FROM DESIGN TO ENTREPRENEURSHIP: CREAT(IVE) OPPORTUNITY

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Abstract

We explore outcomes of an innovative university pop-up class that structures the play-based working methods of a design studio with the focused, market-driven persistence of an entrepreneurial mindset. We highlight the real-world social potential of creative play, often valued as innovative but with limited "real world" implications. Both economically driven and socially conscious motivations are probed for ripe areas of overlap that offer opportunity for students as well as marketplace transformation. Students develop skills, perspective, and confidence as they redefine the role of designer as active agent of change for their community, the marketplace, and across the globe. The cross-disciplinary, no fee/no credit class was structured in three sessions spread across the fall semester:

Introduction

Design fields are a natural bridge between innovative design thinking and the public good, yet these disciplines are often conceived as service industries with a relatively risk-averse educational pedagogy. The notion of risk, in an entrepreneurial sense, is typically kept off the table altogether. Diane Ghirardo, Professor of Architecture and History at USC's School of Architecture, made a powerful case outlining the risk aversion characteristic of the discipline of architecture over thirty years ago in her essay "The Architecture of Deceit": "In none of its manifestations does the profession dare question the politics of building: who builds what, where, for whom and at what price. Although arguably one of the most important issues for all architects to consider – and for the discipline to emphasize – it is addressed by few" (Ghirardo 1984, 114). While Ghirardo makes a compelling argument, we feel that a design-entrepreneurship hybrid offers a unique and accessible structure to address some of the broad issues she raises. Design pedagogies are uniquely positioned at the intersection of an entrepreneurial mindset and a progressive cultural engagement. They offer strategies to address deep cultural, social, and environmental issues while at the same time offering strategies for a successful personal career. The question we are asking is how our students can become actively engaged in creating opportunities to guide the change they want to see while at the same time creating their own financial opportunities. We are looking into a hybrid pedagogy of design entrepreneurship, and in this paper we explore an early curricular introduction of this idea as a pop-up class in a School of Architecture and Design

Monica Ponce de Leon, former Dean of Architecture and Urban Planning at the University of Michigan, suggested that contemporary design practice had "shown its limits, its weaknesses, and its flaws" (Ponce de Leon n.d.). Additionally, she suggested that technological changes coupled with economic forces have significantly altered the practices of design. Those conventional techniques and practices can no longer suffice if design is to remain a viable field, and if design is to remain relevant in, and have an impact upon, the creation of culture. Relatedly, Ponce de Leon goes on to suggest that educational practices—practices that

Figure 1: Flyer for the Pop-Up Class.

have not significantly changed in over 100 years—must also evolve beyond the conventional if they are to support design as a cultural discipline. While Ponce de Leon has linked education, discipline, and culture, her views are not aligned with the recent common perception of education as predominantly a form of career training.

While it can be argued that design education, and perhaps higher education in general, has failed to maintain a critical position in the creation and transmission of culture, it has also seemingly been transformed from a process of intellectual curiosity to a form of career training. Such a move has precipitated further changes to our understanding of education; it has transformed from a field of inquiry to one of certainty, from broad understanding to particular knowledge, from interpretive explorations to rational positionality. These culturally driven shifts in the public conception of education have caused design fields to lose students, to change teaching methodologies, and to redefine themselves. To those on the outside, a working method that can be so akin to *play* is easy to criticize and hard to justify. As individual design educators, we have not been immune to these issues and, in an effort to redefine and re-validate what relevance design education might have, we have begun to explore educational

practices to reposition design education as an irreducible field of intellectual inquiry with viable career paths encompassing an even more varied set of career choices than before.

This investigation of relevance has become increasingly necessary in order to broaden the skill sets of designers so that they can participate in cultural development while simultaneously being afforded better opportunities to find their own financial success. In an attempt to strengthen the position of design education as a viable route to civic engagement (participation in the creation of culture) and financial well being, we created a pop-up course within our existing and well established curriculum. Ultimately, this course was envisioned as a means to introduce a culture of design entrepreneurship as a vehicle to explore the play between design, education, and entrepreneurship and expand the pedagogical practices that define our curriculum.

