

EXPANDING THE VIRTUAL CLASSROOM

BIRKELAND, JENNIFER

Cornell University, jb2597@cornell.edu

HANDEL, STEVEN

Rutgers, The State University of New Jersey, steven.handel@rutgers.edu

1 ABSTRACT

With the fall 2020 semester taking place in a virtual environment, two professors, one in landscape architecture and one in ecology, hailing from different universities, came together with an experimental scenario. This study explored how the research seminar and remote teaching can take on a new form of collaboration in the classroom. Building on the two disciplines of the academics, the course provided the students with the opportunity to gain knowledge and establish a broader network outside of their current institution and field of study. Merging the courses at specific times during the semester, fostering discussion and engagement, critiquing design work, and participating with case studies that demonstrated ecological design, informed the work produced in both courses. The students were a mix of graduate landscape architecture, urban planning, and ecological science. At the end of the semester the faculty performed an anonymous survey, inquiring about the perceived benefits and challenges of the overlapping courses. The students responded positively, stating that the course expanded their thinking and was a significant benefit to their studies and perspectives in their fields. Furthermore, the students suggested future course collaborations with disciplines such as, art, architecture, information science, human ecology, indigenous studies, and real estate. Some drawbacks mentioned were, zoom fatigue, difficulty collaborating across multiple time zones, and collaborating in person due to social distancing. This paper focuses on the opportunities and outcomes from the approach, exploring how this overlap could engage more productive, and novel remote learning environment in the future.

1.1 Keywords:

Remote learning, shared teaching, interdisciplinary practice

2 INTRODUCTION

This research evaluates the potential in cross disciplinary and cross institutional teaching opportunities created by the online learning environment of the COVID-19 pandemic. Understanding the values that virtual learning can bring to benefit students by utilizing adapted methods of engagement, and new events for remote technologies. There were a variety of online tools available to make the course more engaging and hold the students responsible for actively participating in each class. It brought new techniques to equalize learning across the students in terms of access, as well as understanding the benefits from a collaborative semester. Lastly, this explores the opportunities of developing relationships between institutions, departments, professionals, and academics to evaluate the challenges as well as the strengths this mode can offer.

The disciplinary boundaries of landscape architecture are often discussed in both academic and professional settings (Kullmann, 2016). Its situation with the built environment often requires that projects collaborate with adjacent fields to address areas of expertise within specific scenarios. In practice, disciplinary relationships continue to strengthen, but can still be misunderstood, as building projects become larger and more complex around the world. Designers, ecologists, economists, and engineers all rely on each other's expertise when developing densely entangled designs in our built environment. These relationships are conceptually introduced during the landscape architecture curriculum through a series of courses such as studios, history theory, and research seminars, but it is not a core component of the curriculum to have a collaborative project between landscape architecture and ecology students (Steinitz, 2020). Outside of the enhancing the virtual classroom, the other core intention of this study was to expand it, by introducing interdisciplinary engagement in the course to strengthen recognition and collaboration between design and ecology post-graduation.

These relationships are an important cornerstone in design education and practice. With the effects of climate change, gathering data on ecological restoration, habitat, resiliency, and performance is more important than ever when addressing a site. Facilitating these relationships early in a student's academic career should be seen as important and finding new methods in which to engage with ecologists as well as other disciplines when entering the field (Handel, 2014).

A typical method of cross disciplinary engagement within institutions is to create design studios with both architecture and landscape architecture students enrolled, with the task to develop a comprehensive site proposal. Academic design disciplines are often, but not always located in the same school within an institution, with multi disciplines of students studying in one building, making it easy for them to physically collaborate. While in school, collaborative competitions are another opportunity for students to engage with each other on conceptual and tangible design proposals. Highly publicized opportunities such as the Urban Land Institute Hines student competition, teams will often be composed of landscape architecture, architecture, planning and real estate students to bring more depth to their proposals, as well as a real-world approach. The EPA hosts an annual Campus Rain Works Challenge, which is an opportunity for environmental design students to develop proposals for new ideas for green infrastructure.

