DESIGN FOR DECENTRALIZED STUDIO LEARNING

1. INTRODUCTION

Due to financial concerns and the shifting demographic of learners, in many institutions, three of the hallmarks of studio pedagogy, small course sizes, dedicated unique learning spaces and extended course-meeting times, are quickly eroding. The new reality for many programs is one where educators are expected to balance an increase in learners with a simultaneous decrease in overall contact time. There is an increasing gap between what once was and what is now. One way many educators are choosing to navigate this gap is through decentralizing studio-learning practices by using the internet.

This study endeavored to investigate how design educators are using the internet to augment and extend studio pedagogy. Though this study was drawn from the author's research into studio pedagogy as it is enacted within the field of graphic design, given the familial relationship between all design disciplines, it is speculated that The Replication Collaboration Continuum, the theory that emerged from the study, has broad relevance for all design educators curious about how to implement greater decentralization into their learning studios. In this way, the Replication Collaboration Continuum can become a base mechanism for educators, providing them an empirically based research bridge which can act as an entry level scaffold for practices that best support their own unique learner populations and their own unique studio pedagogy ecosystem.

2. STUDIO PEDAGOGY

Studio pedagogy is a learning methodology traditionally enacted in exclusively face-to-face settings. The physical studio is thought to be complicit in studio pedagogy (Nottingham, 2014). Educators have speculated that one of the hallmarks of traditional studio pedagogy is the manner in which the physical studio space nurtures the elements of design learning that are non-verbal (Hunt, 2015). As Logan (2007) notes, "design knowledge cannot be 'taught' in the formal sense." Rather it develops through "extended participation in studio-based activities" (p.11).

Studio pedagogy is the main teaching and learning methodology for design education (Dutton, 1987). It is a methodology that combines principles of problem-based learning with situated cognition (Chen & You, 2008; Brown, Collins, & Duguid, 1989). In studio pedagogy, theory and practice are intertwined. Learning happens in an active manner through the process of solving actual design problems within the context of the physical studio space (Chen & You, 2008; Dutton, 1987; Crowther, 2013). Studio pedagogy has been the main teaching and learning methodology in design education from the early European schools of design, to the Bauhaus, to colleges and universities offering art and design degrees today (Boyer & Mitgang, 1996; Crawford, 2013; Bender & Vredevoogd, 2006; Chen & You, 2008).

3. TRADITIONAL STUDIO SPACES

Design involves an embodied cognition where the designer draws on tacit knowledge to work with and through materials in an iterative process (Polanyi, 1958; Groth, 2016). Creation happens through the mind and body working together, and designers "think through their hands" (Groth, 2016, p. 3). Studio pedagogy is often built on a one-to-one conversation between a learner and an educator within a unique physical studio (Swann, 2002). During a studio class session, an educator models technical skills, while re-working a learner's own creation as the learner watches. During this process, the educator engages in reflective dialogue, explaining his or her creative motivations, interpreting the project brief, and weaving the current project into a larger professional graphic design narrative. These combined methods of action

and reflection give insight into both the educator's explicit physical actions and his or her tacit underlying motivations. This insight provides an embodied example of professional practice for learners. This exchange is vital to learners because it provides exposure into the multifaceted work of being a designer (Schön, 1983).

4. ONLINE STUDIO SPACES

Though in the past design education has primarily been conducted in face-to-face studio spaces, increasingly educators today are beginning to leverage the internet to extend studio learning spaces. These online studio spaces can either occur in tandem with physical face-to-face studios, or replace a physical studio space by using a combination of text-based forums and video conferencing software (Nottingham, 2014). Educators who extend studio pedagogy in these ways cite that online studio spaces allow design collaboration to transcend time and distance, and thus prepare learners to become active members of the digitally-connected arts community (Budge, 2013; Matthews & Weigand, 2001). Because working as a contemporary designer requires collaboration via technology mediated methods, educators affirm that using the internet to extend studio pedagogy could provide students with a “rehearsal of future workplaces and help prepare students for a global, networked, and competitive professional design practice” (Pektas, 2015, p. 261).

