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Partnering with Corporate Entrepreneurs on an Experiential Design Thinking Project

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ABSTRACT

This article offers faculty an innovative teaching approach for an experiential class project centered around design thinking. The basic processes of the project are detailed using a running example where the entrepreneurship instructor partners with corporate entrepreneurs from a leading financial technology firm to develop, teach, and team with student groups to design think solutions for three of the community's greatest challenges: substance abuse, youth education, and technology. Learning objectives are identified and measures of the program's effectiveness at achieving the learning objectives are collected, assessed, and reported. Analysis of the data suggests the program is effective at enhancing student empathy, complex problem-solving skills, felt-responsibility, and community self-efficacy. Further, students perceive that the corporate entrepreneurs properly supported them in the project and they were quite satisfied with working with real customers, the corporate entrepreneurs, and the program overall.

Keywords: corporate partnerships, design thinking, corporate entrepreneurship, experiential learning, social entrepreneurship, entrepreneurship education

INTRODUCTION

From notions of corporate social responsibly (Carroll, 1991) to shared value (Porter & Kramer, 2011), modern businesses are increasingly seeking strategic ways to give back to society. Concurrently, modern business schools have been criticized for not adequately preparing students for "real-world" situations which are complex, messy, ill-structured, and uncertain (Glen, Suciu, & Baughn, 2014). Despite corporations' strategic desire to give back and business education's interest in "real-world" student preparation, there appears to be a dearth in the pedagogical literature aimed at understanding how businesses can give back to society by partnering with business schools on experiential class projects. To that end, this research offers a teaching innovation demonstrating how entrepreneurship faculty can partner with corporate entrepreneurs from a firm to teach students how to solve complex societal challenges (Kuratko & Morris, 2018) facing real customers, creating a "win-win-win-win" for the faculty member, the business, the students, and society at large. Design thinking as an entrepreneurial innovation tool is offered as the instruction mechanism that bridges these four parties together.

In industry, design thinking is an increasingly valuable system for the modern business. Companies who employ this process to deliver superior design outperform their industry counterparts two to one (Sheppard, Kouyoumjian, Sarrazin, & Dore, 2018). For students, design thinking gives them relevant and practical entrepreneurial skills to cope with the complexities of the business world, which is a goal non-profit and for-profit employers alike have demanded business schools teach (Bennis & O'Toole, 2005). Finally, for business education and society at large, business schools have been called upon to reconsider their missions and are increasingly charged with developing responsible entrepreneurs who can apply business knowledge to not only improve their business, but also to design solutions to challenges in their communities (Bringle & Hatcher, 1996).

Despite the benefits of design thinking to multiple stakeholders, the process is still very new to entrepreneurial education. Business education and texts have typically focused on teaching students how to develop a business plan that heavily relies on a linear process consisting of opportunity analysis, prediction of financial forecasts, implementation and exit strategy (Morris, 1998). However, in practice, entrepreneurship is rarely linear or predictable, thus making the design thinking methodology a more effective tool for reducing entrepreneurial risk and uncertainty by quickly and affordably testing predictions and assumptions that would otherwise remain untested in a traditional business plan (Neck & Greene, 2010). Still, there are only a few state-of-the-art entrepreneurial textbooks teaching design thinking (Neck, Neck, and Murray, 2018) and most textbooks still favor business planning (Mason & Siqueira, 2014) versus the iterative, trial and error approach that characterizes design thinking;

thus creating a greater need for design thinking experiential projects. To that end, the objectives for this learning innovation are:

1) To help students gain a deep empathy for real customers and the challenges they face;
2) To teach students how to apply the design thinking process so they can innovate solutions to complex societal problems;
3) To help students feel a genuine responsibility to the community;
4) To empower students with confidence that they can make a positive impact on the community;
5) And to give students the opportunity to work with, learn under, and build relationships with a real-world firm's corporate entrepreneurship team.

Each learning objective above was measured to assess the learning innovation's effectiveness. Specifically, the program's ability to enhance student empathy, complex problem-solving skills, felt-responsibility, community self-efficacy, and perceived corporate entrepreneur support are measured and reported. The program overall along with student satisfaction with working with real customers and corporate personnel are also measured and reported.

