

Monash University
EDF5648
Assessment 1

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Context

While I worked as a Learning Management System (LMS) Manager in a secondary school previously, my undergraduate degree was in architecture. This annotated bibliography combines these two areas and explores how digital technology could be used to support design higher education (HE). Various researchers have highlighted the experiential nature of design education (Daalhuizen & Schoormans, 2018; Park, 2011), which depend on the design studio as a key model to deliver hands-on learning (Fleischmann, 2020; Park, 2011). This could be a major challenge in delivering design education online, especially in the context of COVID-19 where many universities cannot resume face-to-face lessons. The articles are grouped according to three broad categories: (1) an overview of online learning, (2) blended learning in design education, and (3) fully online design education.

Overview of Online Learning

McLoughlin, C., & Lee, M. J. W. (2010). Personalised and self regulated learning in the Web 2.0 era: International exemplars of innovative pedagogy using social software. *Australasian Journal of Educational Technology*, 26(1), 28-43. doi:10.14742/ajet.1100

In this article, McLoughlin and Lee (2010) suggested that Web 2.0 technologies can help learners become self-regulated learners where they plan, manage and assess their learning. These technologies, which include social media, allow students to actively create content and share their ideas easily to a global audience. In contrast, traditional LMSs have limitations in allowing students to integrate their social media profiles. Despite the advantages of Web 2.0 technologies, McLoughlin and Lee (2010) suggested that there is still a prevalent “control culture” (p. 31) where teachers determine what and how students learn. They argued that such a culture does not help students navigate their lives as they would need to learn different skills throughout their lives on their own. Students need to learn how to be “active participants and co-producers of learning resources” (McLoughlin & Lee, 2010, p. 31). Therefore, they suggested that a Personal Learning Environment (PLE) framework can help to bring together a collection of Web 2.0 tools that can support self-directed learning in students.

McLoughlin and Lee (2010) argued for the need to incorporate Web 2.0 technologies in education to support self-regulated learning in a PLE. However, they did not explore in-depth the challenges of using such technology despite briefly mentioning that students may not think critically and tend not to take plagiarism seriously due to the prevalent use of social media. Further research would likely have revealed that PLEs are too open and does not allow HE institutions to have sufficient control over the tools (Mott, 2010). For example, using PLEs exclusively could introduce data integrity concerns, as students' learning artefacts hosted on social media could be lost due to closure of the particular web application (Mott, 2010). Hence, while Web 2.0 tools offer many advantages for learning, they have to be carefully selected and integrated into a course through thoughtful instructional design.

A PLE can range from the instructor maintaining a high level of control over course content to learners having full control over their learning (McLoughlin & Lee, 2010). As a result, it raises the question of how much control students should have over their learning. Although Bovill and Bulley (2011) proposed eight possible levels of students' control over their learning in curriculum design, they acknowledged that more student control is not necessarily better. One will need to consider the students' context before choosing the appropriate level of control given to students. This is relevant in certain design disciplines, such as architecture, where accreditation might be a concern for professional degree programmes. On the other hand, traditional studio-based design education might already provide students with a high level of control as they typically allow students flexibility in what they do in their projects (Park, 2011). Therefore, a key question in adopting PLEs in an online design course would be whether experiential learning can be replicated with digital tools to provide students with the appropriate level of control while still satisfying accreditation requirements.

