

2017 Nexus Learning Grant Application

Creating Equitable Learning Environments in Architectural Studio Courses

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ABSTRACT

The studio environment in architectural education has harnessed the techniques of *“project-based learning”* long before the term became a defined academic approach to teaching the complexities of real-world problems. Open floorplans, fluid rows of working surfaces, communal discussions, group design projects and public reviews are just a few of the defining elements of a traditional studio environment. In this sense, the pedagogical approach and spatial environment of a traditional architectural studio course are intrinsically linked in an effort to promote an interactive process which is open, active and public.

Although the temperamental tendencies towards extroversion, ambiversion and introversion are in a constant state of flux, it can be hypothesized that *“project-based learning”* pedagogies and the environments they are typically implemented within cater to students and faculty with extroverted tendencies while placing those with introverted tendencies at a distinct disadvantage.

This submission specifically seeks to explore the dilemma of students with introverted tendencies operating in the more extroverted *“project based learning”* systems and their environments by examining student engagement, participation and productivity in architectural design studios. It aims to promote equitable learning environments for students of all temperaments.

ADVANCING NEXUS LEARNING

The foundation of Nexus Learning is based on *“active, collaborative, and real-world learning”* - all of which are closely aligned with the core tenants of *“design thinking”* and *“project-based learning.”* As described above, these forms of open learning have also been the cornerstone of a traditional architectural studio design course. Years of teaching experience in architectural studio courses have illuminated that not all students are comfortable participating in a public, active, collaborative setting. Instead, some students establish their working station away from their peers and sit in the back during group brainstorming sessions. They often do not ask questions at one-on-one desk critiques with professors and struggle to verbally present their work in front of invited jurors. The design work these students produce, however, is often powerful and ripe with potential - meaning that they cannot be accurately categorized as *“disengaged.”*

As Nexus Learning continues to expand at Philadelphia University, it is important to recognize that there is not one teaching mechanism that has the capacity to reach all students. Designing courses to have varied pedagogies and environments that optimally reach as many students as possible is a challenging undertaking, even for the most seasoned professor. This proposal seeks to determine how minor adjustments within an architectural studio course might inspire greater engagement, participation and productivity for those students who are not inherently comfortable in open, active and public learning environments. The results of the study will provide insight into teaching different temperaments within Philadelphia University courses that have adopted Nexus Learning tenants.

LITERATURE REVIEW

Tim Brown, in his book *Change by Design*, argues for use of a creative problem solving approach called *“design thinking”* as a platform for innovation in *“business and society as a whole.”* By appropriating the skills of designers to integrate *“what is desirable from a human point of view with what is technologically feasible and economically viable,”* collaborative teams can uniquely address *“a vastly greater range of problems”* leading to rich, innovative and forward thinking work. Design thinking methods shift thinking from *“a problem”* to *“a project”* which becomes the vehicle for exploration, research, prototyping and development of creative propositions. Central to this platform is the project team where creative exploration occurs through interaction between a varied set of skilled individuals. Within academia, *“design thinking”* echoes *“project based learning”* pedagogies – both of which rely on forms of social interaction for exploration and retained learning. Such collaborative teamwork relies on an interactive process that is active and, by nature, public – deliberations occur quickly and in the open amongst teammates, clients, stakeholders,

students, professionals, and other constituents. “Brainstorming,” “design workshops,” and “charrettes” become the primary tools for codifying this interaction and one’s ability to thrive in these settings is often the foundation of their eventual evaluation. Extroverts often stand out in these settings, making their successes easier to quantify and, ultimately, promote.

According to Susan Cain, introverts are too often undervalued within this system. In her book *Quiet: The Power of Introverts in a World That Can’t Stop Talking*, shyness is a social anxiety disorder while introversion is a biological based temperament. Introverts process information and respond to stimulation differently making them uncomfortable with quick “public” thinking and open interaction. Our “*extrovert-dominated*” society minimizes the uniquely creative capabilities of more introverted persons leading to “*a colossal waste of talent, energy and happiness.*”

The incorporation of “design thinking” within professional settings and “project-based learning” in academia has no doubt changed both the interactions between collaborators and the physical space that houses these interactions. How can we harness the palpable productive energy that these new methods catalyze while not excluding the capacity for introverts to contribute? Understanding this delicate balance between the power of Tim Brown’s “design thinking” and Susan Cain’s desire for inclusive environments is the driving force of this proposal.

