

HOW SOCIAL IS THE VIRTUAL DESIGN STUDIO?

A case study of a third year design studio

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Abstract. With the advent of social networks, it became apparent that the social aspect of designing and learning plays a crucial role in students' education. Technologies and skills are the base on which learners interact. The ease of communication, leadership opportunity, democratic interaction, teamwork, and the sense of community are some of the aspects that are now in the centre of design interaction. The paper examines Virtual Design Studios (VDS) that used media-rich platforms and analyses the influence the social aspect plays in solving all problems on the sample of a design studio at Deakin University. It studies the effectiveness of the generated social intelligence and explores the facilitation of students' self-directed learning. Hereby the paper studies the construction of knowledge via social interaction and how blended learning environments foster motivation and information exchange. It presents its finding based on VDS that were held over the past three years.

Keywords. VDS; SNVDS; social intelligence; design education; social learning; problem-based learning.

1. The evolution of the Virtual Design Studio at Deakin University

Since 2000 at Deakin University, a selection of design studios have been founded initially on online project submissions, assessment and the generation of virtual galleries of student work (Ham and Dawson 2004). Over the

next years, this digitally supported design studio evolved by using *YouTube* in project submissions and student-authored online blogs as reflective portfolios (Ham 2010). With greater emphasis on computational aspects in design generation, communication and learning the studio evolved further into blended learning environments that intersect conventional studio culture with elements of Virtual Design Studios (VDS) that have been established over the past twenty years (Kvan 2001). The latest studio form that integrates online social networking aspects as the key element of design communication and interaction, called the *Social Networked Virtual Design Studio* (SNVDS), is operating since 2009 (Schnabel and Ham 2012).

In 2009 the studio used as online Learning Management System (LMS) the (at that time freeware) *Ning*-platform {www.ning.com}. This social network platform that works outside of the standard Deakin University LMS, Deakin Studies Online (DSO), was chosen due its ease of use, multimedia applications, social networking capabilities, and two-way communication functions. Since 2010 however, Facebook (FB) {www.facebook.com} replaces Ning as LMS due to its higher social acceptance and usage among students. Alongside conventional and recorded video-lectures, face to face and video studio tutorials, on- and offline learning resources, and other VDS elements the design studio engaged learners in blended learning environments that made use of the online social networks of students, educators and the internet community. This evolution over the past decade has seen a transition of a design studio from its conventional and traditional base to its current state of a blended SNVDS.

2. The social networked design studio

The design studio presented here is the capstone experience for the undergraduate architectural degree, where students must demonstrate their prerequisite skills and knowledge for entry into the Master Degree programme. The third year Bachelor programme at Deakin University operates on campus with an enrolment of 178 students. The cohort comprises 140 students studying a Bachelor of Design, 36 students enrolled in a double degree of Bachelor of Design and Bachelor of Construction Management, and 2 students in other categories.

The SNVDS was a nine-week design studio based on an international online competition issued by [*AC-CA*] (Architectural Competition - Concours d'Architecture) {<http://ac-ca.org>}. The competition, the 'Hong Kong Alternative Car Park Tower' (HKACT) was framed as a mini-thesis that would '*test students' abilities in design within a context that will operate outside way of their comfort zone*' (project outline). The competition brief was as follows (AC-CA, 2011):

The aim of this International competition is to design an iconic and Alternative Car Park Tower in Hong Kong Central. [...] The architecture of this new building should reflect contemporary design tendencies, standing out for its uniqueness as a car park design, while meshing in with the surrounding Hong Kong urban tissue

The site of the competition provided the ideal vehicle to pursue SNVDS methodology, providing opportunities to engage in design in an international context, development of cultural understandings, address issues of sustainability, study climatic conditions and other design relevant issues that related to the high-density urban setting of Hong Kong. Students and tutors utilised online resources for design decision support, including Google Maps, web-pages, Skype, email, FB, and assistance from ‘virtual studio tutors’ remotely located in Australia, Hong Kong and China connected with the students via various internet communication tools. These online-resources and -tutors are blended with a diversity of information sourced (face-to-face) in lectures and studio sessions. The SNVDS was framed, supported and enabled using a FB-group {<http://www.facebook.com/groups/237519682933398/>} as LMS as described in Schnabel and Ham (2011).