Mott, J. (2010). Envisioning the post-LMS era: The open learning network. *Educause Quarterly*, 33(1). Retrieved from <https://er.educause.edu/articles/2010/3/envisioning-the-postlms-era-the-open-learning-network>

This article examines the strengths and weaknesses of LMSs and Personal Learning Networks (PLNs). Due to the individual limitations of LMSs and PLNs, Mott (2010)

suggested that open learning networks (OLNs) can help to balance the strengths of LMSs and PLNs. The OLN is a conceptual framework incorporating different technological tools such as LMSs and social networking applications in PLNs. This is achieved through the sharing of data between these applications through existing web standards (Mott, 2010). Since the use of LMSs in HE is widespread (Mott, 2010), the conceptual framework of OLN could potentially help bring together external digital tools to improve the online experience of design HE. However, over the last ten years since this article was published, there might have been many improvements made to LMSs and web applications in PLNs. For example, the LMS that I used in my job previously, Canvas, was able to connect to third-party external applications to add functionality to the LMS. Hence, the distinction between LMSs, OLN and PLNs might be less well-defined currently as compared to the time when this article was published.

According to Mott (2010), many educators tend to use LMSs as an administrative tool to manage digital resources and disseminate information, such as grades, to students in an efficient manner. This is consistent with my experience as an architecture undergraduate student, where I used the LMS mainly to download files for each course and to take the occasional quizzes. Without prior instructional design knowledge, that is how I have used the LMS as an LMS Manager in a secondary school as well. The LMS was used mainly to organise video lessons and quizzes rather than support the kind of active learning that McLoughlin and Lee (2010) argued for. Aspects of PLNs, such as allowing students to create, share and consume information easily (Mott, 2010), is likely to help design students replicate the high level of peer-to-peer in a studio-based design course (Fleischmann, 2020).

While the distinctions between the functionality of LMSs, OLN and PLNs might be less defined due to technological advancements, I think this article is still useful in providing a framework to analyse the wide spectrum of technological tools that can support online education. On one end, instructors can control the level of interaction students within their courses have with one another using an LMS. On the other end, PLNs allow students to share their ideas with a global audience, thus receiving feedback from a wider group of audience. Therefore, an instructional designer would

have to find the right balance between openness and a suitable level of control over the course for instructors when choosing appropriate tools for their institutions.

Blended Learning in Design Education

Fleischmann, K. (2020). Online design education: Searching for a middle ground. *Arts and Humanities in Higher Education*, 19(1), 36-57. doi:10.1177/1474022218758231

Even though a large proportion of the students in the study in this article had learnt new skills through online learning and are familiar with the use of technology in learning, Fleischmann (2020) found that the majority of students still prefer in-person learning in a studio-based design course. The students were not convinced that online learning can be a good substitute for face-to-face lessons for undergraduate design courses. Moreover, some design educators believe that design education is more suited to be taught in a face-to-face environment. However, given the increasing need for flexible learning as many students need to balance both work and studies, Fleischmann (2020) suggested that blended learning could be adopted to help universities transit to online learning to provide greater flexibility for students. In this article, Fleischmann (2020) seems to suggest that the ultimate goal of introducing blended learning is to deliver design education completely online. Although Daalhuizen and Schoormans (2018) found some degree of success in delivering a hands-on design course completely online, they found that many students in their study did not participate in the actual design process. Moreover, Newman et al. (2018) are cautious in recommending delivering studio-based courses online. There are also limited studies about the effectiveness of online studio-based design courses. Unless further technological advancements can offer advantages over learning in-person, in-person or blended courses are still likely to offer a better learning experience over fully online studio-based design courses.

An interesting finding from Fleischmann's (2020) was that students who lived in places far away from the university would still prefer to study in-person as they prefer to experience university first-hand. This suggests that students are not only seeking to acquire new knowledge, skills and certification, but are also looking for a broader experience beyond academics. This is consistent with Daalhuizen's and

Schoormans' (2018) findings, where they found that some students enrolled in the design MOOC in their study because they wanted to meet more people. While MOOCs might have very different target audiences compared to traditional university courses (Daalhuizen & Schoormans, 2018), universities seeking to deliver online design courses would have to take students' preferences for peer interactions into account. As a result, Fleischmann's (2020) argument for the need to find collaborative technological tools to support students in collaborative design projects might be insufficient. Universities would probably have to consider whether the wider university experience can be replicated online instead of only focusing on the academic experience in an online design course. In other words, online design degree programmes would have to be part of a comprehensive online university experience rather than existing as an individual academic programme.