A Pop-up Course

At the beginning of the 2015-2016 academic year, my colleague and I began to discuss ways that our shared design interests— and areas of expertise—might begin to focus a methodology of addressing what we perceived to be limitations to a typical National Architectural Accrediting Board

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(NAAB) based design curriculum. The idea for instigating a pop-up class focusing on design and entrepreneurship came about through discussions we had been having about a perceived reluctance of most design curricula to address the changing needs of students. Simultaneously, we were receiving clear signs from high performing students that classes were sometimes frustratingly slow. They were ready for some guidance in ways that might enhance their current education and their future prospects.

In a professional university environment where students pay by the credit hour, have very limited elective courses, and are encouraged to take only classes that lead to "on time" graduations—what we might call the commodification of education into career training—it is difficult to open up a zone for the kind of play that would be necessary for a paradigm-changing course. We found ourselves in a situation where it appeared that change was necessary, where our university, our college, and our School of Architecture and Design encouraged such change, but where the structure of higher education and prevalent public attitudes toward education could not provide the space for this sort of investigation. Consequently, we chose to offer this course outside our existing—and the generally predominant model nationwide—structure of university education. Rather than offering a credit-granting course that required tuition-paying students, we opted to treat our course as a pop-up class: an ad-hoc course that would have no official impact on students, but might offer a significant educational impact. This form of engagement also gave us the opportunity to explore our ideas without the burden of minimum enrollments. Our intention was that this pop-up class would act more like a club—without the bureaucracy of being an official student organization—that met outside normal class times but fully utilized the resources available to us through the university. In this way we

could attract highly motivated students who were passionate about pursuing design ideas and interested in how those ideas might have entrepreneurial impact without burdening those students with additional fees and/or delayed graduation dates.

Our inaugural class was made up of design, architecture, industrial design, and interiors students from freshman undergraduates to graduate students in the Master of Architecture program. The course had a ratio of about 75% male to 25% female attendance in any given class. The students came in small clusters that seemed to map the largely word-of-mouth marketing campaign we used for recruitment. There were approximately twenty unique students who showed enough interest to attend at least one of the classes, and we maintained an average of approximately 10-12 students in regular attendance.

Creating a Culture of Design Entrepreneurship

Our recruitment and enrollment methods for this pop-up course were well matched to our interest in integrating entrepreneurship into our program. We began our recruitment with a flyer—posted in studios and common areas of the school—that attempted to convey the nature of the design entrepreneurship that had attracted us and would hopefully attract some of our students. Our assumption was that a student motivated by the uniqueness of the flyer, and the no cost/no credit concept, would already possess an entrepreneurial spirit that we could potentially parlay. This flyer was followed up with personal invitations to students that we had worked with in the past who we thought might have some interest in exploring the idea of design entrepreneurship. Play was a primary descriptor to explain how this would be different then their other class "obligations." Finally, we encouraged interested students to invite their friends, which later seemed to facilitate engaged discussion. The primary bar for entry into

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the course was a self-identified interest in the material and the self-motivation that would ensure attendance at our meetings. Primarily, we relied upon genuine curiosity as the sole motivator for attendance; we were interested in students who were already interested in making changes. Passionate self-starters were our target demographic and this self-selection introduced the fundamental entrepreneurial aspects of the class that we hoped would form.