3. Engagement in the SNVDS

The SNVDS was evaluated in October 2011 through an online survey of students enrolled in the studio. The survey aimed to provide both qualitative and quantitative responses to gather a broad body of complementary information to support the research “in which the considerations that qualitative researchers raise, and the questions about worth and intent posed by philosophy, are as much a part of the discussion as are measurement and analysis” (Sherman and Webb 1990). Sixty-seven students (37% of the cohort) self-selected and completed the survey via a link from the FB group.

3.1. STAGES OF ENGAGEMENT

The qualitative analysis of the students’ survey can be grouped into three phases of students’ engagements with the LMS, each stage lasting around one third of the studio time, namely *induction*, *socialisation*, and *maturity*.

3.1.1. Induction

The initial phase of *induction* involved the introduction of the SNVDS concept to the cohort, the lecturer demonstrating the group’s potential and modes of engagement being outlined. This introduction is usually met with some apprehensiveness from the cohort, as one student commented:

I initially questioned the use of Facebook, it seemed to be playing up to a fad to try and make the students excited about design in a different way.

3.1.2. *Socialisation*

Once students learnt that FB offers them a potential value in learning, they received more relevant and informative information via the LMS. This marks the beginning of the second stage, the *socialisation*. Here, students were socialised into the academic use of FB (outside of their own online social environment) and started to gain increasingly more some value from the social network. Previous assumptions are challenged; however, full engagement was still limited. Using social networks in a learning environment that not only serves socialisation needs, but also a learning source needs time to establish trust, connections and content.

3.1.3. *Maturity*

The third stage of *maturity* is when the students become familiar with the modes of engagement and the value of the group and actively participate in a mature manner, contributing to the group according to their own requirements. One student describes this staged engagement in the FB group:

I first thought it was a bit unusual to use Facebook as a study medium, however as people started to post up questions and work it was really useful as I would check Facebook more often than I would DSO and as a result was more easily exposed to answers and discussions.”

3.2. ANALYSIS OF THE LMS

Although everyone in the cohort joined the FB group and had access to wall posts, links and other information, levels of engagement varied over the trimester and according to individual learning styles, motivations and needs. Survey data revealed that 88% of respondents logged into the FB site at least once a week. From this sample, 38% logged in passively to read posts made by others, with 12% accessed the group to actively read and write posts. 38% contributed further by initiating and responding to student discussions. Engagement in the FB group, as evidenced by the number and type of posts increased as the trimester progressed. A sample of participation in the FB group was taken in week seven of the HKACP project with modes of engagement from each participating student identified and tabulated. From the cohort of 178 students, 53 students actively participated in the group by initiating posts and links, commenting on posts and links made by others and ‘liking’ posts and links made by others. 129 students did not participate or were passive participants, limiting

their engagement to reading comments and posts made by others. This engagement is illustrated by one respondent's comment that "I did not post any information but found reading through other's posts to be of assistance."

The studio coordinator was the most active participant in the group during the survey period. His contribution totalled 54, including ten comments, 40 replies to student or own comments, three links to websites, one reply to a post and one 'like'. The Hong Kong-based virtual studio tutor, who initiated three posts relevant to the project, provided additional valuable feedback to support the students' learning. The cohort included a group of 10–15 highly active users. One student initiated nine posts (asking questions clarifying the project), making 28 comments and another student making six comments (images of his work for feedback) and 28 other comments.

The SNVDS environment is as much a function of the personalities involved as the technology. Online presence and interactions differ from face to face, because hierarchies, thresholds and etiquettes are not the same (Barkhuus and Tashiro 2010). Sometimes people took on a self-appointed role online, which sometimes received a reaction from other students: "only 1 thing bothering, there is a student, acting like he's the 2nd moderator of SRD364 FB page."

3.3. NOMADIC DEVICE GENERATION

University students are often noted as early adopters of technology, 'since they are young and in the process of becoming well educated and since many universities were pioneers in the use of computing, often opening up access to all students' (Barkhuus and Tashiro 2010). Architecture students in this cohort are approaching a state of 'nomadic ubiquity' (Attali 2011), where optical fibre, Wi-Fi, 3G and 4G mobile technologies are used in conjunction with a range of nomadic devices such as smartphones, tablets and laptop computers. Online sources such as FB, *MySpace*, *Twitter*, *Skype* and the various *Google Apps* enable unprecedented connectivity. It is this connectivity that has unlocked many of the learning outcomes of the SNVDS, which has parallels with how the first VDS unlocked the potential of digital media in design learning (Kvan and Kvan 1999).

