

Blended Learning in Architecture and Design Education

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INTRODUCTION

The aim of this special issue is to elucidate current practices and experiences of mixing traditional, physical, location-specific and face-to-face modes of learning with online learning formats – altogether known as blended learning. In the design disciplines, this poses particular challenges, as design learning has traditionally been deeply rooted in practices which involve interaction with both people – peers and instructors – and physical matter.

The focus in architecture and design education on solving design problems through project-oriented learning processes makes the field a perfect probe for investigating problem-based learning. As opposed to traditional learning formats in higher education such as lectures, seminars and colloquia which are still widely used in most higher education programs, architecture and design education, as a form of problem-based learning, has always been focused on the studio.

In creative and arts-related educational programs, the studio is a space for experimentation and creative development. The studio is a physical space, and rather than reading and writing, students perform design enquiries through drawing and modeling. And learning is haptic–kinesthetic and visual–spatial, rather than verbal–linguistic or logical–mathematical (Gardner, 1984). As such, architecture and design education is particularly interesting in the context of blended learning, compared to other fields of study in higher education.

Slightly caricatured, new online learning formats attempt to transport traditional learning formats into the digital media. Lectures become videos, seminars become chat rooms, and colloquia become online forums for the exchange and commenting of work in progress. Even if the quality and effectiveness of online learning may be debated, it therefore somehow seems to address the teaching needs and traditions of mainstream higher education, rather than those of the problem-based learning formats of architecture and design education.

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But even if online technologies to emulate drawing and modeling do exist, they do not seem to have found their way into online teaching by any substantial measure. Therefore, it is tempting to believe, that introducing blended learning into architecture and design education may cause rupture to well-established ways of teaching in this field. So where does it leave – or take – studio-based architecture and design education? Does it subtract from the long-standing qualities of the studio and its important physical presence of both people and matter? Or does it add new and enriching qualities to the well-established learning formats of architecture and design education?

These are the questions which the papers in this special issue seek to address.

At this point, the observant reader may ask how blended learning in architecture and design education relates to the aim and scope of a journal on problem based learning in higher education. What, in other words, is the PBL component in this context? The answer is simple. In its deep foundation on the concept of the design studio – the idea that learning emerges from doing design projects (which, in turn, is based on the beaux-arts concept of the atelier, where arts students would learn through creating artwork) – architecture and design learning was problem-based long before the theoretical formulation of the concept.

Therefore, it is probably fair to say that most architecture and design educators are implicitly PBL-oriented in their work, even if they are not explicitly aware of it. As Kocaturk contends in her contribution to this issue, “[d]esign-studio lies at the heart of Architectural Design education which aims to simulate aspects of professional practice in a studio-based learning environment. Students are given a complex design problem (project) and are assisted by their studio tutors in developing solutions.”

In the call for this issue, we suggested a number of different themes. First, we thought someone had probably developed a new course format as a result of new online technologies. We also imagined that distance learning would trigger new balances of on-/off-campus learning activities, and that new forms of international collaboration would be enabled through online technologies. It seemed obvious that new technologies would facilitate new methodologies for analysis and/or design. And finally, we encouraged contributions on pilot learning design projects – successes, failures and lessons learned.

While some of these themes are covered in this issue, others are not. Among the seven contributions to the issue, a notable five take their point of departure in the architectural design studio. A recurring topic among this group of papers is blended learning in various forms. One contribution interestingly addresses architectural history teaching in an outdoor setting using mobile technology. While not addressing studio teaching, this paper is still situated in the context of architecture studies. Finally, one paper addresses collaborative and interdisciplinary learning in virtual space through gamification. While not specifically addressing architectural design education *per se*, it addresses issues which are highly relevant to it.

This distribution reflects the editors' impression that the classical studio teaching format in architectural design education is still very much alive, even if under pressure. Introducing elements of blended learning into studio teaching therefore has two aims. On the one hand, blended learning is explored as a means to enhance the quality of studio teaching through the application of ICT. And on the other, blended learning is explored as a means to compensate for the negative effects of cutbacks on resources for studio teaching.

Apart from the students' reflection through design, the reflective discussion between instructor and student during studio supervision, which has been seminaly described by Schön (1983,1987) is central to the studio teaching model. Yet, in its traditional form where students and instructors engage one-on-one, it is also a very costly teaching format. Therefore, in most current-day settings, instruction therefore takes place among groups of students. Nonetheless, the model is under constant pressure, and new ways of compensating for the lack of former-day resources are in high demand.