PROJECT GOALS AND LEARNING OUTCOMES

The Project Goals are:

- To develop a set of teaching methodologies that will be incorporated into an introductory architectural design studio course (D2) in the Summer of 2017 and evaluate the methods’ effectiveness in creating an equitable learning environment.
- To develop three rubrics that can be used by other faculty in exploring this topic:
 1. A student performance rubric that tracks daily student engagement, participation and productivity.
 2. A self-assessment rubric for students to use to evaluate their own experiences throughout the course.
 3. A project rubric that evaluates student work without favoring any particular temperament.
- To promote the study findings through peer-to-peer discussions, formal presentations, conferences and articles such that the teaching methods can be used in other courses.

The Faculty Learning Outcomes are:

- Identify if students with a variety of temperaments can be equally engaged in a dynamic learning environment, such as an architectural studio course.
- To develop evaluation techniques that are equitable to all temperaments.
- To learn the software Adobe Connect, an immersive online environment often used for virtual classrooms, as it will provide even greater opportunity to vary the public and private nature of the studio course.
- To improve skills related to analyzing a complex data set and developing graphics to represent findings.

ACTIVITIES AND TIMEFRAME

Summer 2017 will be the primary development and execution period for the proposal. Early June will be dedicated to the development of the course and the course will be executed during Summer Session II. Analysis and conclusions will be drawn in the Fall of 2017 and consideration of future deployment will be evaluated in the Spring of 2018.

The specific timeline for the proposal is as follows:

June 1 - June 27

- Analyze the existing D2 Summer course and develop methods to adjust the interaction between the students, the space and the professor. Assignments will be restructured to achieve a matrix of group and individual projects, and public and private feedback sessions.
- Learn Adobe Connect and develop the optimal way to teach studio sessions within its platform.
- Develop the specific course assignments based on the determinations of the above.
- Develop a student performance rubric that allows for comparison across assignments for students engagement, participation and productivity throughout the course.

- Develop a self-assessment rubric for students to use to evaluate their own experiences throughout the course.
- Develop a project rubric that evaluates student work without favoring any particular temperament.

June 27 - August 8

- Deploy the course (D2): The first assignment will be taught according to traditional studio methods and will serve as the “control.” The next three assignments will be taught according to the methods developed in early June. Evaluating all four assignments according to the same rubrics will allow for comparative analysis between the assignments to determine if the new teaching methods led to a more equitable learning environment.

August 9 - December 31

- Analyze data and graphically represent conclusions.
- Develop refined methods for designing equitable learning environments within both architectural studio courses and those that have adopted Nexus Learning tenants.

January 1 - May 31

- Implement methods in Spring 2018 and compare to previous conclusions.
- Promote findings through peer-to-peer discussions, formal presentations, conferences and articles.

PROJECT ASSESSMENT

Employing the three rubrics mentioned in Project Goals will be central to the project’s assessment.

- *Performance Rubric:* The first rubric will be designed for use every day and will document a student’s performance based on perceived engagement, participation and productivity and success. Since the course will be designed to offer a variety of learning environments and project types, differences between a student’s relationship to the course material will be evident when the daily rubrics are analyzed.
- *Self-Assessment Rubric:* The second rubric will be designed to allow students to perform self-assessments throughout the course. It is an opportunity for them to provide important feedback about the different assignment structures and their correlating successes and/or failures.
- *Project Rubric:* The third rubric will be executed at the end of every project to evaluate the success of the project. It will be written such that no temperament is given more weight in the evaluation than another.

The analysis of the combined performance rubric, self-assessment rubric and the project rubric will illustrate if a particular pedagogical and environmental combination achieved an equitable learning environment.

DOCUMENTATION AND DISSEMINATION

The conclusions that result from this study will be shared within the Philadelphia University community through existing forums such as the Nexus Learning Workshops. In addition, the information will be shared publicly by being developed as a paper that can be published and/or presented at relevant architectural education conferences and journals. An abstract based on the same topic was already submitted and accepted for a poster presentation at the 2017 AARC (Architectural Research Centers Consortium) Conference in Salt Lake City, Utah, indicating that there is a broader interest in understanding how “*project based learning*” can be designed such that all temperaments thrive within equitable learning environments.

PERSONNEL

Primary Investigator:

Evan Pruitt. Adjunct Assistant Professor. College of Architecture & The Built Environment.

Teaching Responsibilities: Foundation & Third Year Architecture Design Studios

Secondary Investigator:

David Kratzer, AIA. Associate Professor of Architecture. College of Architecture & The Built Environment. CABA Nexus Advocate.

Teaching Responsibilities: Third, Fourth & Fifth Year Architecture Design Studios, Design-Build Design Studios and Building Technology Coursework.

BUDGET NARRATIVE + WORKSHEET

The budget is attached as a separate file. The requested stipends are \$3000 for the primary investigator and \$1000 for the secondary investigator to fund time dedicated to the project.

ATTACHMENTS

Not applicable.