5. DATA COLLECTION OVERVIEW

Building on the foundation noted above, this study endeavored to investigate how design educators are using the internet to augment and extend studio pedagogy. This investigation occurred through the enactment of a qualitative grounded theory study. Data collection for this study occurred via solo-unstructured interviews, focus groups, and memos. These methods together ensured insight was gained into both individual experience and group dynamics. Participants were all active design educators who self identified as using the internet to extend and augment studio pedagogy. In total, eighteen individuals participated. Participants came from seven different countries located on four different continents. In addition, participants were from a variety of institution types, from specialized art schools to large universities, liberal arts institutions to technical training colleges. This diversity brought a mix of perspectives amongst participants.

Interviews and focus groups were both guided by a loose protocol. The purpose of the interviews was to understand how educators construct their motivation for extending studio pedagogy and how they perceive learner and institutional reaction to their choices. The purpose of the focus groups was to observe group dynamics and also to access any taken for granted assumptions that might be difficult to discern in a one on one interview. Memo writing is a hallmark of grounded theory. Memos are short analytic notes written during the data collection and analysis process. Seen as a way to nurture internal dialogue, the purpose of the memos was to provide a trace of researcher thinking and in so doing provide an audit trail of theory creation.

6. DATA ANALYSIS

Per the dictum of grounded theory, data was gathered and analyzed concurrently (Charmaz, 2006). This process of data gathering and data analysis ensured that emergent ideas could be developed and tested in an iterative manner, producing a final theory that is fully grounded in and born from the data and context itself. In this study, raw data in the form of transcripts was first fractured to create codes. Next, these codes were assembled, fragmented, and reassembled again to coalesce into themes. Themes too were analyzed repeatedly until a core category could be created. Finally, codes and themes were once again filtered through the core category and the theory was created. Because codes were too numerous to list individually, this discussion of data analysis will begin at the theme level and then progress to the core category and finally into the created theory, The Replication Collaboration Continuum.

Three main themes emerged from the data. These themes are: transposing structures, transforming roles, and finally expatiating perspectives. Each theme again endeavors to address how design educators are using the internet to augment and extend studio pedagogy.

1.1. TRANSPOSING STRUCTURES

To transpose means to interchange and shift, to alter the order or position of a series of things (OED). Transposing structures refers to how educators use the internet to transpose traditional place-based elements into digital, networked channels and in so doing, replicate studio pedagogy. Prompted in part by institutional changes to the studio pedagogy hallmarks of time and space, participants used the internet to shift the structure of the studio by replicating studio elements online. Participants perceived these structural shifts resulted in increased access to learning materials, including the instructor, and increased accommodation for learners themselves. Prominent codes in this theme include: "disseminating materials," "supporting the studio", "partnering with the internet" and "expanding the conversation." This structural shift is often foregrounded by educators reconciling a pedagogy once built on an abundance of time with learners with new institutional reality of time scarcity.

1.2. TRANSFORMING ROLES

To transform is to change into another shape or form; to metamorphose (OED). The second theme, transforming roles, refers to the process of participants using the internet to flatten traditional hierarchy, moving themselves out of the obvious center of the studio. This movement results in a role shift, prompting learners to take greater initiative in pursuing those topics deemed most necessary to learn for any given project and prompting learners to join together in peer-to-peer learning through the online critique process. Prominent codes in this theme include: "decentralizing hierarchy," "masking the obvious hand of the educator," and "speaking the language of design." Participants perceived these role shifts resulted in increased learner agency.

1.3. EXPATIATING PERSPECTIVES

To expatiate is to enlarge, extend, or expand (OED). "Expatiating perspectives" then refers to the process of educators using the internet to provide alternative frontiers, shifting studio pedagogy from a method that privileges project simplicity to one that emphasizes greater levels of systemic complexity. Where once curriculum taught design process in a prescriptive manner and emphasized projects that are artifact based and accomplishable within the closed spaces of the studio, participants who use the internet to extend studio pedagogy acknowledge a move toward projects with greater complexity. These projects provide learners opportunity managing competing priorities, and collaborating with those who may be outside the learners own cultural, geographic, or disciplinary zone. In this way, educators are using the internet to extend studio pedagogy to give learners a larger perspective of their role as a designer in contemporary society. Prominent codes that support this theme include: "connecting with others," "taking ownership of digital identity," and "navigational collaboration." Participants perceived this change in perspective enabled learners to begin to view themselves not as isolated within their individual institutions but as connected to a vibrant, worldwide design network.