Page, T., & Thorsteinsson, G. (2017). Using virtual tools to support collaborative learning in design education. *i-Manager's Journal of Educational Technology*, 14(2), 6-19. doi:10.26634/jet.14.2.13714

This article focuses specifically on the use of Web 2.0 tools to facilitate peer-to-peer collaboration in a traditional design course. Unlike the other articles on design education, this article does not evaluate the effectiveness of such tools in an online or blended-learning course. Nonetheless, the article provided insights into how Web 2.0 tools are already being used by design students to work with one another in practice in a face-to-face design course. In their study, Page and Thorsteinsson (2017) found that the most common tools selected by design students in their study were used to share files or work asynchronously. The students did not use tools that replaced in-person collaboration entirely as they were able to arrange physical meetings with one another easily in their context. The authors concluded that if students were able to work in-person with one another easily, such as being in close physical proximity to one another, it is unlikely that they would prefer to use online tools to replace face-to-face interactions. The results of their study are consistent with that of Fleischmann's (2020), who found that students were not convinced that online learning can be a good substitute for face-to-face lessons for undergraduate design courses. Given these findings, unless design students are forced to study

entirely online, such as during the COVID-19 pandemic at the time of this writing, online design courses may remain less desirable compared to traditional courses.

Page and Thorsteinsson (2017) also made a distinction between “online collaborative working” and “online cooperative working” (p. 15). They argued that the latter is merely using technology to support the division of tasks in a group project while the former is about building upon each other’s ideas toward an end-goal. That is why they concluded that the design students are using technological tools for cooperative working rather than true collaboration, which appears to happen face-to-face. This finding suggests that while Web 2.0 tools can help to facilitate peer-to-peer interaction, there is still a distinct difference between working together online as compared to in-person. As a result, it raises the question of whether studio-based courses can be delivered fully online successfully. Moreover, the article provided an insight into the preferences of students and how they use technological tools in practice. This provides a reminder that while technology can provide many affordances, it is up to the user to take advantage of these affordances and learn how to use them effectively. Although the authors studied the use of technological tools in a face-to-face design course, the findings of this article suggest that fully online design courses might not be able to replace in-person design courses completely as the latter still offers many advantages for working collaboratively.

Pektas, S. T. (2012). The blended design studio: An appraisal of new delivery modes in design education. *Procedia - Social and Behavioral Sciences*, 51, 692-697. doi:10.1016/j.sbspro.2012.08.226

Pektas (2012) found that blended learning supported by the use of Moodle LMS and Facebook allowed the interior architecture students in her study to collaborate even though they were from two universities in different countries. She explained that the blended studio can be supported by the use of LMSs and Web 2.0 technologies such as social media to facilitate interactions between students and instructors.

Nonetheless, the author acknowledged that there were challenges that need to be mitigated. For example, the students found it difficult to collaborate across different time zones and some instructors were reluctant to embrace new teaching methods required by the blended design studio (Pektas, 2012). This article suggests that universities that are keen to develop online design courses have the potential to

expand their reach. The online design courses could help to facilitate interaction between students from different countries, especially those living in similar time zones.

Similar to Fleischmann (2020), Pektas (2012) also argued for the implementation of blended learning in a studio-based design course. Pektas concluded that the blended studio can help students become active learners due to the use of Web 2.0 tools for students to create learning artefacts and interacting with other students across time and space. Although the article provided the advantages of blended learning, the author did not elaborate on whether the blended studio provides a better learning experience for students as compared to a traditional studio-based design course. Nonetheless, one key advantage that this article found was that the technological tools used in the study supported the documentation of the design process of each group. Thus, students can learn about each other's design process, which is not highly visible in a traditional studio format as the process is not as well-documented. More research could be done in this area to study the effectiveness of students learning from their peer's design process in a studio-based design course. For example, Daalhuizen and Schoormans (2018) found that videos showcasing the work of professional designers and more advanced design students at various stages of the same project helped the current students reflect on their own work. They argued that reflection is a critical aspect of studio-based design education. Instead of showcasing final designs, an online design course could also showcase a well-documented design process that provides students with an insight into the entire design process of someone with more experience. For example, ideas that were eventually discarded could also be documented, helping students to understand the decision-making process in design selection.

