, teachers, practitioners and writers. This group aimed to confront the challenges of individual and collaborative studios through a dialogical mode of interaction (Bennett & Dziekan, 2005).

Without the spatial barrier, many of these early projects experimented on the collaboration aspects of VDS. Due to the scale of the growth of global communication and the accessibility of on-line technology many projects were tested on an international scale. The development of social networking, such as Web 2.0, also has had a profound effect on the use and design of VDS. The social aspect of computer mediated communication ‘that considers the development of community is relevant to a VDS because the ability to effectively collaborate depends on the development of a community’ (Maher, et al., 2006, p. 72). As group discussion and collaboration are important components of the design studio, VDS environments also include functions that are often found in social networking platforms.

As the development of VDS has become more mature, the concept and technologies of collaborative design have been gradually adopted and integrated into wider on-line design courses. Some e-learning platforms, such as OMNIUM and Blackboard, have started to integrate the concept of VDS and provide this learning environment to a broader range of users. VDS is gradually finding its way into design education. However, most efforts have been focused on the learner side.

### **The Need for Teaching Environment**

Despite the use of VDS in Design education liberates the limitation of time and space, much of its development is still immature. Earlier efforts focused on the technological aspects, such as software and hardware. Issues of communication and the pedagogy within VDS have just started to gain attention by design studio educators. One of the pertinent pedagogical approaches toward VDS is proposed by Thomas Kvan. His theory is based on previous initiatives involving the Department of Architecture at the University of Hong Kong (Kvan, 2001). There are two major propositions in his framework that are of significance to this research: the principles of 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. Collaboration stresses that learning from peers and building trust are the key lessons in team work. Broadfoot and Bennett (2003, pp. 9-10), the founders of the Omnium Project, also provide four key 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. One common characteristic in their theories is to enable effective communication. There is an added responsibility for the tutor in helping the students to understand the new medium, which is ‘currently unreliable, difficult and cumbersome’.(Kvan, 2001, p. 349) However, there is also a need to support teaching activities in VDS so that teachers can smoothly conduct the communication.

Despite Kvan and Bennett both suggesting that VDS needs to develop its own pedagogy, one not be based on the physical design studio, many design studio teachers have received training and practices in physical settings. The physical studio tends to be the default environment for thinking the pedagogy of the VDS. The transition from a face-to-face teaching environment needs to be considered in order to help teachers develop a new pedagogy in this new virtual environment. Furthermore, in the physical design studio, students receive trainers’ supervision through informal reviews and formal presentations (Kvan, 2001). This model needs to be adapted to the virtual environment; however, the virtual environment allows for a different mode of review and presentation. The setting for communication between trainers and trainees in VDS is different from the traditional one. Whether VDS can actually replace the physical studio is still in debate. However, if VDS is to provide an appropriate educational environment, the nature of design studio needs to be further considered, particularly from the teacher’s perspective.

Technology could be a crucial factor in achieving better quality VDS (hardware, software, and environment). However, before embracing these kinds of powerful technologies in studio teaching, the conditions and principles for better teaching and learning in a VDS environment need to further investigated. For teachers, the difficulty in using e-learning systems has been gradually recognized as an issue. For example, the term ‘information bricolage’, provides a sense of how teachers describe dealing with confusing media interfaces (Snyder, 2002). The teaching literacy becomes very difficult because of their lack of literacy of new technologies themselves. Hence, it might be more complicated for instructors who have little or no technical training and background to use such systems. ‘User Frustration and Dissatisfaction’ might be a consequence to make users easily merge

into ‘Computer Rage’ (Stone, Jarrett, Woodroffe, & Minocha, 2005). Blackboard, for example, one of the most popular Course Management Systems in higher education, is regularly discussed for its lack of flexibility and capability. Hence, many instructors will use some other collaboration materials such as social software to supplement their teaching requirements.

