USING DESIGN FICTION TO TEACH ETHICS IN DESIGN
PREPARING DESIGN STUDENTS TO BE ETHICAL ENTREPRENUERS BY STUDYING THE IMPLICATIONS OF SPECULATIVE FUTURES

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PAPER ABSTRACT: How do we teach Design in the face of an ethical awakening when issues of climate change are complicated by political turmoil, social injustice, and food insecurity; where advances in technology come laden with concerns over surveillance, data privacy, equity, and dependence? What if designers were less concerned with driving the economy, but instead designing a better planet? What if design education pushed students to identify problems that don't exist yet by connecting their understanding of history, society, technology, and design to provoke, interrogate, and shape the future by grounding themselves in the study of ethics and design futures. How might we adapt tools and instructional models of entrepreneurship to create a framework to navigate these concepts. By looking to a design project framework that combines case studies of science fiction, speculative design, and social entrepreneurship, the authors seek to introduce ethical worldviews in the context of design to answer this overarching question: are designers better prepared after graduation when ethics and entrepreneurship are an integral part of design curricula? How can the context and concepts of design fictions allow students space to conceptualize, explore, and critique design ideas through an ethical lens?

Keywords: ethics, impact design, social entrepreneurship, design fiction

1. INTRODUCTION

As design practices shift, awareness of the ethical implications has become a necessity and responsibility not only for design professionals, but for design educators who are teaching the next generation. Design curricula may skim the surface of ethical design but often falls short on how to integrate ethical decision-making into design curriculum. Based on individual research, literature reviews and various adjustments to course design, this paper explores the exchange of ideas and intersections between the fields of design fiction, ethics and entrepreneurship in design education and asserts the importance of this exchange regarding how design problems are understood, how solutions will be executed, and how design education develops the next generation of design professionals, regardless of discipline. The main objective is to model a way to use science fiction as case studies to study the ethical implications of

design in a course or courses within curricula. The motivation for this was an acknowledgement that the students, during their undergraduate studies mature as humans, consumers and develop as designers, who grew up with the knowledge that the world today faces unprecedented social and environmental challenges. According to EU research, over 80% of all product-related environmental impacts can be influenced during the design phase. Are design programs preparing students to be responsible designers?

Designers are trained to solve problems and make people's lives better. Does design education adequately explore the range of problems people face and allow students to consider what 'better' actually is? Matt Manos explains, "A social entrepreneur is a designer of business whose intentions are not in capital gain, but instead in the advancement of the greater good of society." The formula is: business + design + ethics (greater good) = social enterprise. Muhammad Yunus, the Bangladeshi economist, microfinancing pioneer and founder of the grassroots Grameen Bank, was quoted in *The Guardian* saying, "We are all entrepreneurs." He believes in social enterprises, which adopts entrepreneurial market-based approaches to create social and environmental impact. Should entrepreneurship be an integral part of design curricula?

The authors seek to answer this overarching question: are designers better prepared after graduation when ethics and entrepreneurship are an integral part of design curricula? How can the context and concepts of design fiction allow students space to conceptualize, explore, and critique design ideas through an ethical lens?

1.1 RATIONALE FOR TEACHING ETHICS AND ENTREPRENUERSHIP SPECIFIC TO DESIGN
Design programs and students are recognized for their creative thinking and skill-sets. Universities have come to understand that the teaching of entrepreneurship is critical to giving students the tools needed to take concepts to market and to compete and perform in today's business environment. However, such courses stand-alone apart from a student's design degree. While the processes of design and entrepreneurial mindset work hand and hand to create novel solutions to problems, these innovations are often assessed based on their marketable value proposition rather than the appropriateness of the design from a sustainable and ethical lens.

2. DESIGN FICTION

Design fiction as an approach to speculative design, affords designer an opportunity to create and solve in an imagined world separate from the realities of the present day. Design fictions allow the designer to not only propose speculative design ideas but also gives license to the designer to imagine scenarios in which the design idea exists, will be made, and used. These imagined scenarios establish a frame of reference or a set of constraints against which to test the design concept against. These hypothetical cultures, economic conditions, environmental conditions, power structures, technologies, lived experiences, and values establish the criteria for success. Design Fictions also push designers to explore far beyond present day technological constraints and encourages the question "what if?" leading to wildly imaginative and novel solutions to both imagined and real problems.

2.1 SPECULATIVE DESIGN PROJECT OVERVIEW
In an interdisciplinary Product Design course at the authors' University, a project entitled "Designs for Different Futures" (Fig.1) was introduced to third year students to provide a 7-week experience where

students navigated various future frames. Interdisciplinary student teams were to understand speculative design, design fiction, and ultimately developed their own concepts in response to given categories from the exhibition *Designs for Different Futures*. Their final concept could take the form of an installation, product, service, system, or experience that either provokes, interrogates, explores, problem-solves a social or environmental issue.

