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BOOTSTRAPPING LEADERSHIP THROUGH DESIGN

A FRAMEWORK FOR ADDRESSING THE LACK OF LEADERSHIP EDUCATION AND TRAINING IN THE DESIGN CURRICULUM

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PAPER ABSTRACT: The question regarding the nature and viability of design as a field of study and an academic discipline has been hotly debated since the early 20th century. The objectives, principles, and methodologies of design education are perhaps more relevant today as designers are increasingly asked to contribute to more complex social and systemic challenges. Despite the increasing level of responsibility being asked of designers, recent research suggests that current design programs lack the appropriate academic breadth, intellectual rigor, and training to graduate successful leaders. This paper explores the challenges, shortcomings, and themes in design education and provides a theoretical framework for overcoming these challenges through design.

Keywords: Design Education, Human-Centered Design, Complexity, Design Curriculum, Leadership, Management

1. INTRODUCTION

Research into the current state of design education has suggested a rather negative outlook, including a dated educational model, poor academic rigor, and sub-par scholarly achievement. The findings question the nature (Findeli, 2001, Lloyd, 2019) and, at times, legitimacy of design as a distinct and worthy academic discipline (Cross, 2001). One of the more alarming findings point to the relative failure of design students to attain the academic and industry success of their peers in business, medicine, and law (Meyer & Norman, 2020). The question regarding the nature and viability of design as an academic discipline is not new (Archer, 1979; Cross, 2019; Papanek, 1984), but perhaps more relevant now as designers are increasingly asked to contribute to a wide range of complex social and systemic challenges (Dorst, 2019). Common findings from the research into design education include: a narrow scope of academic breadth (Meyer & Norman, 2020), lack of scientific rigor (Cross, 2019), and a failure to address complex contextual and global challenges (Friedman, 2019 as cited in Meyer & Norman, 2020). The shortcomings within design education, as these reports have suggested, have challenged the ability for design graduates to achieve advanced levels of success in both academia and industry.

Why are design students not attaining the level of leadership gained by their business, engineering, and marketing peers? What's missing from the curriculum that would enable more effective and successful industry leaders graduating from design programs? These research questions are investigated in several steps. Section 2 provides an overview of current design programs and coursework prevalent in the US, highlighting shortcomings as they relate to leadership awareness, education, and practice. Section 3

discusses the fundamental aspects of design education that must be retained if design is to maintain its identity and standing as a distinct academic discipline. Finally, section 4 introduces a framework for addressing and overcoming several key issues outlined within recent research, with a focus on leadership. To maintain the strengths and identity of current design curricula, the framework proposed is situated within the context of a traditional project-based design challenge. Potential implications, limitations, and conclusions based on existing research and the proposed framework are discussed.

2. LACK OF LEADERSHIP EDUCATION IN DESIGN

Despite existing evidence to suggest companies that prioritize design often lead the market (Westcott, 2014, as cited in Meyer & Norman, 2020), very few formally trained designers become top executives. Research points to three important shortcomings in design education: 1) the narrow scope of design education today, and the resulting lack of academic rigor; 2) the absence of awareness and participation in leadership and management related classes within design curricula; and 3) the long-standing paradigm of the master/apprentice relationship in project-based studio classes.

2.1 EXPANDING THE SCOPE OF DESIGN EDUCATION

One convincing argument suggests that design education today is often lacking in breadth of academic scope (Teixeira, 2010), leading to a design cohort great at solving problems and making things, but not fully aware of the important issues to be solved. To quote Victor Papanek (1984): “The main trouble with design schools seems to be that they teach too much design and not enough about the ecological, social, economic, and political environment in which design takes place.” There are exceptions to this trend. Carnegie Melon’s curriculum, as Meyer & Norman point out (2020), emphasizes coursework in other disciplines. Nevertheless, many highly regarded design programs continue to prioritize design studio classes at the expense of a broader education.