1.4. TRAVERSING

Through the data it became apparent that rather than a single method or motivation, there is a continuum that describes how educators are using the internet to extend studio pedagogy. In this way, the core category created from data analysis is that of "traversing." At one terminal are practices of using the internet for its replication potential, replicating aspects of studio pedagogy within an online space. At the other terminal are practices that use the internet as a means to open up space for connection and collaboration, to help learners integrate into the larger world of professional practice. Most educators move in a fluid manner within the spectrum, fluctuating between poles depending on the task at hand, and the given group of learners.

7. THE REPLICATION COLLABORATION CONTINUUM

As Nottingham (2014) noted, in a traditional studio, the walls, tables, and windows of the studio become non-human pedagogical agents capable of teaching learners. For educators who are extending studio pedagogy using the internet, now a whole new set of digital pedagogical agents are coming into play. Screens, browsers, and chat boxes are the new walls, tables and windows. This study addressed how educators are using these digitally mediated pedagogical agents within studio pedagogy. From this study emerged the Replication Collaboration Continuum, which is seen in Figure 1 below.

Figure 1. The Replication Collaboration Continuum

Because using the internet to extend studio pedagogy brings a shift to the structures of learning, educators must become adept at traversing physical and digital spaces to produce a unified studio pedagogy for learners. In speaking of creating websites for their courses, inviting learners to create blogs, and using synchronous online chat tools, participants all noted that their choice to use the internet to augment and extend studio pedagogy began with them traversing physical and digital spaces. Transposing structures represents a replication of studio pedagogy and acts as a gateway to the Replication-Collaboration Continuum.

From here participants took divergent pathways. Some choose not to use the internet to extend studio pedagogy further, ending in a replication capacity. Others chose to enact the second traverse, traversing roles. This entails transforming roles through decentralizing themselves as the visible leader to encourage greater individual confidence and greater peer-to-peer learning. Participants noted that this occurred in a variety of ways, including through the critique process, through empowering learners with the skills to evaluate resources, so that they could learn on their own, and through opening space for greater peer-to-peer learning to occur. Traversing roles can only occur if one has created a studio replication framework through traversing structures. Traversing roles forms the midpoint of the Replication-Collaboration Continuum. As in the traverse of traversing structures, some participants chose to complete their journey of using the internet to extend studio pedagogy in traversing roles.

Others participants again chose to continue on, traversing perspectives by using the internet to welcome learners into a complex world of collaboration. Using the internet to extend studio pedagogy in this traversing perspectives capacity calls for educators to nudge learners into a multi-faceted system of greater complexity. Participants noted that traversing perspectives requires an acceptance of high levels of ambiguity, because collaborative projects involve so many inputs and actors outside of one's control. Participants who spoke of experiences navigating distant collaboration and welcoming in outside expertise noted the importance of "test run" activities and exercises before traversing perspectives, in order to build learner efficacy and empower learner confidence. In this way, to enact this, educators must become adept at traversing perspectives, which begins by acknowledging the second traverse, traversing roles. Traversing perspectives happens through engagement in open practices and collaboration and forms the other end of the continuum.

Figure 2 displays the continuum with a variety of codes mapped onto it. These codes are a few examples drawn from the many generated over the course of this study and serve to further illustrate the thinking behind the theory creation.