Fully Online Design Education

Daalhuizen, J., & Schoormans, J. (2018). Pioneering online design teaching in a MOOC format: Tools for facilitating experiential learning. *International Journal of Design*, 12(2), 1-14. Retrieved from <http://www.ijdesign.org/index.php/IJDesign/article/viewFile/2663/808>

This article analyses the effectiveness of a design MOOC that allowed its students to experience the entire design process for a single project. Daalhuizen and Schoormans (2018) argued that students need to experience the complete design process rather than learn about each phase of the process separately for a good learning experience. The authors concluded that the design MOOC in their study was able to teach design entirely online while still satisfying a high proportion of students and allowing them to experience the entire design process. A key aspect that contributed to the relative success of the course is through the use of videos showcasing the work of other students and industry experts. The authors suggested that this aspect might help to mitigate the lack of interaction between students and instructors in a MOOC. Since MOOCs are typically free, they generally do not allow students to receive feedback from instructors due to the high student-to-teacher ratio (Daalhuizen & Schoormans, 2018). However, Daalhuizen and Schoormans (2018), as well as Park (2011) and Fleischmann (2020), have highlighted the importance of instructor and peer feedback in a studio-based design course. This suggests that online university design courses could potentially be more effective than a design MOOC as the former would have a lower student-to-teacher ratio. In addition to showcase videos, an online design HE course might be able to support a high level of interaction between students and instructors, as well as between students, through the use of Web 2.0 technologies suggested by McLoughlin and Lee (2010) and Mott (2010). For example, web-conferencing tools could be used to provide students with real-time feedback from their instructors.

This article is useful in introducing the effectiveness of a MOOC, which could be considered on the opposite end of the spectrum from traditional face-to-face university degrees. The MOOC in this article is an example of certification programmes online where learners can choose to participate in the modules that interest them without the pressure of completing enough credits for an entire university degree. Therefore, it would be important to consider the context when designing an online studio-based design course. The target audience for the course as a standalone MOOC would be very different compared to that of a course within an online design degree. On one hand, students enrolling in a design MOOC might come from a wide variety of backgrounds, ranging from fresh graduates to working professionals (Daalhuizen & Schoormans, 2018). On the other hand, undergraduate

design students might prefer a comprehensive university experience rather than the academic experience alone (Fleischmann, 2020). Therefore, the same online design course likely cannot be replicated for both contexts without modifications.

Newman, G., George, B., Li, D., Tao, Z., Yu, S., & Lee, R. J. (2018). Online learning in landscape architecture: Assessing issues, preferences, and student needs in design-related online education. *Landscape Journal*, 37(2), 41-63. doi:10.3368/lj.37.2.41

Instead of studying a studio-based design course, Newman et al. (2018) examined the current ability of universities to deliver non-studio landscape architecture courses online through studying a History of Landscape Architecture course. Therefore, the findings of this article might not be directly relevant to studio-based design courses. Nonetheless, the article addressed concerns that would affect whether online courses are successful. Newman et al. (2018) identified that “access, interactivity (including collaboration and engagement), online preferences, and concerns over academic integrity” (p. 41) are important factors affecting the success of online design courses. In particular, the authors found that the increased access to course content anytime and anywhere gave students greater control over their learning, thus increasing their motivation levels. Moreover, the authors argued that recorded video and audio content helped to reduce the time that faculty need to deliver course content each semester. This resulted in more time for faculty to interact and provide feedback to students (Newman et al., 2018). This finding might be transferrable to studio-based design courses, where faculty could pre-record all theoretical lessons. Teaching assistants could also produce video lessons that teach students technical skills, such as using design software. These materials could then be used again for successive semesters. This will free up time for instructors to engage with students in their design projects, as the lack of feedback in online courses had been a major concern of design educators (Daalhuizen & Schoormans, 2018; Fleischmann, 2020).

