

‘MAKING’ IN A VIRTUAL DESIGN STUDIO

Jessica Briskin, Ph.D.
Bloomsburg University
Bloomsburg, PA
USA
jbriskin@bloomu.edu

Susan M. Land, Ph.D.
Penn State University
State College, PA
USA
sland@psu.edu

ABSTRACT

This context for this study is a fully online studio-based course that is a virtual learning environment to support making practices in the digital arts. Although making practices typically occur in face-to-face informal settings, this study investigates the design of a learning environment to support making activities with students who are only present asynchronously in a virtual space. In this virtual space, through online connectivity and expert and peer support, students successfully produced and shared three artifacts that represented their developing interests and skills in the digital arts. Implications for developing virtual environments to support making, sharing, and critiquing artifacts are discussed.

Keywords

Design studio; design thinking; virtual studio

1. DESCRIPTION

1.1 Description of your setting

As a way to support maker practices, institutions are providing students with tools, materials and some assistance in constructing hands-on projects. Makerspaces are learning environments where students participate in projects connected to craft and technology and collaborate with peers in a community of makers (Oliver et al, 2017; Oliver, 2016). Although most makerspaces are typically physical spaces, this study looked to support making among geographically dispersed individuals and to explore curricular-focused instruction with maker technologies and practices.

The context for this study is a post-secondary course from a Digital Multimedia Design program at a large land-grant institution in the northeast. This studio-based art class, Digital Multimedia Design, was offered online during a 16-week long semester. This is a design thinking course which supports and facilitates creative and reasoned approaches to ill-defined problems. Seven students consented to participate in this study and were both male and female who ranged in age from 18 to 44. The seven students' progress was observed over the course of the semester, and they were each interviewed at the end of the semester to discuss their experiences in the virtual environment. This course was fully online, asynchronous, and had no face-to-face class interactions. This class was a requirement for the program; however, the students enrolled were both art majors and non-majors and had a range of backgrounds in studio-based instruction and making.

This virtual learning environment was delivered via eLearning Management System (ELMS) Learning Network. ELMS was developed specifically for the unique needs of Arts and Architecture students over 10 years ago and is constantly being refined through a collaboration between professors, students, and cross-disciplinary researchers (Collins & Ollendyke, 2015). ELMS support online learning (Collins & Ollendyke) and open opportunities for learners to explore arts production as a process of authentic production tasks (Halverson, 2013). ELMS was developed using Drupal, an open source educational technology platform used for building and sustaining innovative online courses. This system also uses MySQL with PHP, a scripting language. The front-end of the system uses Polymer, a JavaScript library that helps create custom reusable HTML elements. Polymer is a framework developed by Google. Figure 1.1 below illustrates how the virtual environment of ELMS displays student work. This image highlights the three main areas of the gallery view.