FB is ubiquitous amongst the cohort, with 176 from 178 students having a FB account at the start of trimester and 81% of respondents accessing FB more than once per day. 48% of survey respondents used their laptop to engage in the FB-group, 24% their smartphone and 25% a desktop computer at home. A combination of these devices enables multiple modes of access from the home, in transit and in the design studio itself. This convenience of access and accessibility to the "Nomadic Device Generation", as we called it, was widely received by students as positive. This is reflected in one student's comment:

The ability to share work and gain immediate feedback (although not utilised by all) was brilliant. It made the studio a 24/7 event, not just 4 hours on a Thursday afternoon.

The issue of access to tutors is critical in a design studio with 178 students, eight tutors and one coordinator and a weekly two hours lecture and three hours of studio contact times. The studio evaluations of earlier studios have consistently highlighted the lack of quality contact-times with tutors. The SNVDS offers an extension of the design studio outside of the limitations of scheduled classes, which is seen by some to fit in with students 'work hours' and nomadic lifestyles – as a student puts it – with its “ability to wake me up in the night (if I wished it to) is a far better communication platform, able to be delivered straight to my pocket”.

Clearly, there is great potential for further engagement in nomadic technologies in design education. With almost ubiquitous student access to online learning resources, LMS, various forms of mobile and cloud computing, technology has matured to facilitate a blended learning environment that intersects various physical and virtual realms as well as social and cultural elements.

3.4. FACILITATING SOCIAL ENGAGEMENT

Barkhuus and Tashiro (2010) found that students' use of FB facilitated a variety of student-to-student interactions, including 'casual interaction online, leading to casual interaction offline'. In our case, this was extended to include both student-to-student and student-to-staff on- and offline interactions. . The informality of the LMS made it easier for some to seek information from the online community:

Firstly, we can know and communicate to each other better even when we don't know them from the first time (sic). Then, it's a better way to ask questions as people might feel panic when talking in front of many students.

For some, this informal online learning environment was dominated by 'chatter', which distracted from the core learning tasks. One student thought the FB group was “intrusive and unprofessional” whilst another “I don't agree using social media for school projects, and I was quite displeased about being forced to do this.” Despite these negative responses being marginal and limited to only a few respondents, it is important to note that a social network as LMS does not fit every learner's need and style, since the LMS relies on the social abilities of students. Social skills and the ability to interact socially becomes by default a necessary skill that learners have to acquire or have as prerequisite. This is manifested in the responses of the survey, in which the students indicate that their perceptions of the FB group changed over time.

Initial negative or neutral attitude, such as “I thought that everyone would not treat it seriously and just fill it up with rubbish” changed once socialisation, mature use, and richer learning content posted by group members brought about more meaningful levels of engagement:

Initially I wasn't too excited as I was used to the DSO discussion thread however now I find it a very great way to communicate at a fast-pace which has been great with SRD [the FB-group]. Especially due to it being a design subject, sharing documents and photos has been much easier.

One constant issue of studio education is attendance at lectures and studio sessions. Attendance of face-to-face lectures fell from 80% in the first week to around 30% in the last lecture. Reasons for non-attendance, as outlined by Shannon (2006) generally include perceptions of marginal outcomes from lectures in students' busy lives, personal reasons and university workloads. Several survey respondents thought that the FB group contributed to poor attendance, with one student stating that “I felt it meant less people turned up to studio as everyone just use FB. I prefer one-on-one interaction with others than over the internet.”

It is proposed that FB acted as a source of engagement in the studio to compensate for students, who perhaps would not have attended anyway. The FB group enables the design studio cohort, with its constituent blend of deep and surface learners- and students, who strategically transition from deep to surface, various modes of engagement that suit different learning styles (Saljo 1979). As Oblinger and Oblinger (2005) note, the *Network Generation* uses a variety of channels to learn. Face to face is only one of many others that learners use to build up their knowledge.

The SNVDS was widely perceived to have increased social engagement in the studio: “It was good to be in contact with other students, when usually we would not talk that much. It is easier to open dialogue with other students via FB.” This was perceived to be of considerable value for some.

This increased social engagement contributed to 80.1% of respondents reporting that the SNVDS contributed to their learning of design. From this group, 38.1% reported a substantial positive impact on their learning of design. Moderated unit results demonstrated these outcomes across the cohort, with 8% High Distinctions, 27% Distinctions, 37% Credits, 17% Pass and 9% Fail (of which 6% were attributable to late withdrawals).