From the study and literature of VDS environments, there are two conclusions that can be made. Firstly, most discussion about VDS continues to focus on the learner, how teachers conduct classes and activities has not been fully explored. Teachers’ needs and experiences have not been fully addressed in the fast changing on-line environments. Secondly, although the development of VDS seems to provide more possibilities for implementing Design education, the environment needs to address the characteristics of studio teaching. Studio teaching often involves hands-on activities and individual discussion, and that makes it different from teaching in a conventional classroom where making or construction is not the main focus. It is crucial to consider the nature of studio teaching and provide appropriate environments that support virtual studio teaching. Based on these needs, this research attempts to explore the design of teaching environments for VDS with a focus on the Communication Design Studio. The research then asks the following questions:

*What are the characteristics of Communication Design studio teaching?*

*How can environments be designed to support teaching Communication Design through a virtual environment?*

By answering the questions, the research aims to develop a framework for designing the teaching environment of a VDS.

## **Adopting Phenomenology**

Following the research questions, the research then needs to examine the nature of studio teaching. One way to do this examination is to probe into the phenomenon of studio teaching. As phenomenology provides a philosophical approach for understanding the essence of conscious experience, the research adopts phenomenology as the underlying framework for the research design.

Although the term of phenomenology had been mentioned by earlier philosophers, it was formally developed by Edmund Husserl (1859-1938) in 1900. To seek a comprehensive theory of knowledge, Husserl looked deeply into human consciousness and adopted phenomenological approaches to reveal the structure of conscious experience. Literally, phenomenology is 'the study or description of phenomena' (Hammond, Howarth, & Keat, 1991, p. 129). It is 'the study of the lifeworld-the world as we immediately experience it pre-reflectively rather than as we conceptualize, categorize, or reflect on it' (van Manen, 1990, p. 9). Monan suggests that phenomenology can be understood as 'a radical, anti-traditional style of philosophing, which emphasises the attempt to get to the truth of matters, to describe phenomena, in the broadest sense as whatever appears in the manner in which it appears, that is as it manifests itself to consciousness, to the experiencer' (p. 4). As such phenomenology is often considered as an approach for describing the subjective experiences of encounters with objects. It then can guide one back from 'theoretical abstractions to the reality of lived experiences' (van Manen, 1982, p. 296). The description of conscious experience is called 'intentionality', and must be 'presuppositionless' or 'free from prejudices' (Hammond, et al., 1991, p. 3).

As phenomenological inquiry aims to produce accurate descriptions of subjective experience, many of its research methods involve dialogue. Methods, such as participant observation, intensive interview, and conversational analysis are often used in phenomenological studies. It may also start from texts, such as diaries, journals, discussion, transcripts, or other interactions (McClelland, 1995, p. 178). Themes and art forms can be developed from text or with text to express the essence of experience. The process may be conducted several times until the meaning becomes clear to the investigator. Also, in searching the widest experience, phenomenology is not restricted to only sensory experience like seeing, hearing, and touching. Phenomenology also tries to reveal the structure of various types of experience ranging from perception, thought, memory, imagination, emotion, desire, embodied action, and social activity, including linguistic activity. (Smith, 2003)

As phenomenology attempts to deeply and widely describe experiences, its approaches have been utilised in many different studies. Its characteristics of direct and subjective

description make it ‘a useful analytic tool to balance objectivist approaches’ (Orleans, 2001). It is also often used in education settings in order to understand the experience of both teachers and students. Lathan argues that ‘phenomenology is well suited to pedagogical concerns’ (Latham, 2001). Because of the lack of consideration in design teachers’ experiences in VDS, phenomenological approaches can provide ways for understanding the phenomenon of design studio teaching and teachers experiences in VDS. Consequently, the research questions can be answered by utilising phenomenological investigation.

### **Conducting Close Observation**

To answer the first research question, What are the characteristics of Communication Design studio teaching?, close observation was conducted for a semester with four participants. Despite not being recorded in the first person perspective which is normally used in phenomenological approaches, non-participant-observation is sometimes used by the phenomenologist to understand a research participant’s experience and to develop a close understanding of the participant’s perspective (McClelland, 1995, p. 178). The recording of the observation may come in different formats such as diaries or journals exchanged between researchers and participants. This observation tried to record the participants’ teaching activities in texts, diagrams and drawings, which can help the following interactive conversations with participants.