THE LEARNING INNOVATION

Design Thinking as a Learning Innovation

Design thinking is a creative problem-solving process that involves *"approaching management problems as designers approach design problems"* (Dunne & Martin, 2006, p. 512). Because of its customer-centric, bias towards action, and iterative characteristics, design thinking is particularly suitable for the pedagogy of entrepreneurship where uncertainty reduction and innovating products and services to meet consumer needs are essential to success. Although many interpretations of the design thinking process exist, they are, in general, fundamentally similar in substance and process. The first step typically involves empathizing with the customer through ethnographic research methodologies such as observation and interviewing in order to find the customer's problem. After a period of reflection and "sense-making," the next step typically involves "ideation" where a process of divergent thinking is employed to create a broad pool of potential solutions followed by a period of convergent thinking where the pool of ideas is narrowed to one potential solution (Glen, Suciu, Baughn, and Anson, 2015). Then, a low-cost, low-fidelity prototype is created to test critical assumptions of the potential solution such as its ability to effectively solve the problem from a utilitarian standpoint and/or its ability to delightfully solve the problem from a user-experience perspective. Finally, the process starts over as the researcher empathizes with the customer as they observe him or her interacting with the prototype and interview him or her for their feedback. Based on the observations and interviews, the researcher either validates the prototype's assumptions or gains insight on its deficiencies. Ideation is employed to improve the deficiencies and a new prototype is created and shared with the customer for their observation and thoughts. This cycle is rapidly and affordably iterated until all the prototype's critical assumptions have been validated.

The design thinking paradigm encourages students to think about the problem holistically, develop empathy to the user needs and experiences, and explore solutions through prototyping, experimentation, and iteration (Dunne & Martin, 2006). Such characteristics of design thinking allow this project to break from traditional academic assignments in three ways. First, the design thinking project contrasts with traditional rational-analytical teaching approaches, such as case analysis, which are often used in business education. Rational-analytic approaches are better suited for well-defined problems that feature specified goals, constraints, planning, and rules (Glen et al., 2014). Optimal solutions with the least probability of failure are developed after careful, reasoned, and rigorous analysis. In contrast, design thinking features dynamic goals and processes which is better suited for messy, complex problems (Glen et al., 2014). Confidence is gained from actively developing innovative solutions to daunting large-scale challenges in a quick, affordable, and efficient manner. Solutions evolve after many iterations of early and inexpensive rapid prototype experimentation failures (Glen et al., 2014). The second difference is that traditional academic assignments overemphasize analytic techniques and may encourage students to *"become detached and disinterested actors rather than engaged practitioners"* (Glen et al., 2014, p. 655). Because design thinking systematically harnesses the power of multiple viewpoints, students learn difficult-to-teach "soft-skills" (*e.g.* teambuilding, persuasion, and collaboration). Furthermore, design thinking fosters student development of empathy to the needs and experiences of customers and an appreciation of the impact business decisions have on individuals. Third, the rapid experimentation process that students engage in independently shifts to students a

greater share of the responsibility for learning (Peters & Maatman, 2017). Students become active participants rather than passive observers in learning when given maximum latitude to explore and solve ill-defined problems. The project presented next teaches students an innovation framework for creating entrepreneurial solutions that can be brought to bear on a community's greatest social challenges.

Running the Learning Innovation

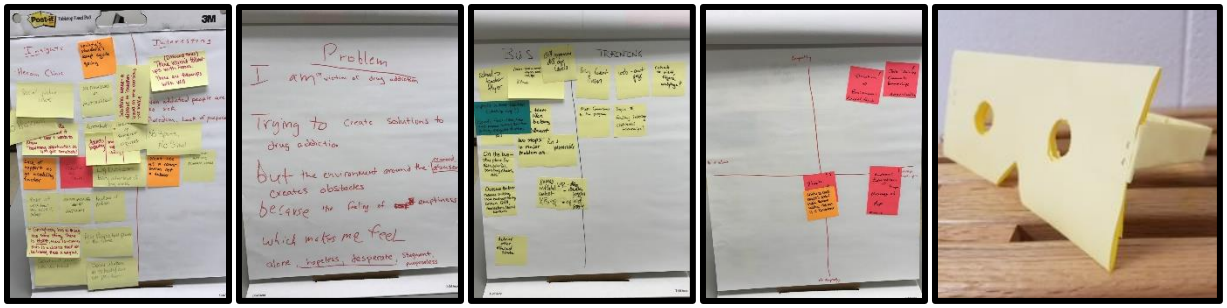
The primary goal of the learning innovation was for students to work with real-world corporate entrepreneurs to innovate solutions for three "grand challenges" facing their state: 1) substance abuse; 2) youth education; and 3) science, technology, engineering, and math (STEM) awareness. Although this learning innovation would be appropriate as class project in an entrepreneurship course, this project was developed as an extracurricular innovation contest in which all undergraduates at the university could apply to be a part of. This project was developed so that students from any major could participate as entrepreneurship and innovation are inherently multi-disciplinary in nature and design thinking can be applied to produce solutions across many human-centric fields. Given that design thinking is fundamentally based in "learning by doing" and the growth mindset, student characteristics (*e.g.* open-mindedness, desire to learn, and passion for making a positive difference in their community) were considered more heavily than the amount of prior discipline-specific knowledge.