The project sequence included a number of research and analysis activities beginning with a tour and in-depth study of the speculative design works in the exhibition, analysis and research exercises, a concept development cycle, and a final product and video.

Figure 1. *"Designs for Different Futures" Project Overview*

2.2 STUDENT WORK: DESIGN FICTION CASE STUDIES

Students conducted case studies of speculative design concepts and their real-world analogs (Fig. 2). The objective of the case study is to understand the context of design and the interpret the design intent of the speculative work while drawing comparisons to design intent and impact of the real-world products.

Students then connect those themes to science fiction worlds depicted through books, stories, movies, or shows. The stories and fictious worlds in which the concepts reside expose complexities, value systems, histories, causes, and effects that either drive the need for a concept, are based on that concept, and/or illustrate the consequences of that concept. This exercise inspires a format for storytelling that the students may use in designing and situating products their own design fictions.
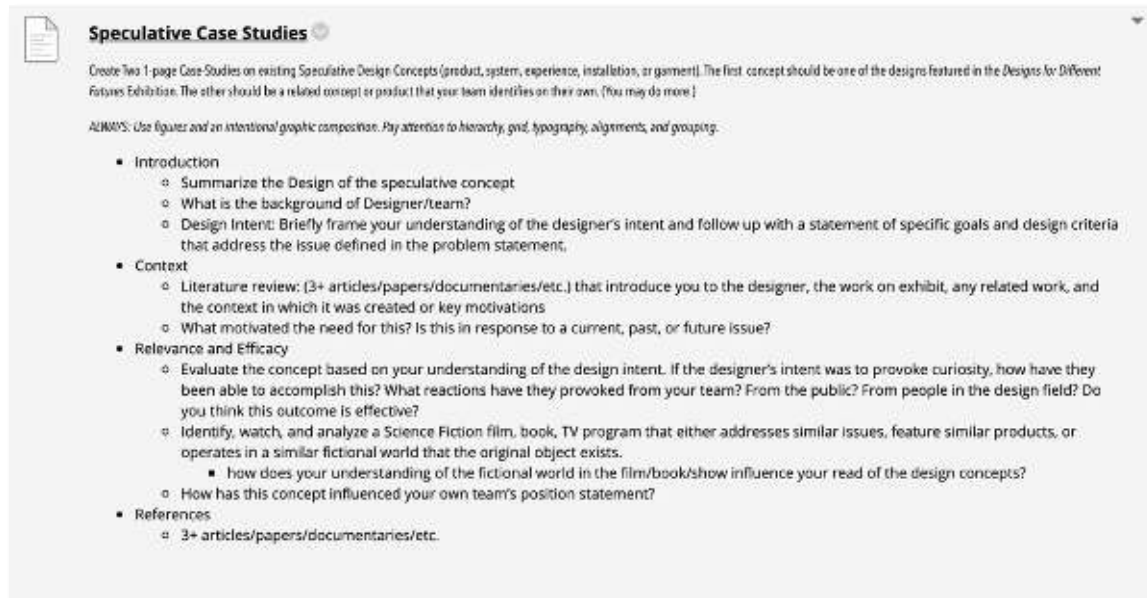
Figure 2. Case Study Assignment Outline

In the example below (Fig 3), students were inspired by the intent of *Raising Robotic Natives* by Philip Schmitt. The piece was intended to provoke discourse around the nature of robots, jobs, and caretaking. The team connected this to AI role in creative jobs. In looking for real world examples of automation+creativity the team found the *Short Story Dispenser* by Short Edition. This kiosk robot prints out stories of desired read lengths at the push of button. The Science Fiction example referenced in the third case study was the trailer for the AI thriller Morgan. The trailer was created by IBM's AI tool Watson. These case studies went on to inspire a speculative machine learning design bot that creates optimized products with a quick retinal scan of the user.

Figure 3a. Speculative Case Study, "Raising Robotic Natives by Philip Schmitt"
Figure 3b. Product Case Study, "Short Story Dispenser"
Figure 3c. Science Fiction Case Study, "Morgan"

In the next example (Fig. 4), students examined the power structures of video surveillance through Forensic Architecture's video piece *Killing in Umm Al-Hiran* which uses reenactment, 3D modeling and photogrammetry to recreate an incident between Israeli police and a Palestinian villager. The forensic techniques used to create the video sheds light on the truth of the events. The student team looked at the Chinese Social Credit System which uses physical and digital surveillance to score citizens and create a culture of compliance and accountability. These case studies became impetus for the creation of a short movie situated in a world that has a global social network called *The Oracle* powered by AI named Delphi who the user accesses through a smart contact and earpiece. Delphi guides users in everyday tasks, financial guidance, as well as major life decisions.

Figure 4a. Speculative Case Study, "Killing in Umm Al-Hiran"
Figure 4b. Product Case Study, China's Social Credit System
Figure 4c. "The Oracle," Project by University Design Students from Product Design, Graphic Design, and International Business.