Friedman (2019) points out four categorical problem types that are critical for design students to understand to contribute in a meaningful way to solving increasingly complex problems: 1) Performance; 2) Systemic; 3) Contextual; and 3) Global. The educational requirements required to tackle these challenges requires a more expansive course load than current design programs provide. While we cannot expect designers to be experts in every parallel field, there are several academic disciplines that would greatly benefit design students, including business, psychology, and human factors engineering, amongst others. The depth to which students go into each of these disciplines should be determined by their personal goals and professional trajectory. These courses also provide a cursory introduction to the principles and rigor required by most academic disciplines, including study design methods, understanding biases, and statistical analysis (Cross, 2019). Designers’ ability to solve problems within the context of complex social and systemic ecosystems will depend largely on their capacity to understand, respond to, and ultimately, provide creative solutions driven by the evidence-based principles afforded in parallel academic disciplines.

2.2 LACK OF AWARENESS OF LEADERSHIP PRINCIPLES AND PRACTICES

Another key challenge affecting design graduates’ ability to lead seems to be far simpler: 1) a lack of awareness regarding leadership principles and practices; and 2) few opportunities to practice leadership. Unfortunately, even a cursory review of top design programs reveals very little coursework dedicated to program management, organizational training, or leadership in general. Teixeira: “As a result, students are graduating as design specialists with little preparation in terms of assuming leadership positions and

dealing with contemporary, ill-understood phenomena and trans-disciplinary challenges" (2010, p. 411). This is not to suggest management is the same as leadership, but these types of classes afford the opportunity to learn leadership principles while practicing both people and project management. Management (and similarly, negotiation) classes often provide problem sets with conflicting challenges, multiple stakeholders, and multi-party negotiations. These are the types of challenges leaders are expected to navigate, support, and resolve.

2.3 THE MASTER/APPRENTICE RELATIONSHIP IN STUDIO COURSEWORK

A similar challenge is created by the traditional studio design project, where design students are expected to develop multiple creative solutions and respond to a single faculty member's feedback during design critiques (Ghassan, Diels & Barrett, 2014). While this format promotes dialogue, the feedback is often not based on evidence or research, and the flow of information is often in one-directional - master faculty to apprentice student. This relationship does not support the type of discourse often required in evidence-based debate. The impact, unfortunately, is design students do not develop the debate and negotiation skills often required to effectively lead multi-disciplinary teams.

3. DEFINING A DESIGN LEADERSHIP IDENTITY

Leadership traits and capabilities come in many different forms. Fortunately, there are inherent strengths of existing design curricula where design students can immediately contribute to leadership roles, including: 1) process development; 2) a human-centered approach to problem solving; 3) an unrelenting pursuit of originality; and, 4) the effective use of visual communication tools to narrate a coherent vision.

3.1 PROCESS LEADERSHIP

Process has historically been a significant aspect of design education and remains so today. Though several variations and theoretical frameworks exist, the general categories remain largely consistent: identifying key challenges and prioritizing needs through user research, rapid ideation and prototyping to promote a divergent range of solutions, multiples rounds of testing, feedback and concept validation, iteration based on feedback, and design refinement to best meet prioritized product, service, and system opportunities. Design students at most colleges and universities are equipped with multiple user research methods (primarily qualitative), tools for prioritizing needs, and a range of ideation methods (both individual, group, and co-creation methods). These general phases are important to identifying problems, developing the right solution, and mitigating risk.

Another strength of design is the ability to conduct research and understanding *through* design (Kyffin & Gardien, 2009). Creating solutions, testing these solutions in the world, and responding quickly to feedback. These are core tenets of the design process and most design education programs. Design students are particularly adept at communicating the value of process, and are in good position to lead the planning process for development programs. Certainly, more research and analysis regarding process can and should be conducted, but few other disciplines are equipped to promote good process as well as design.