Our first class began as a conversation. It revolved around questions like: *Why were you curious enough to show up? Why are you here? and What does it mean to be a designer and an entrepreneur? Is there value in having these two identities combined?* We discussed whether there might be some conflict in combining these two concepts, and of conceptualizing a design entrepreneur. But what might the advantage be? Traditionally, it seems, that there has been a purposeful separation between the designer and those who benefit from entrepreneurial enterprises. Architects, for example, work professionally in very close proximity to the greatest generators of wealth of all time— land speculation and development—and yet generally depend on others, their clients, to be the driving agents of change. The skills of the designer are typically "hired out," often leaving them to play supporting roles rather than leading efforts in the production of culture as well as in attaining financial well-being. These discussions led to conversations about innovation: particularly, whether innovation doesn't already hold some combination of designer and entrepreneur. Further, students were being trained to be innovative workers, with the skill set to prototype their visions and to passionately direct it toward the public realm and the greater good—but were they being trained to be leaders in innovation? While providing a service to clients is an important and essential role, might there not be a more direct path to change? And how

could they capitalize on both their education and the skills that they have acquired?

Our discussion on the first day concluded with the generational responsibility being placed upon our students to respond to a century of largely short-term thinking with relatively limited resources. They had seemingly insurmountable challenges before them; a new way of thinking might be called for. We discussed the implications of design entrepreneurship in relation to the suggestion, attributed to Albert Einstein, "We can't solve problems by using the same kind of thinking we used when we created them." This led to additional questions from a wholly different perspective, questions like: *What was it that we can hope for from our current programs and our college degrees?* and *What do we need to do now to make our education count; to be prepared to take on the challenges that we will face?* With this discussion winding down, we arrived at questions of process and purpose that could conceptually drive the course forward into design explorations and fabrication pragmatics. This discussion gave us an understanding of the *why*, our next challenge would move us on to the *how*.

In our second class, the overall numbers fell by a few students but there were also a number of new students in attendance; the continued interest gave us the opportunity to begin to introduce digital fabrication resources that have not been a significant component of our pedagogy. Our School of Architecture and Design prides itself on its faculty's ability to teach students a design tectonic through the process of making. We suggest that this emphasis on making—a repetitive process of fabrication and prototyping—is one of the essential skill sets that our current design curriculum can bring to a marriage with entrepreneurship. Our current process of making, however, has been predominantly limited to manual skills. Intentionally, students do not significantly employ the computer until their third year in our program and then,

use of the computer is generally limited to technical and presentation drawings. Models, of all scales, are still predominantly created by hand. While the intimacy of making by hand has undeniable benefits, with such a delayed start in acquiring and developing computer skills, the use of digital fabrication equipment has not played a major role in the development or prototyping of design ideas—only one course currently devotes time to learning to fabricate using our digital resources. As a result, students do not readily see the relation between the computer as a prototyping tool—as a design tool—and digital fabrication as a means of entrepreneurial development, nor the advantages of such a relationship. This second pop-up class was, therefore, structured to allow for students, at multiple year levels and in multiple disciplines, to begin to explore the possibilities of rapid prototyping and digital fabrication as a means of entrepreneurial design development. In a significant way, this was our "in" to the world of entrepreneurship; it was here that designers could also become manufacturers.

Students were given training on and access to our laser cutter, our CNC mill, our CNC router, and a 3D printer. Because of the constrained time, only a couple of the upper level students took advantage of this training to apply it to their own work. My sense is that we provided an introduction that will facilitate more students from this group using the more advanced technology as subsequent semesters unfold. Students were also able to seek out prototyping resources in the community, as we are located in an oilfield/manufacturing environment with ready access to waterjet cutters, CNC lathes, and additional—and more robust—lasers, mills, routers, and printers. Not only did these outside resources provide fabrication opportunities, they provided valuable interactions with fabricators, allowing students to tap into an existing and extensive network of production knowledge. Students

were also afforded an "inside" look into the needs, resources, and entrepreneurs of our particular community; they could begin to develop strategies for services and products that could have an immediate local impact. This interaction with local businesses inspired some students to begin thinking about their ideas as possible business ventures.