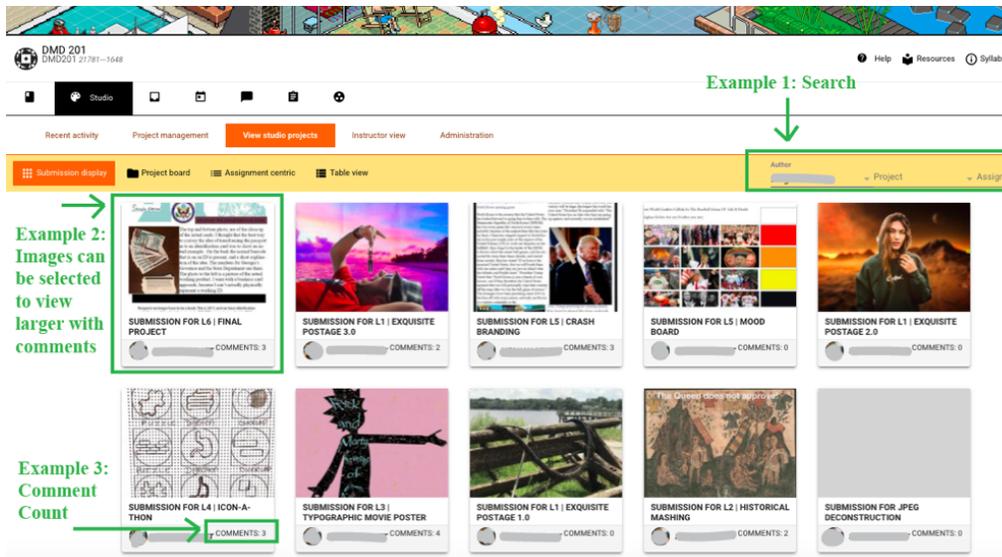


Figure 1.1: Virtual Studio

1.2 Description of the educational experience

As the goal of this study was to explore how to apply concepts and strategies of making practices to an online studio-based course, the course curriculum was set up to engage students in active hands-on creative problem-solving activities and collaborative creative learning experiences. To explore this goal, the curriculum and virtual space were structured in a way that introduces students to concepts, skills, language, and principles of practice related to art and design, communications, and information sciences. Students developed three artifacts related to the following representations of design thinking: (a) user experience and interface prototyping; (b) interactive storytelling; and (c) open product design.

To engage the students at a distance in conversations around these three projects, the ELMS supported public viewing and conversations around in-progress and final works. Inspired by designs of makerspaces, this tool supported maker culture by allowing students to not only post ideas and comments (text format) but also share artifacts as prompts for conversation (images and video). For each project artifact, students followed a process of ‘propose–critique–iterate,’ in which they provided feedback to help refine the artifact (Brocato, 2009, p. 179) for final production. Students collaborated in small groups to provide feedback on each phase of the design: brainstorm, storyboard, prototype, test and review, iterate prototype, and final prototype. This process is aligned with the characteristics of the four studio hallmarks: demonstration-lecture, students-at-work, critique, and exhibition (Hetland, 2013). Focusing on the critique process ensured students were communicating and collaborating during the design and artifact production process. Figure 1.2.1 provides an example of the artifact posted and the student feedback provided.

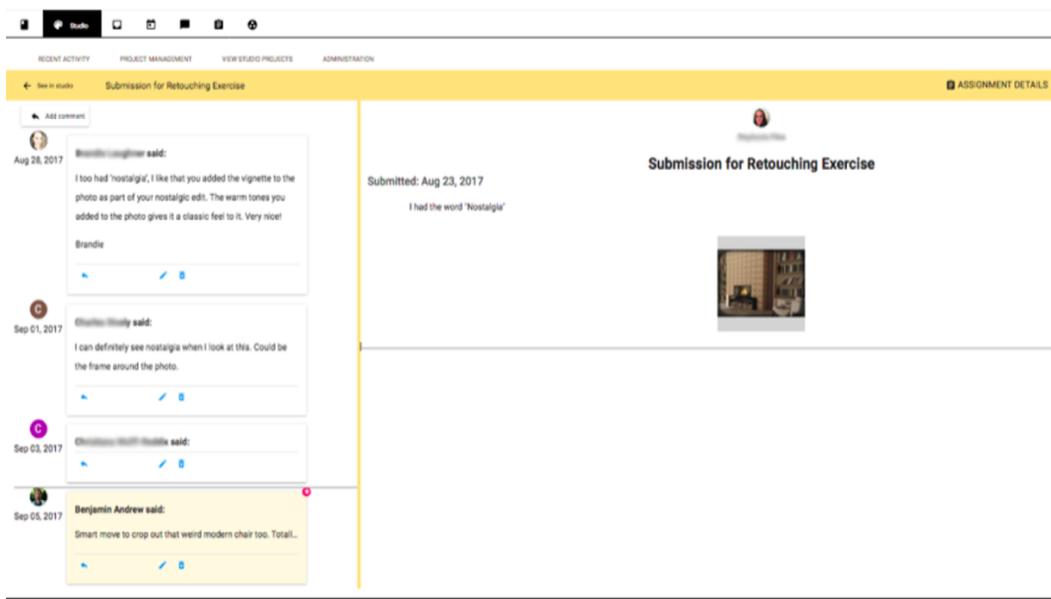


Figure 1.1: Virtual Studio

ELMS was an integral tool in allowing students to easily share project progress with each other. This helped students to receive ideas and clarifications from peers on their specific artifact, at multiple phases of the project. Although they were not 'creating' together, the multiple submissions were promoted to mimic the feel of consistent feedback during the design process. This approach ensured a design process was implemented to help students use methods, tools, and mental attitudes necessary to approach ambiguous problems and create solutions.