The objective was to record teaching activities and materials in physical and virtual environments. Four different participants were observed throughout a semester. The participants were selected based on two criteria: they had at least 2 years studio teaching experience and were using online applications as their major or supplementary teaching media. Two teachers taught one group in physical setting with some on-line communication tools, such as e-mail and blog. One teacher taught in purely virtual setting; one, in mixed environments. They showed different degrees of usage of digital technology. The classes included different years of undergraduate students therefore the observation could cover different teaching topics, such as design theories, technologies, and problems in practice.

## **Interview**

The second method used in the research was the interview. Van Manen suggests that there are two purposes for using interview in hermeneutic phenomenological human science. First, it is ‘a means for exploring and gathering experiential narrative material that may serve as a resource for developing a richer and deeper understanding of human phenomenon’.(van Manen, 1990, p. 66) Second, the interview may be used as ‘a vehicle to develop a conversational relation with partner (interviewee)about the meaning of an experience’(van Manen, 1990, p. 66). Since each teacher was situated in a different setting, the interview needed different formats. Visual forms, such as sketches and drawings, may be used to express lived experience in the interview.

The interviews serve to help the research and the participant better understand the teachers’ needs and experiences in the design studio. The result of combining interviews with the observation, can be used to discover answers to the second research question: How can environments be designed to support teaching Communication Design in VDS?

## **Findings from Observation**

After the observation, data were organised to show the characteristics of studio teaching. The results show that design studio teaching is highly dynamic. There were three categories identified from the data: activities, discussion group, and materials. All four teachers fully utilised the three parts in studio teaching. There are three corresponding findings from the three types of data: studio rhythm, encounter, and materials.

## **Studio Rhythm**

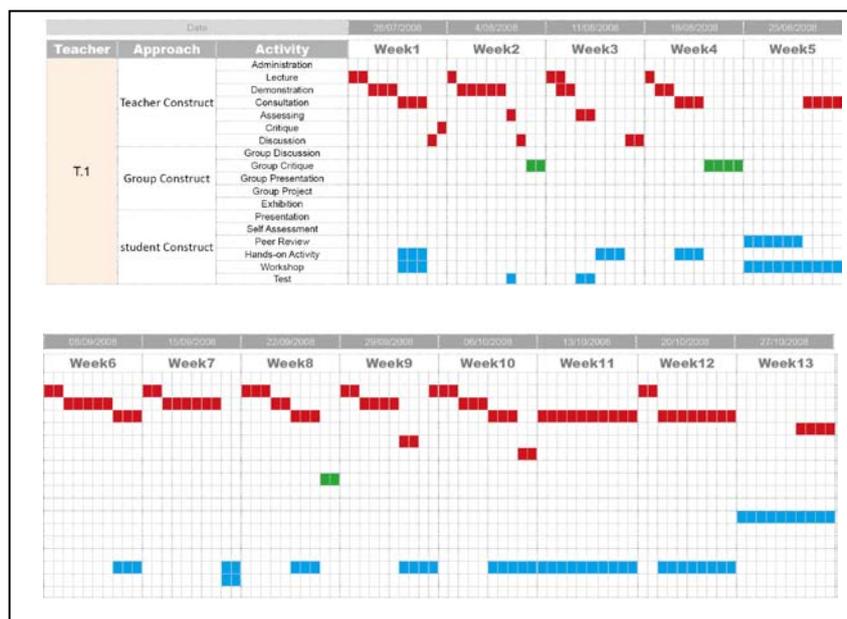
The teaching activities were recorded on a journal in different forms such as texts, sketches and diagrams. Based on the degree of teachers’ involvement, the activities can be placed into three categories: teacher construct, group construct, and individual construct. A table showing the categories and activities is listed below.

Date		
Teacher	Approach	Activity
T.1	Teacher Construct	Administration
		Lecture
		Demonstration
		Consultation
		Assessing
		Critique
	Group Construct	Discussion
		Group Discussion
		Group Critique
		Group Presentation
		Group Project
		Exhibition
	student Construct	Presentation
		Self Assessment
		Peer Review
		Hands-on Activity
		Workshop
		Test

**Figure 1: teaching activities and categories**

At the end of the semester the data were calculated and transferred to a chart showing the type of activities and duration. One result is shown in figure 2. The results show the dynamics of teaching activities and reveal the teaching rhythm of each teacher. Although many activities are similar in the three cases, the teaching rhythms showed very different results. Some teachers alternated their teaching methods and activities.