Thirty-eight students and fourteen faculty members from six different colleges in the university were selected. Additionally, seven real-world corporate entrepreneurs from a leading financial technology firm headquartered in Silicon Valley participated in the program. Students, faculty, and real-world partners were divided into seven interdisciplinary teams (5-6 students, 2 faculty members, and 1 corporate entrepreneur per team). Two teams were assigned to the youth education challenge, two teams addressed the STEM awareness challenge, and three teams examined the substance abuse challenge. Faculty duties included assisting students with logistical, administrative, and presentation issues, but not imposing solutions to the challenges. The corporate entrepreneur partner developed and taught instructional material based their proprietary version of design thinking to students. Additionally, corporate entrepreneurs met weekly to support their student teams through coaching, clarifying concepts, providing feedback and guidance via video conferencing. Figure 1 illustrates the four major components of the learning innovation.

Figure 1: Timeline and Flow of the Design Thinking Project

Figure 2 depicts an example of the design thinking techniques and process from Bootcamp Day 1 and Day 2. On Bootcamp Day 1, the corporate partners taught the first of three foundational elements of the partners' proprietary version of design thinking - *empathizing with the customer*. Next, students immediately applied these empathy techniques by interviewing real community members to understand their thoughts, emotions, and motivations regarding the assigned challenges. After the first customer interview, students discussed what went well and what could be improved for the second customer interview. Particularly insightful findings were recorded on sticky notes. After the interviews with both customers, students "nugget mined" the sticky notes for the 3-5 most interesting post-it notes. Each insight was unpacked and "problem statements" were developed for the most interesting insights to clarify the root cause of the problem under investigation. Subsequently, problem statements were shared with the group and tested with a new set of customers until one problem statement emerged.

Teams then proceeded to the second piece of the design thinking process - *ideating a potential solution*. First, teams engaged in divergent thinking by "brainstorming" as many solutions as possible regardless of feasibility. Each idea was recorded on a sticky note. To encourage ideas, students were taught to pose "how might we…" questions to the group and to build on each other's ideas. These ideas were refined via convergent thinking using a "2x2 narrowing" technique. Two criteria important to the customers were selected as axis points to create a 2x2 grid with the best customer outcome set in the upper right quadrant. Each potential solution was viewed through the lens of the four quadrants and solutions that were in the upper right quadrant were selected. Bootcamp Day 1 concluded with students presenting brief overviews of their potential solutions to the other teams.



Nugget Mining **Problem Statement** **Brainstorming** **2x2** **1st Iteration Prototype**

Figure 2: Design Thinking Techniques and Process Example

Bootcamp Day 2 began with the corporate entrepreneurs teaching the teams the third and final foundational element of design thinking - *iterative prototyping*. Teams built their first iteration low fidelity "prototype" (e.g., made with paper, drawn, etc.) based on one of their potential solutions ideated on Day 1. This prototype was tested with a new community customer. Teams observed customer interactions with the prototype and subsequently interviewed the customer to gain their input and insights. After this round of hypothesis testing, teams discussed what was learned and iterated a second prototype. Each team tested a new prototype with a second group of community members. Again, teams reviewed the discoveries and developed a third iteration of the prototype. Then, each team pitched its prototype to the other teams concluding the Bootcamp.

Over the next twenty-five days, the teams engaged in an "independent experimentation period" where they continued prototype iterations. In contrast to the Bootcamp where community members were pre-arranged, teams were responsible for independently identifying, engaging, and interacting with additional community members. To do so, students learned to develop and leverage real partnerships and networks. For example, one team partnered with a local secondary school system to gain access to a pool of new customers. Via videoconferencing, the corporate entrepreneurs provided weekly feedback and guidance to teams and helped them craft an "innovation story" for the final presentations. At the final presentation, teams revealed their heavily iterated prototype by chronicling their innovation story to a three-judge panel. Judges, whom had strong ties to the community, were comprised of the CEO from the partnering firm and two celebrity judges native to the community. Each team was given five minutes to present and five minutes to answer questions from judges. Judges selected the top three teams based on "key innovation behaviors" (see Figure 3).

Key innovation behaviors	Score 0 to 10 0 = Strongly disagree 10 = Strongly agree	Notes
The team chose a narrow customer "problem" to address, that is aligned with their Grand Challenge and well-informed by empathy		
The team displayed bold, creative thinking, considering a wide range of potential solutions that address the ideal state Grand Challenge		
The team selected an appropriate "first step" solution to begin their experimentation		
The team clearly specified the expected benefit their innovation will provide		
The team told a clear and compelling story of one individual with whom they experimented, learned and adjusted		
TOTAL		
What do you admire most about this team?		
What unanswered question were you left with?		