3.2 HUMAN CENTERED DESIGN FOCUS

Many design programs today fall under the umbrella of human-centered design, though differing models, methods, and uses of the terminology exist (van der Bijl-Brouwer & Dorst, 2017). Design and design research activities focus on identifying a fundamental human related challenge or set of challenges and a

reasonable plurality of needs. Utilizing research methods adapted from the humanities, primarily anthropology, design students are encouraged to observe, document, and understand human behavior, and navigate these challenges to identify opportunities for better product, service, or system solutions. This focus in important both from a market perspective (e.g., ideas contribute to a viable business opportunity), but also from an ethical perspective, as it makes little sense to promote solutions that provide no value. Certainly, design education programs should place more emphasis on ethical considerations, and more research into this area is warranted. The framework below suggests a few ideas for ensuring ethics are considered throughout the design process.

3.3 ORIGINALITY

Much like an academic researcher is required to be well-informed of the existing body of research and knowledge to locate gaps in understanding and areas for advancement, design students are expected to understand the design and market landscape to locate opportunities for market differentiation and positioning. The relentless pursuit for originality is not only relevant to aesthetics, but also to creating new meaning, identities, value propositions, and, to use the words of Jonathan Chapman (2005), more emotionally durable design solutions. Importantly, it is not originality purely for the sake of novelty, but rather for the advancement of value, meaning, and positive systemic change. Design education should continue to encourage the advancement of originality as a primary strength of the discipline, and encourage students to promote originality as an important aspect of strong leadership.

3.3 THE VALUE OF VISION

"The design discipline has by nature considerable expertise in integrating technologies, generating and interpreting end-user insights and marketing information, and above all, visualizing outcomes, all of which enables the discussion needed for successful innovation" (Kyffin & Gardien, 2009, p. 68). Design students excel at communicating a coherent vision, one that incorporates often disparate elements of what is important to a wide range of stakeholders (users, customers, internal stakeholders, clients, etc.). Through visual and time-based narrative, including sketching, renderings, and animations, people naturally respond to what could be. Equally important, the vision (or value proposition) can evolve much quicker than if simply communicated through words, because visual communication prompts a reaction, encourages dialogue and interpretation, and provides a more efficient communication process (Van der Lugt, 2005). Few disciplines from across the academic spectrum are capable of so effectively communicating a vision for a better future.

4. DESIGN LEADERSHIP THROUGH A PROJECT-BASED DESIGN CHALLENGE

Awareness of leadership principles is a good starting point. Integrating readings, lectures, and demonstrations into the design curriculum will also be important for advancing knowledge. Practice and implementation, however, will be absolutely critical if we hope to graduate true leaders. Below, the author outlines a theoretical framework for integrating elements of leadership within a project-based design problem. The goal is to maintain the fundamental strengths of design education, while integrating challenges that address the shortcomings outlined in previous research.

4.1 STRUCTURAL OVERVIEW

An 8-week project will consist of 4 primary phases: 1) project planning and team assembly; 2) research and ideation; 3) concept development with representative users; and 3) idea and pitch refinement. The work effort will culminate in a 2-page Executive Report and a 1-2 minute video to articulate a vision for a

new venture business solution. Critical to the teams' success will be the ability to convince a multi-disciplinary team of advisors their idea could become a thriving, sustainable business, and effectively communicate the potential impact the proposed venture will have on people and society. Special consideration will be given to ideas that address social and/or environmental challenges.

The framework is integrated within a prototypical design process, but admittedly light on design and traditional design deliverables. The point is to integrate problems not typically provided by design projects, including aspects of project management, business, marketing, multi-disciplinary feedback, and a cursory introduction to more rigorous academic standards. A key element of the proposed framework will be integrating the design challenge into an on-campus new venture competition (Notre Dame's McCloskey New Venture Competition). The framework is repeatable in that similar new venture competitions exist in many colleges and universities. While the competition is not the primary objective of the project, it does provide important elements critical to integrating leadership education within the coursework. Specifics aspects of leadership and academic breadth will be discussed through the phases outlined below.