There were more activities happening when a new topic was introduced. Various activities, such as briefing, group sharing, individual discussion, and peer review discussion, were conducted to ensure the understanding of the goal, schedule, structure, and expected outcomes.



**Figure 2: an example of teaching activities and rhythm**

## Studio Encounter

The methods teachers used to bring students into contact also showed great variations from the observation. Since all the teachers used some on-line technology, there were two major ways of communicating: synchronous and asynchronous. Synchronous communication happened in both physical and virtual environments. Teachers communicated with students through gesture, conversation, or on-line discussion. In contrast, Asynchronous communication happened before or after class and only in the virtual environment. Teachers and students exchanged information via email, Blackboard or other social networking tools, such as Blog, Facebook etc.

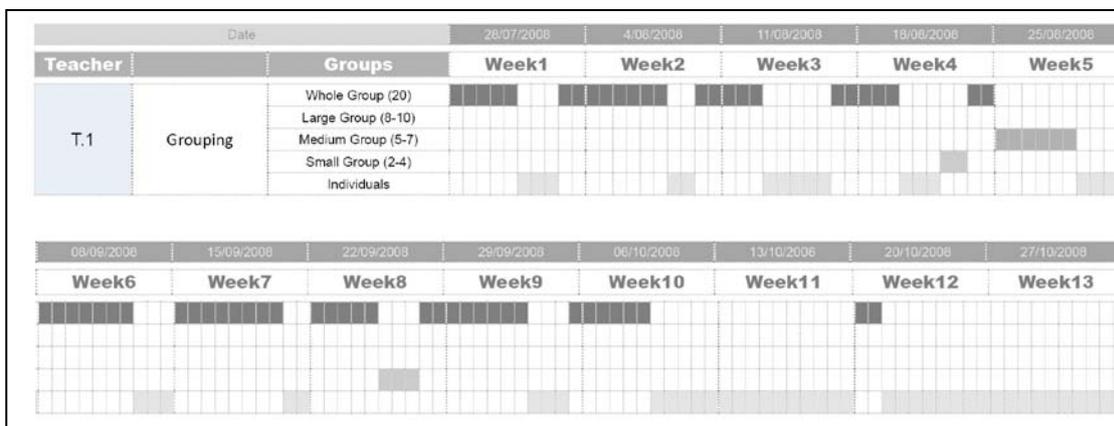


Figure 3: an example of grouping

One characteristic of synchronous communication is the conduct of groups. Teachers talk to students in different groups and different numbers of students. There may be individual discussion or group discussion. The groups may be formed for a project or simply for a short discussion. Three categories of grouping can be concluded from the observation: individual, small group, medium group and large group. A small group could have two to five students, while a large group could have whole class of students (about 20). Grouping makes different forms of communication possible. When the teacher communicates with an individual or a small group, gestures, sketching and conversation are mainly conducted by the teacher. When communication with big groups happened, formal conversation was more emphasised.

## Studio Setting

Accompanied by the various teaching activities, there was a great range of teaching materials, tools and facilities used in the settings. Teachers heavily relied on visual



some materials, such as models and artefacts, are possible to be shown in virtual environment, they are less used because the current interface does not provide appropriate functions. There have been some debates about the use of VDS for design education, especially the nature of the setting of physical and VDS. In VDS, the process of design and communication is based on computer-mediated forms. Hence, the representation of design task will be restricted on digital format. Whether or not this new format will satisfy teachers' expectations and educational goals needs to be further investigated.

Currently, VDS has been predominantly used for project-based studio teaching because the characteristics of collaborative and experimental environments. However, teaching methods may include other types, such as process-based and theory-based. Although Kvan and Bennett also advocate that new theories and practice need to emerge from the new medium. The development of VDS needs to consider the whole spectrum of studio teaching if VDS is to become another way of delivering studio education. The observation also evidenced the diversity of dynamics and the variety of activities used in studio teaching. A better understanding of the nature of studio teaching and theoretical foundations for designing teaching environment is crucial for the success of VDS.

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