Beyond the strategic reasons for offering this course in design entrepreneurship as a no cost, no credit pop-up, there are several other factors that lent themselves to our chosen pop-up environment. Primarily, this course was seen as a means of harnessing and applying the potential of highly motivated and highly talented students who have shown an interest in—and aptitude for—design as a broader subject. This was largely played out in the general group discussions, which introduced students to each other and established a new mode of engaging their discipline. While we sought to enable our students to identify design opportunities, to conceive of practical and elegant solutions, to assess market viability, and then to bring those products, ideas, and processes to market in a way that provides both cultural and financial value, the actual application of these topics for many of the students will not really bear fruit for a few more months. In essence, we approached this course as adding value to—not actively replacing— the current curricula in which students are engaged. Through this course, we hoped to introduce to our students an awareness that adding value in one's community should result in commensurate pay.

Case Studies

All of the students who joined our pop-up class came with a sense of wanting to do more with their time at school. These students fell into two general categories in relation to our course objectives: those looking for a way to test the waters and those who were already jumping in. Consequently, all of our class meetings seemed to fall naturally into
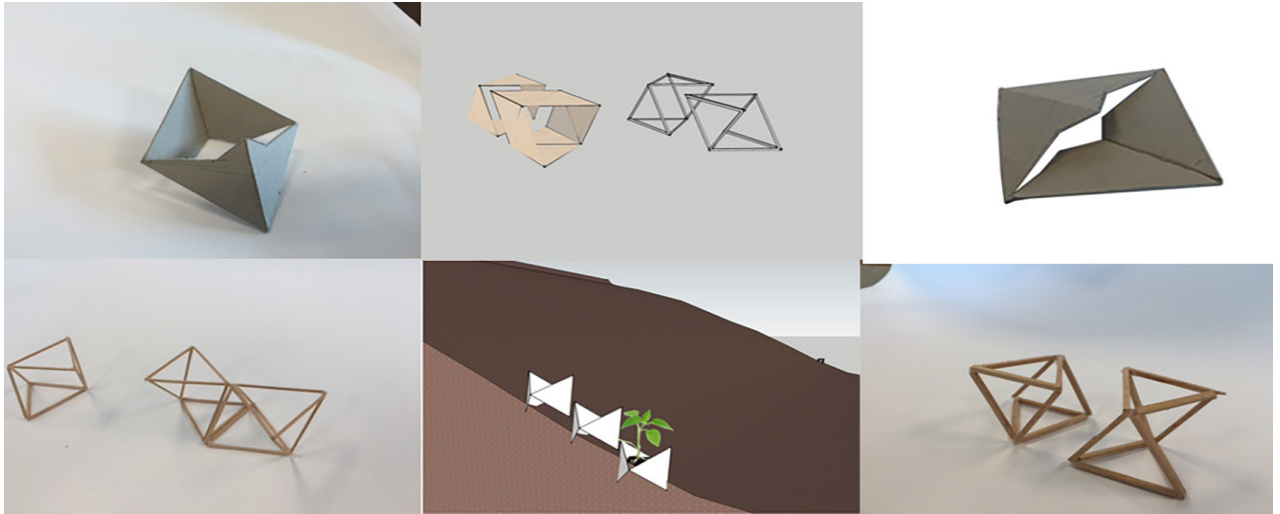
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Figure 2. TM Design Studies.

three parts. The class would begin on a general theme with a discussion by faculty about what was important for us in regard to design as an entrepreneurial process and why. We would then draw students into the conversation by asking their opinions of these topics and how those opinions might affect their design processes. A more general conversation usually followed—with some students timid and some forthright—and we found that the group itself was quickly able to support ongoing discussion without our having to lead it. There were even a few moments where it felt a little like we were sitting in on some private discussions where students were working out their own ideas. The primary characteristic that facilitated this format and gave us such rich engagement was the mix of students. Those who had already come to the conclusion that innovation was a skill that could be widely and inventively applied were driving the conversation and, encouragingly, were bringing the others along.