3 METHODOLOGY

This research was conducted over two courses, research seminars in a landscape architecture department and ecology department at different universities during the same semester. Each course ran 90 minutes in length. One occurred in the early morning, with the other taking place midday. The total cohort for both courses was eleven students, all graduate students in advanced levels of their degree programs. The identification for all the students enrolled were: five female and one male student pursuing their master's in landscape architecture. There were two male and one female dual degree students completing degrees in landscape architecture and regional planning, and one male and one female student in ecology and evolution programs. One of the female MLA students was taking the course from another country with a 12-hour time difference. While the two universities and remainder of the students were in the eastern time zone. At the time this was proposal organized during the pandemic, official scheduling that worked between institutions was challenging to coordinate. It was offered as part of the course introduction to the students but was not a requirement that all meetings were attended for the opposing course. A semester schedule was provided to each of the class groups, with specific presentation dates identified for lectures, reviews, and informal pinups.

Each course held a weekly virtual meeting to provide equitable engagement to all students enrolled. Both courses used zoom as the meeting platform. Each student had a laptop computer, equipped with a camera, microphone, speakers, and adequate internet access to participate in all discussions and presentations. Tools within zoom such as screen share, computer control, recording, and annotation were used as an additional means in which to communicate and present. Short skill tutorials were held for representation and modeling programs, such as rhinoceros 3D, to teach specific workflows. The professor would record those sessions through zoom and distribute the link after class. It gave students the ability to revisit and replay at their own speed of work to develop their projects.

The landscape architecture course topic was focused the elements typically designed for landscape. Examining their core contributions to the discipline and how they have evolved over time and with civilizations. The course was structured with a lecture on each of the identified elements; the fence, the path, the bosque, the parterre, and the folly. Followed up with readings, discussions, research analysis, and design charettes. For the midreview assignment, the students each selected one of the elements and established a new approach or a redesign. With a self-assigned site context, they were asked to challenge traditional methods, materials, construction techniques and performance. For their final assignment, the students worked in teams of 2 and 3, and created an environment which combined their elements - speculating on a new future. The students were assigned to embed ecological and social functions into their proposals, to better understand the relationship between designer and ecologist.

The ecology course topic on urban restoration gave a series of introductory lectures on the core components of urban ecology. Additionally, the course hosted a series of guest lectures given by prominent practitioners and leaders in the field of landscape architecture who have worked on projects closely with ecologists in their work. The speakers presented projects with which they, and their firms had been actively involved in. The content of each of the lectures addressed design solutions supporting key ecological concepts. The scale of projects ranged from regional master plan to local community parks. The work presented was a complement to the focused elements presented in the landscape architecture course, grounded in real world precedents. Projects included a coastal landscape redesign, a transformation of an urban landfill into a large public park, the reaction of an urban park on a riverine island, and a dunescape design. The lectures were not recorded at the request of the speakers presenting, so students were required to attend these lectures to engage with the speakers, on the content presented.

Supplementary to zoom, the courses used Miro (Figure 1), an online virtual pinup website. Free to educators and students. Each class would have a dedicated board for their work, and students would be able to upload content to discuss at each meeting. During a normal in person semester, work would be pinned up before or during class, reviewed, annotated, and taken down at the end of class so that the next course using the room would be able to use that same pinup space. The intelligence of the online pinboard was its consistency throughout the semester to review student work. A flexible platform, it allows students to upload both images, notes, and animations of their work. Simultaneously observers could annotate and leave notes outside of typical class time, or during class time. A visual timeline for the course, it provided documentation of the progression of the work and research for the students and critics to review as a complete body of research. A physical equivalent would be, if each class was able to have the same room throughout the entire semester without having to remove and replace their work each time. Additionally, the amount of sketch, printer, and plotter paper saved from the trash bin was a considerable amount. Miro is not only a sustainable alternative to the physical pinup board, but also a platform that elevated the level of discussion as evidence of the progression of research, thought, and skill throughout the course.

Once the course was over, an anonymous online survey of 8 multiple choice and free answer questions was conducted to gather more information from the students regarding their experiences with virtual learning throughout the semester. Questions specific to the delivery of the course and the collaboration with the other students and instructor were posed. As well as questions more general to their experiences in all classes during the remote semesters. One key takeaway was students stated that they felt that online learning is more time efficient than traditional in-person education.