4.2 PROJECT PLANNING AND TEAM ASSEMBLY (1 WEEK)

Phase 1 of the project will require students to create a project plan and assemble a multi-disciplinary team to implement the development effort. The project plan, which is uncommon in many studio classes, must include: 1) an overview of the selected problem space, including user groups, environments of use, and preliminary hypotheses; 2) a development process outlining key deliverables for each phase of work; 3) a schedule that aligns with the McCloskey Competition deadlines; and 4) a roster highlighting team members, including their educational background and responsibilities. The project plan is meant to promote practical management responsibilities, including time and resource management. Assembling a multi-disciplinary team, while considering personnel dynamics and composition, is an important aspect of the project. Understanding the strengths and weaknesses of team members, while putting everyone in the right position to help the team succeed, is critical to thoughtful leadership.

4.3 RESEARCH AND IDEATION (2 WEEKS)

Upon completion of the project plan, students will participate in a 2-week research and ideation sprint intended to identify a systemic, contextual, or global challenge worthy of solving. Students will be expected to clearly articulate the need or challenge, and support their decision with evidence. The process may start with a particular domain of interest, user group, need statement, or preliminary idea. The ambiguity is intentional and intended to encourage a "move away from a problem-solving approach to design, and embrace the complex nature of the design situation as the starting point for shaping new, much more exploratory design processes" (Dorst, 2019, p. 123). Class lectures and exercises will explore qualitative research approaches and group ideation methods. The primary objective of this phase, however, is to promote divergent exploration of ideas and learning through experience (Dewey, 1986), sketching (Hoffmann, 2020), making, modelling, and iteration (El-Zanfaly, 2015). Archer (1979, p. 18): "Indeed, we believe that human beings have an innate capacity for cognitive modeling, and its expressions through sketching, drawing, construction, acting out and so on, that is fundamental to thought and reasoning as is the human capacity for language." The deliverable for phase 2 will be a clearly articulated need statement with evidence to support the need, and a series of preliminary ideas in sketch form. Leadership objectives include: managing a multi-disciplinary team, navigating ambiguity, and promoting a divergent range of creative solutions.

In addition, students will need to work with their teammates to identify and evaluate data sets that support or invalidate the market viability of their idea. This may include preliminary assessment of larger multivariate data sets from published journals in marketing, business, or medicine, as well as financial reports. This exercise is meant to support awareness of and access to larger data sets and the ability to question study design and results, and not necessarily to dive deeply into the analysis and validation of such data. Further education and analysis will be required for teams that make it past the first round of the McCloskey competition.

4.4 CONCEPT REFINEMENT WITH REPRESENTATIVE USERS (3 WEEKS)

Design students and their team members will select a manageable range of concept architectures to create preliminary storyboards or concept 'visions,' which will be used to solicit responses, feedback, and ideas from representative users. Students will be expected to contact community members and stakeholders to conduct primary research, and will be required to assess the usefulness, usability, and behavioural and emotional responses to their proposed solutions. Lectures will explore ways to develop a deeper understanding of the cultures, value systems, and needs of those potentially affected by the design intervention. As a result, students will be expected to consider their solutions from a multi-layered perspective, 'zooming in' to consider specifics of their design solution and 'zooming out' to reflect on larger systematic implications (Dorst, 2019). Working with multi-disciplinary teams will invariably bring different perspectives, and design students will need to navigate and negotiate different interpretations of research findings and prospective solution spaces.

In addition, students will be required to provide a cursory overview of a business plan for their idea, including marketing and sales approaches, a review of existing competition, a conceptual framework for their business or operational model, and a general description of the management team. The framework is meant to promote awareness of business considerations, and is not meant to be a comprehensive course in business development or planning. Resources will be made available to design students to support this effort, including access to students and faculty from the business school and advisors through Notre Dame's Innovation, De-risking and Enterprise Acceleration (IDEA) Center. Given the importance of understanding business in any industry leadership role, it makes logical sense to include business planning within the context of a design project.