One such student was "TM," who came with an idea for a modular structural system for a tiny house project. TM is a little older than the average student, has a good sense of craft as he grew up around a cabinet shop, and generally has a self-directed personality. He had been carrying this idea with him for

a little while and already had a few simple models that formally demonstrated how he was thinking about this structural system. While TM put forward some interesting ideas, once he stopped talking the group volleyed these ideas around and we watched his idea be quickly, and thoroughly, tested and transformed in a number of different ways. While his initial idea emphasized triangulation and modularity, another series of potential strengths quickly emerged. Conversations and critiques suggested that his form could be adaptable enough to be pressed out of a single sheet of material and had a form that might more simply be used for bank/soil stabilization and planting. Circling back around this idea led to a discussion about a modular family of landscape elements including lighting, planters, and seating. The bank stabilization returned with a recognition of the potential elegance of how this one form could be easily used by one person, have both a built-in mechanism to engage with the soil, and create a horizontal surface that could be used to establish plantings and still be a single unit cleanly pressed out of a single sheet which would allow for easy and efficient manufacture, storage, and application. While the students discussed the merits of this system, a few paper models were made to test

the ideas and TM continued to evolve the idea over a few classes. This project is currently at the point where TM needs to undertake some research with firms doing this kind of

work and make a more complete survey of the existing state of this market.

A second student, "QD," entered our program with some background in computer science and came to the pop-up class with an interest in using this experience to develop a sensor-triggered, interactive wall. During the timeframe that the pop-up class was meeting, there was a college level Call for Installations that fuse art and technology. QD's time in the pop-up class was utilized to successfully develop his idea for submission and he was subsequently awarded a grant to develop these ideas. We are now working with a $1,000 budget on a twenty-foot long responsive wall that will be installed in a prominent gallery downtown. The sensors, Arduino boards, and other resources that the grant has provided will give functionality to the wall and will eventually become the property of the department and be available for use by our growing design entrepreneurship group.

Assessment

Having progressed through only one pop-up course, we cannot yet make any significant declarations; however, we can offer some observations that will direct our next attempt. This was a short course and the products developed, and the students who did not yet progress to this stage, remained at the beginning of what will be a continued effort in following semester, but the ownership taken by the students of the play it takes to innovate was quite something. It was not only refreshing to see a large group of students taking ownership of their discipline's skill set, it was quite fulfilling to hear some of their naiveté about engaging their discipline transform into the experimental language of conjecture as they

began discuss their ideas over the course of a few meetings. They were really beginning to play with the potential of their disciplines. Our primary declaration of success was the continued and persistent attendance that our pop-up class generated and the engagement of the students when we met.

This pop-up class in design entrepreneurship was an initial investigation into curricular opportunities intended to expand how we conceive of and teach within the domain of design. In our program, a number of demographically driven changes ushered in by the post-millennial generation of students and their parents has required this investigation. There is a recognition by us and by our students that our graduates will likely engage in multiple careers throughout their lifetimes and that the education that will best serve them is one that can prepare them to design a professional life inside this expected variability. Students are placing an increasing importance on and commitment to an active engagement in their communities. Likewise, students are placing an increasing importance on being able to conceive of their personal relevance within the broader socio-economic and cultural environments with a business understanding. While it can be argued that the liberal arts remain the intellectual underpinning of an exceptional education, design and entrepreneurship have become increasingly essential skills in the foundation of a 21st century workforce within a creative economy. Daniel Pink, in his 2006 book *A Whole New Mind,* identifies the six characteristics he sees as guiding and shaping our world: "I have distilled the answer to six specific high-concept and high-touch aptitudes that have become essential in this new era. I call these aptitudes the six senses: Design, Story, Symphony, Empathy, Play, Meaning" (2006, 61).