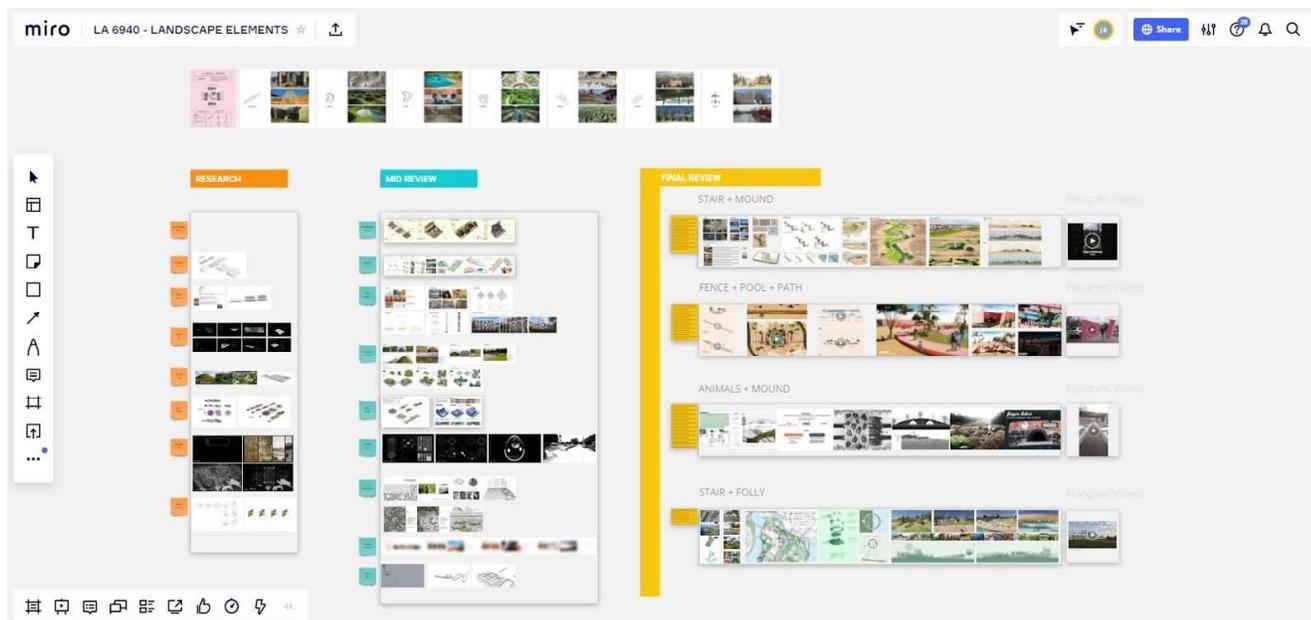


Figure 1. This was a sample of the Miro board showcasing the classes work. This was used as a tool to review and exhibit drawings and research throughout the semester.

4 RESULTS

There were several key findings from the survey and observations from the professors during the course. When the cross-course were proposed, the interest was incredibly high, 98% of the students who came to the first meeting continued with the course. During the first-class meetings, each instructor presented the students with the schedule, information for the alternative course login, and lecture topics and readings. Engagement in the cross collaboration the courses was high, with at least 50% of the landscape architecture students attending 3 or more of the 5 guest lecture presentations in the ecology course, and 100% participation with all progress reviews from the ecology students for the design work presented in the landscape architecture course. With each of the sessions, 100% of the students in attendance would unmute themselves and ask questions of the presenter and fellow students post presentation.

The ecology course professor as a positive impact with the landscape architecture students' design process while developing their midreview and final review landscape element proposals. Critique and discussion between both professors helped guide and frame new concepts and performance criteria within their proposals and shaped their final concepts and understandings of how to make landscape elements more productive and habitable for flora and fauna.

All the students commented in the survey that they felt the other courses' content was complementary to their graduate studies. The students were asked what additional disciplines they would be interested in collaborating with in the future, and they suggested departments such as, art, architecture, natural resources, planning, human ecology, and real estate. Many mentioned that being connected with another institution was helpful, particularly because the students were in different programs and the professors were specialists in their fields with complementary perspectives and expertise on landscape architecture and restoration ecology.