2. CONCLUSION

2.1 Results

The maker movement in education has nine keys ideas (Vossoughi, 2013p. 496): make, share, give, learn, allow for access to tools, play, participate, support, and change. Participants in this study reported this to be a valuable experience in which they were able to make, share, and participate in a collaborative making and learning experience. Initially, there were some hesitations with taking a 'making' or studio-based course in a virtual environment. One participant stated:

I mean the virtual studio environment seemed great. You know I was kind of unsure as to how it was going to completely play out, I mean I know what you know of a regular college environment is like, umm so I wasn't really sure what to expect from online. Um but it's a lot better than I actually thought it was going to be, especially having this virtual studio, I think that makes it feel like it's a class instead of you sitting behind a computer doing stuff when it's convenient for you.

We found that this was a general pattern across the participants. The asynchronous nature of the course allowed for flexibility and a reflective practice (Schön,1987), which is essential to a studio learning environment. Students were able to share, provide feedback to peers, and support one another to progressively iterate toward a solution. These are all the key ideas in the maker movement.

The design of an asynchronous, virtual studio environment aided in artifact development and sharing as evidenced by collecting artifacts and student feedback. The design strategies and tools utilized helped to support students with artifact sharing and to initiate feedback from a virtual community of makers and mentors. The prompts and multiple design phases encouraged students to collaborate with their peers. The goal was to incorporate features of a face-to-face making environment, specifically where students can easily turn to their left and right and talk to peers. One student stated:

...we started with the rough drafts posted those, and then we received instructor feedback, we received peer feedback. And so, when I went through to do those revisions, I tried to make sure that I hit each of those points, or for some reason I didn't I explain why I didn't change a particular aspect but in each case like it definitely made my artwork stronger.

As the overall goal was to structure a process whereby learners could stop at multiple points during the making process to gain feedback and ask questions. In analyzing student feedback, we documented evidence of students engaging in troubleshooting and problem solving, as well as evidence of project completion or success. As one student stated:

You're never going see all of the flaws in your own work until somebody else points them out...so having other people see things and respond positively you know, I would do this-this way, or here's the suggestion was definitely helpful and helped me progress the right way, you know instead of just hearing from your professor. I'm hearing from the students was also great.

The students in this class learned about design thinking, made and shared works of art, gave advice, participated in a critique while supporting each other. The concepts involved in making help to develop the necessary skills for a sense of creative literacy, by which they can take an idea from conception to creation.

2.2 Broader Value

The maker movement is one that encourages students to connect and provide opportunities for participatory learning. The implications of virtual design spaces that support making practices are becoming more feasible across all education levels, especially in formal learning environments. In higher education, there is considerable growth in virtual classes that serve non-traditional students who are not physically sited. Due to this growth, there may be an opportunity for universities to create more virtual communities that involve maker-like practices for students who cannot attend physical classes. The digital and studio arts are a logical venue for investigating this potential, given the alignment of studio practices and maker practices. The strategies used to deploy this type of environment are replicable by faculty in other online programs who would like to incorporate strategies that focus on development and sharing of artifacts in a responsive community of learner and mentors. This area is still being explored but it is important to look at the use of makerspaces to understanding and develop strategies for virtual/online maker communities that might better reach learners across spaces.

3. BIOS

Dr. Jessica Briskin is an Assistant Professor in the Department of Instructional Technology at Bloomsburg University. In this role, she teaches face-to-face and online learning and development courses. She is a published author, her research primarily focusing on design frameworks, online collaboration methods, and mobile and multimedia development regarding translating learning spaces into online spaces. Dr. Briskin has experience in corporate and educational industries, designing and developing eLearning and mLearning courses, instructor-led training, videos, infographics, and performance support tools. She earned a doctorate from Pennsylvania State University (PSU) in Learning, Design, and Technology.

Dr. Susan Land is an Associate Professor in the Learning, Design, and Technology Program at Penn State University, University Park. Her research emphasizes frameworks for the design of open-ended, technology-enhanced learning environments. She has studied learning with technology in classroom contexts using methods such as project-based learning, computer game design, ill-structured problem solving, and mobile learning. Land's current research investigates the design of learning environments afforded by new media in everyday, informal, or classroom contexts and often utilizes technologies such as social media or mobile devices. Her research with the Augmented and Mobile Learning Research Group focuses on context-sensitive, place-based learning in outdoor informal environments using mobile technologies and augmented reality. She earned a doctorate in Instructional Systems from The Florida State University.

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