Despite its many merits, the traditional studio format has its limitations. As MacKenzie et al. contend in their contribution, "[d]esign and architecture education traditionally relies on personal interactions between tutor and student in a physical space called the studio". But as instruction takes place between instructors and (groups of) students, learning is only shared among a limited number of students. Therefore, the format produces redundancy, as the instructor often has similar conversations with different groups of students. Using online teaching techniques can be a way to compensate for this, as the instructor can address larger numbers of students on issues of general concern.

The traditional studio – as the name implies – is a physical spaces as much as a learning space. Yet many programs do no longer have the resources to offer permanent work desks to all students. Therefore, informal learning – students learning from each other – has become more difficult, as students will not spontaneously meet to discuss ideas and see each others' work in progress to the same degree. The same is true for large studios with up to 50-100 students, even if they do have permanent work desks. Again, online fora can be a way of sharing ideas and work in progress among students.

It is important to note in this context, that sharing ideas and work in progress in architecture and design studies is a predominantly visual activity. In the physical studio, students will mount paper sketches on pin boards and have scale models sitting on tables. This visually rich environment is very important in order to get inspired and to learn. In this regard, the visual arts, architecture and design differ tremendously from most other teaching programs in their requirements for a visually stimulating study environment.

Taking her point of departure in a master's level design studio, Kocaturk investigates how both the mediational and instrumental use of digital media and face-to-face interaction can support collective knowledge construction and skill building, as well as how blended learning can support individual, collaborative and guided learning respectively. She does so by asking her students to use wikis for

developing, sharing, and documenting their design work in an array of representational modes, ranging from texts and sketches to animations and videos.

Kocaturk's research interest is similar to that of Steinø & Khalid, in that she focuses on the online platform's capacity to foster instructor to/from student and student to student communication, sharing of work and ideas, and peer learning. The two studies also adopt similar methodological approaches. While the former is an ethnographic study and the latter is a phenomenographic study, they both use qualitative student responses in the form of interviews and workshops respectively, as a way to document their findings.

While both Kocaturk's and Steinø & Khalid's primary interest is the potential of blended learning for improving the didactical and pedagogical quality of learning, both MacKenzie et al. and Hill are more focused on how online tools can substitute traditional face-to-face teaching modes. MacKenzie et al. investigate how an LMS (Moodle) can be put to use for giving course information and student feedback in a number of media formats in order to support the convergent-divergent dynamic of the learning process.

Hill takes the efficiency aspect to the extreme in his account of the "tutorless studio" in his examination of whether it is possible to reduce or even eliminate the role of tutors through blended learning. The challenge of substituting blended learning for tutors while still being able to provide students with high quality feedback, was tackled in part by training students to give peer feedback and in part by summarizing general feedback through live lectures. While the experiment was not entirely conclusive, the students interestingly performed better than in previous comparable traditional studio courses.

Reporting from a global multidisciplinary network on housing research and learning, Bregger gives an account of a course on housing in which extensive use was made of a host of ICT tools, including an online workspace, facilitating international collaborative learning including both students and instructors from different programs. While a special online platform was developed for this international collaboration, student feedback indicated that the online platform which was used could be improved with regard to live features, upload system and interface design.

As mentioned above, two contributions, while not addressing studio teaching, demonstrate innovative use of ICT technology in architecture and design related learning. Smith et al., on the one hand, give an account of a new approach to teaching architectural history, landscape and urban design, using mobile technology in combination with site visits, video and audio recordings, and various creative notation formats.

Finally, Jensen investigates virtual reality (VR) as an environment for collaborative and problem-based learning in architecture and building construction education, with a special focus on gamification. Although not entirely successful in this early adoption, gamified learning in VR suggests

enticing new ways of learning in architecture and design, as technology matures and pedagogical models ripen.

All in all, the papers presented here offer a glimpse of a world of blended learning in architecture and design education, in which new technologies challenge old paradigms, where educators struggle to make the best of two worlds, and where the last word is far from having been said. Hopefully, this issue will be as informative as inspiring, when it comes to the ways in which the traditional studio format can be developed and transformed through blended learning, and how entirely new teaching formats may be enabled through ICT.

Happy reading!

References

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