The most challenging issue of the course was the scheduling and timing of the class meetings, as some students had time conflicts during the scheduled course slot. There was a request that the lectures be recorded for those that had scheduling conflicts, though on days with guest speakers that would require notification and permission from them prior to the delivery of the content which was not confirmed. Overall, the students responded positively to the overlap, and with an 88% response rate of saying they would take a course like this in the future.

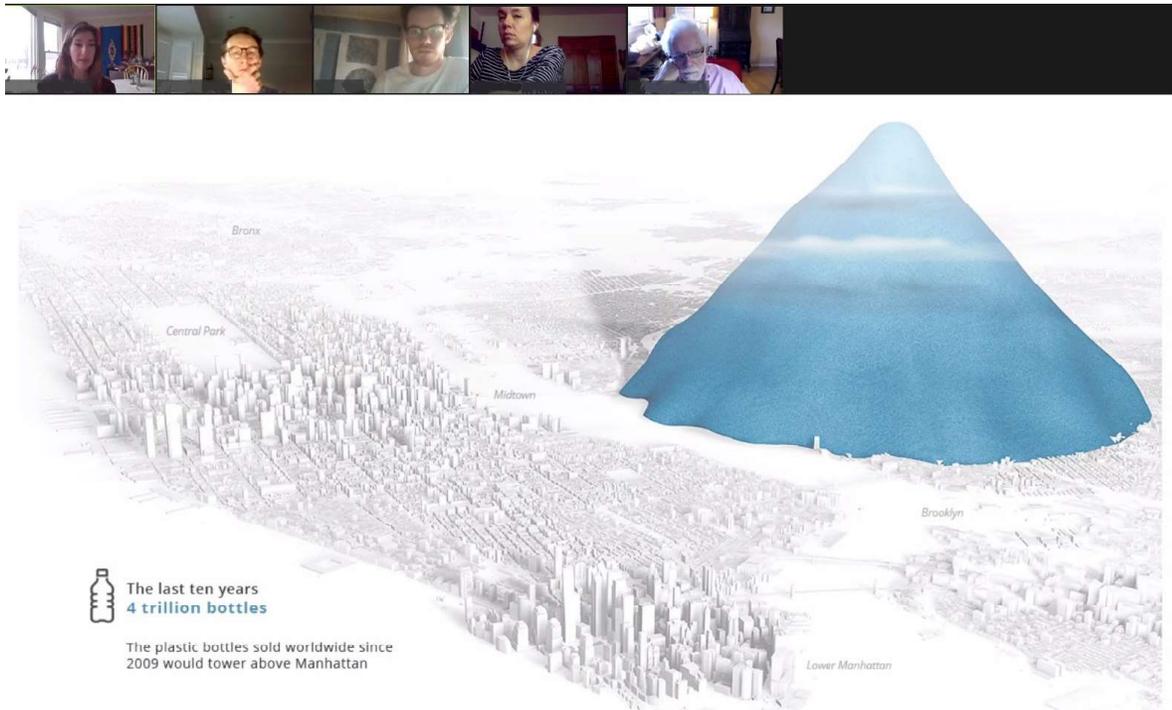


Figure 2. In zoom, sharing one's screen for a presentation aided in clear communication of ideas to the professors, guests, and fellow students.

5 DISCUSSIONS AND LIMITATIONS

One significant benefit that was noted from multiple students was their excitement towards the level of access to engage with professionals and academics who participated. In a traditional setting, those individuals might not be able to take the time to travel to the university and meet with the class, was seen as a highly valuable networking element for their educations and their careers (Figure 2). They saw these sessions as incredibly timely and beneficial to their studies and perspectives post-graduation. Though these types of online engagements do not provide the one-on-one sidebar conversation or question one would typically have in an in person setting, they recognized the benefit. They stated excitement towards learning about the on the ground aspects of current and relevant projects from the perspectives of the individuals that are actively implementing with them and working with local environments and communities.

Another benefit that was stated on was the use of Miro as a pinup platform for the course. Being able to see and review their classmates' work on days and times outside of the course was a beneficial review tool, which inspired and connected them when they were not able to be together (Figure 3).