4.5 IDEA AND PITCH REFINEMENT (2 WEEKS)

As suggested earlier, the final phase of the proposed framework will be to present a 2-page Executive Report, including a 1-2 minute video, to articulate the challenge as well as the vision for a new venture. In an attempt avoid the pitfalls of the master / apprentice relationship common in design studio classes, the design led teams will receive feedback from a team of multi-disciplinary individuals. The expansive feedback will provide different perspectives, highlight potential shortcomings, and offer insights into areas for improvement or further research. Feedback will not only address design considerations, but will consider business, executive presentations, user research, marketing, and storytelling – all important elements of effective leadership.

4.6 CREATIVE CONSTRAINTS

The constraints of any design project will invariably impact the level of challenge and complexity students must navigate to find success. Appropriate and thoughtful constraints have the ability to create real-world

scenarios that better prepare students for systemic, contextual, and potentially, global challenges. In the proposed framework, several constraints will be created to encourage problem solving outside traditional performance-based measures:

- The development team must be comprised of a minimum of 1 student from an academic discipline outside design. More than 1 is encouraged.
- Problem and solution spaces must address people (and prospective users) outside the campus environment.
- The research plan must include 1 quantitative and 1 qualitative research methodology and evaluation method (examples and expectations to be provided through lectures and demonstrations).
- Representative customers or users must be integrated in the ideation effort.
- Proposed design solutions must include a reflection on potential ethical considerations or concerns that may be impacted by the design solution.

4.7 SOCIAL IMPACT AND ETHICAL CHALLENGES

In addition to understanding the needs and challenges of the community or user group being designed for, students will also be expected to evaluate the prospective social, cultural, and ethical challenges that might arise because of the proposed design intervention. Through cultural analysis and brainstorming, students will actively explore the potential impact of their solution on culture, social expectations, identity, health and safety, and the environment. To further promote addressing systemic and cultural challenges, design teams that include, as part of their primary mission, the promotion of positive social impact will be considered for additional funding.

5. DISCUSSION AND CONCLUDING THOUGHTS

The proposed framework does not, of course, address all the fundamental shortcomings of existing design curricula. No one particular class or project can. In particular, more will need to be done integrate aspects of scholarly research, including an introduction to different test methods, study designs, sample sizes, analysis of results, statistics, intellectual rigor, and ethics (Lloyd, 2019). Additional coursework will continue to be important, in areas such as finance, business, marketing, and human factors, amongst others. Many additional considerations are well laid out in Meyer and Norman's (2020) recent study. Similarly, the framework proposed in this paper may lack some of the depth required for more thorough business planning and development, including elements of finance, operations, and supply chain management. It would be this author's recommendation to include these important educational opportunities in lateral coursework.

One failure of recent critiques, it must be noted, is related to the criteria for the measurement of success. Where students of academic disciplines are primarily focused on publications in peer reviewed journals, attainment of advanced degrees, advancement of theoretical frameworks, and acknowledgement of their peers, a practitioner-based discipline is often measured by venture capital funding, market success, societal impact, and real behavioral change. The criteria by which we measure the success of students in the design discipline must not be conflated with the criteria for success within other disciplines. For this particular framework, success may be determined by student selection for continuing on to phases 2 and 3 of the McCloskey competition.

This paper provides a theoretical framework for integrating leadership education and training within the context of a project-based studio class. The framework will need to be tested, through a longitudinal study, to fully understand the impact on student success and leadership. As much of the research indicates, design education has ample room to grow before we can safely agree we have achieved the objective outlined by Nigel Cross (2001): “We have to be able to demonstrate that standards of rigour and relevance in our intellectual [design] culture at least match those of the others.”

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