"Paul Maeder, founder of Highland Capital, a venture capital company, works with numerous entrepreneurs and

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sees the traditional education system as potentially limiting the creativity involved in entrepreneurship by fostering false associative barriers and entrenching people in singular perspectives" (Adams 2005, 41). We believe that the design fields are an essential educational cornerstone in developing the creative economy that will dominate future jobs of choice, but we also recognize that graduates will need a new kind of design education that is more proactive in regard to community, social involvement, and inventing oneself as a design entrepreneur. To this end, we are actively developing a multidisciplinary, hybrid pedagogy as an alternative. Our pop-up class created an opportunity to engage our students in a conversation about how both this generational demographic and their corresponding needs are changing. We all recognize a need for a shift and that our student demographic, and the future they will be creating, needs an expanded teaching methodology relevant to a post-millennial generation.

In response, we have initiated both an update of our current curricular offerings and a new broader non-professional degree offering, the Bachelor of Design Entrepreneurship, that can deliver a creative, open-ended general studies degree that expressly prepares students to enter the workforce as creative thinkers, to innovate through the design of their own businesses, and to make significant impacts on their communities all while doing well for themselves.

In our quest for relevance, efforts inside our School of Architecture and Design have been structured around: informal probes, development of existing courses and initiatives, and the development of a new major.

Informal Probes

The informal probes range from individual conversations and projects to the class we have described here. We consider the probes

a genuine research strategy as we develop our thesis. They help us test our assumptions and avoid false consensus or confirmation bias. The pop-up class is an example of one of the most well-formed of these informal strategies and demonstrates how to work with students to identify and supply a relevant offering.

Development of Existing Courses and Initiatives

One of our existing program strengths has been community outreach in the form of traditional not-for-profit type activities: design charrettes, design build projects, and community-based master planning efforts. To bridge our existing strengths and a new relevance, we have introduced entrepreneurial elements into key studios, support courses, and research institutes.

The Sustainable Development Lab (SDLab) has been a key research institute vehicle. The SDLab integrates design research and entrepreneurship as a model for market-based, design-driven economic development that prioritizes individual opportunity along with the public good. The SDLab is dedicated to real-world development projects and community-based student learning and research to address the dynamic interconnectedness between economic development, ecologic sustainability, and entrepreneurship. The SDLab engages in university, community, and business collaborations. At the graduate level, the SDLab focuses on real estate development projects with a strong focus on civic space and pro-forma development. At the undergraduate level, the emphasis is on a more general entrepreneurship that tries to engage undergraduates with graduate students to work on products that support affordable, high performance, urban, and humanitarian housing. Specifically, but not exclusively, the SDLab tries to direct efforts toward building skin development and assembly innovation that allow for scalable spin-off business opportunities from development

projects. Examples of types of projects are emergency shelters, energy generation, flat-pack/digital fabrication, innovations for interior fit-outs, street furniture, lighting, energy control interfaces, and low-impact landscape innovations. The SDLab holds at its core the hybrid of design and entrepreneurship by which we are intrigued.

A New Bachelor of Design and Entrepreneurship Degree

The Bachelor of Design and Entrepreneurship is fundamentally an interdisciplinary degree program with the two core influences of design and entrepreneurship continually reinvigorated by a unique minor selected by each student. We believe it is the harnessing of the creative process for specialized application (the minor) that will attract students and draw from backgrounds that traditionally have not come through our professional programs. For example, a kinesiology minor inside this degree offering would give deep entrepreneurial insight to a host of outlets from footwear and training equipment to robotics and ergonomic devices. The program will suggest alternative career paths and prepare graduates to be leaders (entrepreneurs) in emerging fields as well. This is currently a work in progress but it is fundamentally an interdisciplinary degree program, structured around design and entrepreneurship, to address the underlying need for a creative economy.

Conclusion

Our pop-up class is an ongoing probe into the changing relationship between design education and our next generation of innovators. As we become better informed about the students' vision for a better future, we are trying to grow our educational offerings to stay relevant and to supply skill sets that will be of good service. It has been, however, the simple meeting of students and faculty as fledgling peers and potential collaborators—due to the no cost, no credit concept—that has been of the greatest

consequence, and it is this aspect that may be in the process of making the greatest impact toward the change for which we both search.

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