Multiple students commented that virtual learning saved them time they would normally spend commuting to campus, and this was seen as a positive addition to their daily life balance. This was particularly true for the student who was unable to travel to the US because of visa restrictions. The virtual delivery allowed many students to be able to continue their studies during a challenging and stressful time.

The students reported that they had hoped for a formal integration of the classes to work better with their class schedules, as many of them had another class during the time of the alternate course. They also stated that they would have liked assignments that blended with the other students to go beyond just the dialogue introduced in the lectures. Some limitations mentioned were that it is harder to sketch ideas virtually than in person because of issues with social distancing. Group work among different time zones was also mentioned as a significant challenge when it came to scheduling collaborative time to work on assignments. Utilizing the breakout rooms into smaller focused discussions was seen as a benefit to be able to connect with the professor and fellow classmates in a less formal setting.

There was also mention from multiple students of zoom fatigue (Fosslien & West Duffy, 2020). Discussions surrounding the amount of time design students spend working towards their degree is a highly concerning and criticized issue, so it should be no surprise that students are finding it difficult to concentrate in every course (Lynch, 2017). Considering the number of distractions and focused attention that must be balanced with remote learning, universities will need to develop better practices for virtual and hybrid content delivery for students and professors going forward. Design teaching will need to be reconsidered, restructured, both pedagogically and logistically (Masdéu & Fuses, 2017). A potential limitation with a hybrid scenario would be to the individuals not served with individual cameras but located in a larger room with many individuals. The lack of direct eye contact may deter some students from speaking up and attempting to engage with whomever is logging in remotely. Issues such as zoom fatigue, and multiple time zones require a critical rethinking of format and engagement at both the administrative and educator levels. This would require further studies and surveys to accommodate scheduling, platforms, and delivery to maximize the student's experience.

The profession was already participating in some forms of remote communication prior to the quarantine situation of the pandemic. Clients and consultants would not always physically travel to a communal destination to hold a meeting or discuss timeline. It appears some forms of operating remotely is a method of work which will be more readily accepted as a form of professional office life (Prossack, 2021). Thereby having students fluent in the platforms and approaches to online delivery and communication would serve as a benefit to their future careers. Understanding the tools and techniques that technology can offer in delivering engaging and variable content, will continue to evolve with the ongoing realities of the future continue to develop.