Another key concern that this article raised for online courses is that of academic integrity. There were students in the study who believed that some of their peers were dishonest. Thus, Newman et al. (2018) were concerned that online courses could result in a less desirable learning experience as students do not trust the academic integrity of their peers. However, none of the other articles in this

annotated bibliography about online or blended studio-based design courses (Daalhuizen & Schoormans, 2018; Fleischmann, 2020; Park, 2011; Pektas, 2012) raised any concerns for the lack of academic integrity when the courses are delivered online. This might be due to the high level of interaction between peers in traditional studio-based courses (Fleischmann, 2020; Park, 2011). In my experience, students in traditional studio-based courses provide feedback on each other's projects regularly. As students' projects tend to be very different from one another, it might be hard for students to cheat and use someone else's work as their own. Furthermore, concerns of academic integrity could be reduced by ensuring that students upload their designs at different stages of the design process such as in Daalhuizen's and Schoormans' (2018) study, or by using technological tools to ensure that each student's design process is well-documented and highly visible to their peers as in Pektas' (2012) study.

Park, J. Y. (2011). Design education online: Learning delivery and evaluation. *International Journal of Art & Design Education*, 30(2), 176-187. doi:10.1111/j.1476-8070.2011.01689.x

This article is useful as it focuses on interactivity in online design education, a major concern for design educators highlighted by other researchers (Daalhuizen & Schoormans, 2018; Fleischmann, 2020). Park (2011) argued that virtual learning environments (VLEs) have not been used properly in design disciplines to provide the interactivity required in design disciplines. By breaking down an interactive VLE into its interactive components, such as interactive communication through the use of discussion boards, the author provided a useful framework for designing an online studio-based course. However, the discussion of the interactive VLE design remained on a conceptual level and little details are provided by the author. It is unclear how the framework is realised in the two online graphic design modules in the study. For example, Park (2011) could have addressed how the proposed framework can help instructional designers choose the appropriate tools. In contrast, Daalhuizen and Schoormans (2018) provided a much clearer explanation of how the design MOOC in their study is designed and realised as their discussion was accompanied by screenshots of the course. Therefore, there is still a gap between

using the framework proposed by Park (2011) and realising the design of an actual online design course that an instructional designer will have to navigate.

Another point raised by Park (2011) that was not addressed by the other articles in this annotated bibliography was the importance of collecting student feedback. The author suggested that online design courses integrate the collection of student feedback into the course design to increase the amount of feedback collected. While Park (2011) argued that assigning student feedback as part of the course activities helped to increase the number of responses, it is unclear whether these activities improved the learning experience for the current students. This potentially raises ethical questions, such as whether assigning student feedback as course activities should be included if it does not lead to improved learning experience for the current students, which requires more research. Nonetheless, Pektas (2012) has shown that designing a blended studio-based course can be an iterative process as her study only included the use of Facebook after finding out that the majority of students used the platform. Therefore, if students' feedback is collected early in the semester, instructors could use the feedback to improve their course throughout the semester.

Additional References

Bovill, C., & Bulley, C. J. (2011). A model of active student participation in curriculum design: Exploring desirability and possibility. In C. Rust (Ed.), *Improving Student Learning (ISL) 18: Global Theories and Local Practices: Institutional, Disciplinary and Cultural Variations*. (pp. 176-188). Oxford, UK: Oxford Brookes University: Oxford Centre for Staff and Learning Development. Retrieved from <http://eprints.gla.ac.uk/57709/1/57709.pdf>