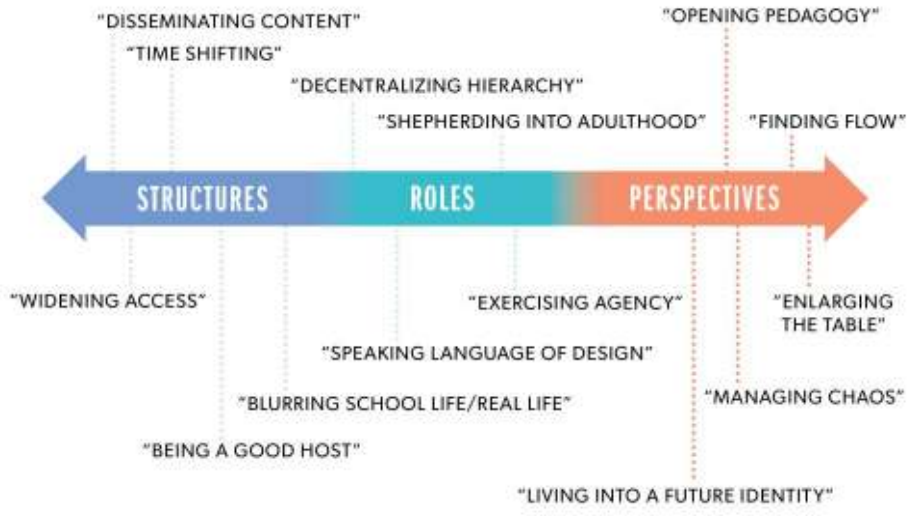

Figure 2. Research Codes Mapped to the Replication Collaboration Continuum

It is important to note that collaboration was chosen as a description of this process over another possible alternative, cooperation. Though both terms are closely related, this study draws on definitions of both by Panitz (1999) for justification of the appropriateness of collaboration. Panitz posits that cooperation is about engaging within a "structure of interaction" (p. 494). In cooperation a teacher sets the agenda, constructs groups, and maintains overall control of the process as it unfolds. The end product or artifact is most likely predetermined. The purpose of cooperation is the accomplishment of the task itself and each participant contributes his or her part to the larger whole.

In contrast, Panitz posits that collaboration is about engaging within a "philosophy of interaction" (p. 494), which entails participants first acknowledging their implicit connection and responsibility to one another. Though collaboration most likely leads to the production of an artifact, no one person maintains control through the process. The purpose is less about the artifact itself and more focused on each participant engaging in and learning through individual and group dynamics. Because of the dynamic, fluid, complex nature of work participants described within the process of traversing perspectives, collaboration was seen as the appropriate construct and thus offer a counterbalance to replication on the overall continuum.

Traversing structures, traversing roles, and traversing perspectives then become the basis of the Replication-Collaboration Continuum. As seen in Figures 1 and 2, and as explained above, each successive step builds on the previous step, meaning each step relates in a cumulative, progressive manner. The ends have arrows, showing that the continuum is not a static entity, rather it is in a state of flux and movement. It is important to note that educators choose where to place themselves on the continuum, and by choosing, define which traverses to complete. It is also important to note that by nature the continuum is flexible and blurs depending on the unique combination of learners that form any given studio community.

8. CONCLUSION

Though the physical studio space was and continues to play a vital role in design education, increasingly and in response to a variety of situational and institutional changes, educators are using the internet to augment and extend studio pedagogy. The Replication-Collaboration Continuum, the theory that developed from this study, suggests that educators have a variety of motivations for using the internet to extend studio pedagogy. Some do so for fully practical purposes, such as teaching learners software skills or forming a repository for class materials. Others do so for more complex purposes, using the networked capability of the internet itself to create collaborative relationships, reinforcing in learners their place in a larger distributed and decentralized world. Often educators will shift their methods and motivations depending on their perceptions of learners within any given class. The continuum is a flexible

construct but does provide a starting framework through which interested educators can consider implementing the internet into their own pedagogical practice. Given the trajectory of the digitization of society in general, it is expected to see greater implementation of digital technology in all sectors of education, including the design studio space (Fleischmann, 2015). The Replication-Collaboration Continuum with its subsequent traverses across structures, roles, and perspectives, emerged from this study as one approach for using the internet to extend studio pedagogy. This study has contributed a theory, which can aid design educators in decision-making about potential course delivery options when designing for decentralized studio learning.

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