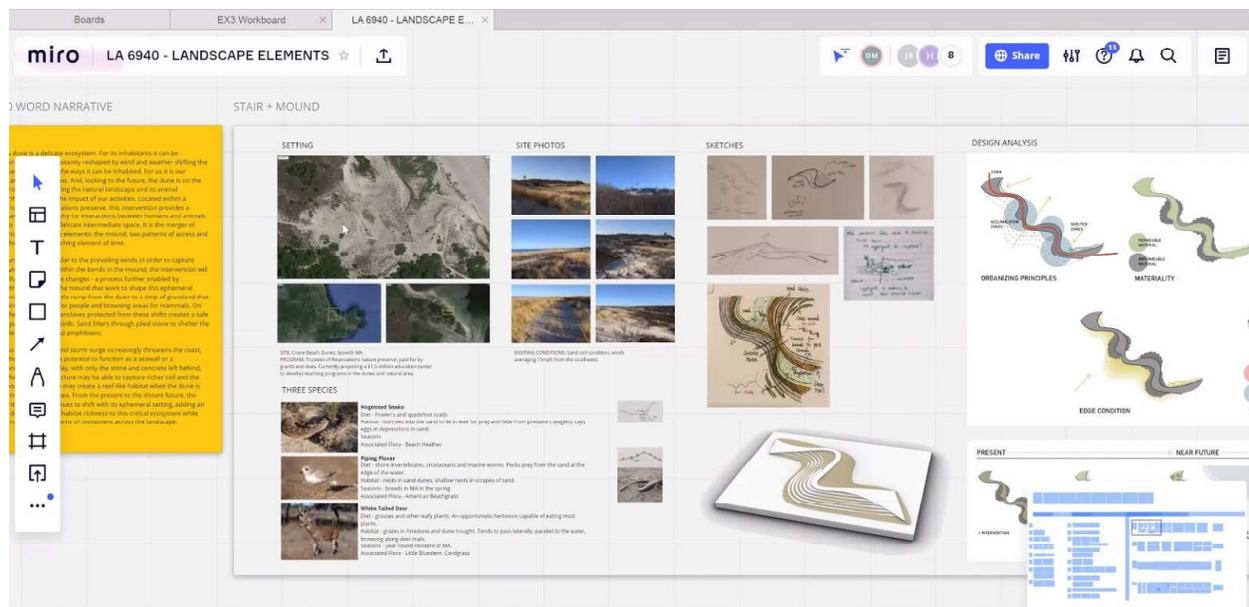


Figure 3. The flexibility and endless space in Miro allowed the students to compile their finds and document them publicly throughout the course. Note features allowed others to virtually comment and provide feedback both in real time during the course, and outside of class hours at the student's availability.

5 CONCLUSION AND FUTURE RESEARCH

This study examined an opportunity of online learning to collaborate between instructors and institutions to share more information and expand research through courses. The students engaged with the professors, professionals, and each other during the course, enriching their understanding and exposure of the cross disciplines. Future discussions should be held between departments on courses that blend disciplinary programs as well as outside institutions to bring alternative experiences for students and creating more collaborative academic scenarios.

Like professional offices, universities will most likely need to continue to address some form of virtual content delivery for students. Developing concurrent approaches to in person or hybrid teaching that accommodate scheduling, platforms, equipment, and delivery of content to maximize the learning opportunities. Issues such as zoom fatigue, and multiple time zones require a critical rethinking of format and engagement at both the administrative and educator levels.

To engage with individuals outside of the local region of the university through these digital platforms is highly beneficial for the advancement of conversations and collaborations between academia and practice. The efficiency and success of online learning in this semester suggests that the role of the virtual classroom could play a more prominent role in the physical classroom when it returns to the in-person learning, and perhaps a hybrid approach. Through video calls, and large-scale projection, professionals, specialists, critics, and academics could continue to join class meeting times, without the cost and time it traditionally takes to travel to an institution outside of their area.

The benefits from reducing the amount of paper utilized during an in-person course is significant for the economics of the student as well as the environment. Thereby platforms like Miro could continue to be utilized to present and review student work. The ability to record content is not a readily available method when teaching in a physical classroom but is something that should be carried forward into subsequent semesters to allow students to revisit content at their own pace.

The tools and strategies utilized in this course and others during the pandemic should not be dismissed when returning to pre-pandemic classroom. The virtual classroom can be utilized as a method to break down disciplinary barriers, as well as institutional barriers to further design research and expand the thinking and engagement regardless an individual's location. More research needs to be conducted with other course types to assess the impacts and opportunities collaborations like this can promote.

6 REFERENCES

Fosslien, L., & West Duffy, M. (2020, April 29). How to combat zoom fatigue. Retrieved August 05, 2021, from <https://hbr.org/2020/04/how-to-combat-zoom-fatigue>

Handel, S. N. (2014). Marriage therapy for ecologists and landscape architects. *Ecological Restoration*, 32(4), 343-344. doi:10.3368/er.32.4.343

Kullmann, K. (2016). Disciplinary convergence: Landscape architecture and the spatial design disciplines. *Journal of Landscape Architecture*, 11(1), 30-41.

Lynch, P. (2017, February 13). New survey confirms architecture as most time-consuming major. Retrieved August 05, 2021, from <https://www.archdaily.com/805264/new-survey-confirms-architecture-as-most-time-consuming-major>

Masdéu, M., & Fuses, J. (2017). Reconceptualizing the design studio in architectural education: Distance learning and blended learning as transformation factors. *International Journal of Architectural Research: ArchNet-IJAR*, 11(2), 6. doi:10.26687/archnet-ijar.v11i2.1156

Prossack, A. (2021, April 25). Office Not Required—Why Remote Work Is Here To Stay. Retrieved August 04, 2021, from <https://www.forbes.com/sites/ashiraprossack1/2021/04/25/office-not-required--why-remote-work-is-here-to-stay/?sh=63cbe3ae6ab4>

Steinitz, C. (2020). On Landscape Architecture Education and Professional Practice and Their Future Challenges. *Land*, 9(228). doi:<https://doi.org/10.3390/land9070228>