Figure 3: Team Assessment Criteria

One winning team attempted to solve the substance abuse challenge by innovating virtual reality software aimed at mitigating high school students' curiosity to try drugs. This software allowed high school students to experience the effects of drug use without the euphoria induced by drug use. Another winning team developed an app that provided quick access to emergency resources and information to children whose parents or guardians had substance abuse issues. The third winning team attempted to solve the technology challenge by innovating a monthly subscription service that delivered to schoolchildren STEM-based toys, games, and activities. These three winning teams were awarded a trip to the partner's headquarters in Silicon Valley where they toured the partner's campus and received further coaching from the company's top executives on moving their solutions forward.

RESULTS

Likert scale items (anchored at 1= strongly disagree and 7= strongly agree) measuring students' perceptions of key learning outcomes attained in this project were asked in an anonymous questionnaire to ascertain effectiveness of this learning innovation. Many key items were adapted from well-established scales. Items for "empathic concern" (i.e., students' feelings of compassion and care toward consumers who face challenges) were adapted from Anaza (2014). Items for "felt responsibility for constructive change" (i.e., students feeling personally responsible for positive future changes within the community) were adapted from Fuller, Marler, and Hester (2006). The "perceived self-efficacy for community impact" scale (i.e., students' beliefs that they can positively influence the outcome to societal problems) was adapted from Straughan & Roberts (1999). A total sample of 27 students (71% response rate) responded to the questionnaire and their perceptions were uniformly positive (see Table 1).

Beyond the data collected, the project generated tangible real-world results. Two of the seven teams garnered interest from private businesses or high-ranking government officials to develop their innovations further. One student parlayed the project into a summer internship with the partnering firm her junior year and then full-time employment at the firm upon her graduation. The entrepreneurship curriculum at the University was redesigned around design thinking concepts and a business innovation center inspired by the project has been established at the University to help aspiring entrepreneurs in the school and in the community innovate solutions to the community's greatest challenges in the hopes of stimulating the local economy.

Table 1: Effectiveness of the Teaching Innovation (n = 27)

Item	Mean*	Standard Deviation
Complex Problem-Solving Skills		
This design thinking project taught me a lot about how to create solutions for complex problems.	6.04	0.93
The design thinking innovation process is effective at innovating solutions for complex problems.	6.08	0.95
In the future, I am confident I would be able to use the design thinking innovation process to create solutions for complex problems.	6.16	0.85
Empathetic Concerns		
I had tender, concerned feelings for the customers I talked to.	6.36	0.86
The customer's challenges worried me.	6.04	1.24
I was quite touched by things I heard happened to the customers.	6.16	1.07
Felt Responsibility for Constructive Change		
I feel a personal sense of responsibility to bring about change in the local community.	6.20	0.91
It's up to me to bring about change in the local community.	5.72	1.06
I feel obligated to try to introduce new business/product ideas where appropriate.	5.76	1.26
I feel obligation to challenge or change the status quo in the local community.	5.84	1.03

Perceived Student Effectiveness		
It is worthless for an individual student to do anything about social problems the local community faces. *(R)*	1.96	1.72
When I participate in business-related activities, I try to consider how my innovation skills will affect the local community.	5.60	1.22
Since one person cannot have any effect upon social problems the local community faces, it does not make any difference what I do. *(R)*	1.52	0.92
Each student's behavior can have a positive effect on the local community by utilizing innovation skills.	6.28	0.74
Overall Student Satisfaction		
Working with students and faculty from different areas than mine was a good learning experience.	6.40	0.96
Learning from real-world businesspeople was a good experience.	6.40	0.76
Speaking with real customers was a good learning experience.	6.48	0.87
Overall, I am satisfied with the learning provided by the design thinking program.	6.24	1.09
*Scales range from 1 = "strongly disagree" to 7 = "strongly agree."		

CONCLUSION

By partnering with real-world corporate entrepreneurs for class projects, faculty can demonstrate the power of collaboration to their students while simultaneously providing them with an authentic experiential learning program. Although partnering with organizations can certainly be applied in many contexts and disciplines, doing so with design thinking projects enable students to gain empathy, felt responsibility for the community, self-efficacy to create change, and complex problem-solving skills. Furthermore, students enjoy practical benefits that are lacking in traditional classroom settings such as direct learning alongside corporate entrepreneurs thereby building relationships with them. Finally, partnerships with corporate entrepreneurs to solve a community's biggest challenges not only benefits students, they also offer benefits to the instructor, the partnering firm, and, ultimately, society at large.

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