3.5. FROM COLLECTIVE TO SOCIAL INTELLIGENCE

Collective intelligence in architectural design invites anyone to contribute to a design process through crowd sourcing even if each of the design proc-

esses is individual. This is especially true in the SNVDS that employed Web 2.0 technologies to encourage everyone to contribute to a process – despite its competitive nature. As Paulini et al. (2011) state, developing successful collective design starts by understanding how individual and collaborative design are supported with computing technology and then goes beyond collaborative design to structure and organise the design tasks so that students are motivated to participate and contribute by gaining more value for their own design proposal. The LMS enabled many passive students to become participants: engaging in discussion forums, creating their own social and knowledge networks, taking part in polls and building communities and portals of knowledge. This provide opportunities for information to be shared among social groups, extending beyond the conventional studio setting, allowing for opportunities for collective intelligence to rise, and enabled through the social networks, the next step along the social and collaborative interaction, in which knowledge is generated and collected lies the *collective social intelligence*.

The key attribute of the SNVDS is the generation of a social intelligence that relates to both the current design project as well as knowledge in the relevant fields. The SNVDS differs from traditional model of delivery in that the students themselves became the primary contributor to skills, content, and knowledge required for the design project. It also differs from conventional problem-based learning (PBL) due to the difference of scaffolding and problem framing (Schnabel and Howe 2012). The ill-defined nature of the competition brief plays a crucial role in the development of the design proposal. The SNVDS not only framed the problem differently (Kvan and Gao 2004), but also engaged the students through the means of social learning resulting in a collective social intelligence that enabled learners to generate a wide diversity of responses. The tutor-to-student engagement evolved quickly into student-to-student engagement: “As the trimester progressed, I saw that questions were being asked and answered for all to see, that immediate responses could be given, and that discussion between peers slowly took over peer-to-lecturer discussion.”

3.6. FLAT HEIRARCHIES

In 1993, Alison King predicted that future educators must undertake the transition from being ‘the sage on the stage to the guide on the side’ (King 1993). The SNVDS successfully negotiates this transition by flattening the hierarchical structure of the design studio where practitioners provide feedback to students based on their command of knowledge and expertise in design. In the SNVDS, the LMS flattened this hierarchical structure, since every member

has the same role and power to facilitated learning. The competition brief aided in this process, by specifically seeking for the development of a novel typology that has no precedent and is an architectural alternative to the conventional solutions. Students themselves thus became important sources of information that was shared with their peers. Tutors became learners too and the social and learning interaction on- and offline shifted from teacher-led to student-led. The amount of shared information is a key attribute to the social intelligence, resulting in “a positive increase (in learning) because lecturer used FB to share information 10x more than any has ever used DSO.” One student reported that the FB group “felt more ‘alive’ and interactive”, whilst another felt that “it was definitely a better experience – seeing posts and the encouragement of instant conversation.”

This flat and democratic learning environment created “much more discussion and thought pattern among students. There was a greater dialogue between peers and teachers overall.” Students themselves established a number of their own separate FB-groups, following the inspiration of the SNVDS: “Several students and myself created a group of our own for another unit... it’s so much easier than emails etc.”

In the due course of the studio, the flat hierarchy was maintained throughout all aspects of the studio including desk-critiques and final presentations. Tutors, local or remote, shared the discussions with the students as initiator and listeners and using the smartphones, LMS and Skype as real-time discussion contributors, rather than conventional expert-led jury deliberations.

4. How social is the SNVDS?

The collective social intelligence that aided and facilitated the students learning resulted in successful design proposals that addressed the needs of the different learning and design styles, and educational goals. At the end of the studio, students and tutors selected six design proposals for submission to the competition resulting in one student winning an Honourable Mention <http://www.ac-ca.org/en/hongkong02mentions>).

In summary, employing social networks in a blended learning environment responds to the need of learners to not only acquiring knowledge or solving ill-defined problems but also engaging in a social setting that generates collective social intelligence and flow (Schnabel and Howe 2012). The Nomadic Device Generation engages with knowledge and information differently, as the anonymous quote states: “If the news is that important, it will find me.” This is only possible if one connected with networks that not only engage socially but also intelligently. This engagement is one of the fundamental pillars since the early VDS that “allows students to work collectively with colleagues from

different cultures and climates who are thousands of kilometres and in different time zones” (Bradford et al. 1994).

Acknowledgements

The authors wish to thank Tom Kvan, Christiane M. Herr, the students in the 2011 third year architecture cohort at Deakin University and countless online participants of the SNVDS FB-group for their valuable collaboration and contributions to this research.

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