3. GOING BEYOND SPECULATION: THE NEED FOR EXCHANGE

Throughout the speculative design project described above, the students reflected on ways design and technology intersects with issues of surveillance, privacy, autonomy, power, race, and the environment. What role might the intentional study of ethics play in guiding these reflections and discussion? By looking at design fiction and speculative design through an ethical framework could designers better understand the ways their concepts might have real-world and present-day implications to social, political, and environmental problems? Does situating concepts in fictious contexts with imposed fictitious dilemmas allow for critique of ideas?

Going further, might an ethical analysis and real-world market validation, encourage students to ask if the designs, technologies, systems should exist at all? If the product should or shouldn't exist in this imagined world, how might this same critique extend to design implications in the real world? This conversation requires an introduction to an understanding of ethical implications of design, how that intersects with design decision-making and the economic viability where business is seen as a force for good in the world.

4. ETHICS FOR DESIGNER

Ethics provides a set of standards for behavior that helps guide decision-making. In a sense, ethics is all about making choices, and about providing reasons why these choices were made. Ethics, as a field of study, has a lot of knowledge to offer. However, it can be overwhelming for a design educator. The authors aim is to make the integration of ethics into design curricula assessible and found an existing tool which introduces the most commonly known theories of normative ethics (virtue, duty and consequentialism), the study of ethical action. "There are at least two possibilities of integrating ethics in design curriculum: (1) Recognition of ethical dilemmas through informed discourse and (2) intuitive understanding of these dilemmas through reflective practice, or according to Aristotle, 'developing one's moral and intellectual virtues. The former is discussing moral challenges by identifying, analyzing and assessing ethical problems connected with products and services. The latter is applying ethics in design cases and getting an intuitive understanding of right and wrong" (Keitsch and Ornas, 2016). The following tool will be used and was adapted from a resource found during the literature review.

DESIGN GOAL

I WANT TO…. (THE INTENTION)

BY DOING …. (THE DESIGN)

IN ORDER TO…. (THE EFFECT)

ASSESS YOUR DESIGN GOAL

VIRTUE ETHICS

Deals with the rightness or wrongness of individual actions; it provides guidance as to the sort of characteristics and behaviors a good person will seek to achieve."

Is your design morally/ethically right? Why (not)? How could you change that?

DEONTOLOGY (DUTY-ETHICS)

Duty-based ethics teaches that some acts are right or wrong because of the sorts of things they are, and people have a duty to act accordingly, regardless of the good or bad consequences that may be produced."

Is your design morally/ethically right? Why (not)? How could you change that?

CONSEQUENTIALISM

Right or wrong depend on the consequences of an act, and that the more good consequences are produced, the better the act.

Is your design morally/ethically right? Why (not)? How could you change that?

BRAINSTORM FOR IMPROVEMENT

Could your design stimulate virtuous behavior?

What would the world be like is everyone used your design?

How could your design cause the greatest impact for the greatest number?

ADAPTED FROM TOOLS FOR ETHICAL DESIGNERS

Figure 1. Design Ethics Canvas

4. ENTREPRENUERSHIP FOR DESIGNERS

In contrast to Design Fiction, the value of Entrepreneurship is the emphasis on real-world market validation and the sustainability of ideas as viable business endeavors. Designers and design students are often challenged to create novel human-centered solutions that can be tested and validated by users, experts, and prototypes. While some may argue that there is license to explore beyond real-world constraints in both entrepreneurship and design more broadly, the emphasis on real-world validation and testing pushes students away from speculative and conceptual design ideas which are often clouded in ambiguity, leaving students struggling to explain them and educators without a frame of reference for constructive critique.

Entrepreneurship is an act of being an entrepreneur, or "the owner or manager of a business enterprise who, by risk and initiative, attempts to make profits" (Dictionary.com). Entrepreneurs act as managers and oversee the launch and growth of an enterprise. In the 1930s, economist Joseph Schumpeter shaped our current understanding of entrepreneurship. According to Schumpeter, an entrepreneur is a person who is willing and able to convert a new idea or invention into a successful innovation. Usage of the term "entrepreneurship", in the 2000s, expanded to include how and why some individuals identify opportunities, evaluate them as viable, use these opportunities to develop new products or services, launch new firms or industries, and create wealth. In the 2000s there has been a further extension of entrepreneurship from its origin in for-profit businesses to include social entrepreneurship, in which business goals are aligned with social and environmental goals. The landscape of American corporations is changing. As the 21st century unfolds, there has been an increased emphasis on other values and measures for a success of a business, particularly social and environmental concerns. The trend for change has led to the explosive growth of B Corporations, which dates back to 2007. "Certified B

Corporations are businesses that meet the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose."

The qualitative evidence by researchers Suntae Kim and Todd Schifeling, revealed that certifying firms believed "the major crises of our time are a result of the way we conduct business," and they became a B Corporation to "join the movement of creating a new economy with a new set of rules" and "redefine the way people perceive success in the business world" (hbr.com).
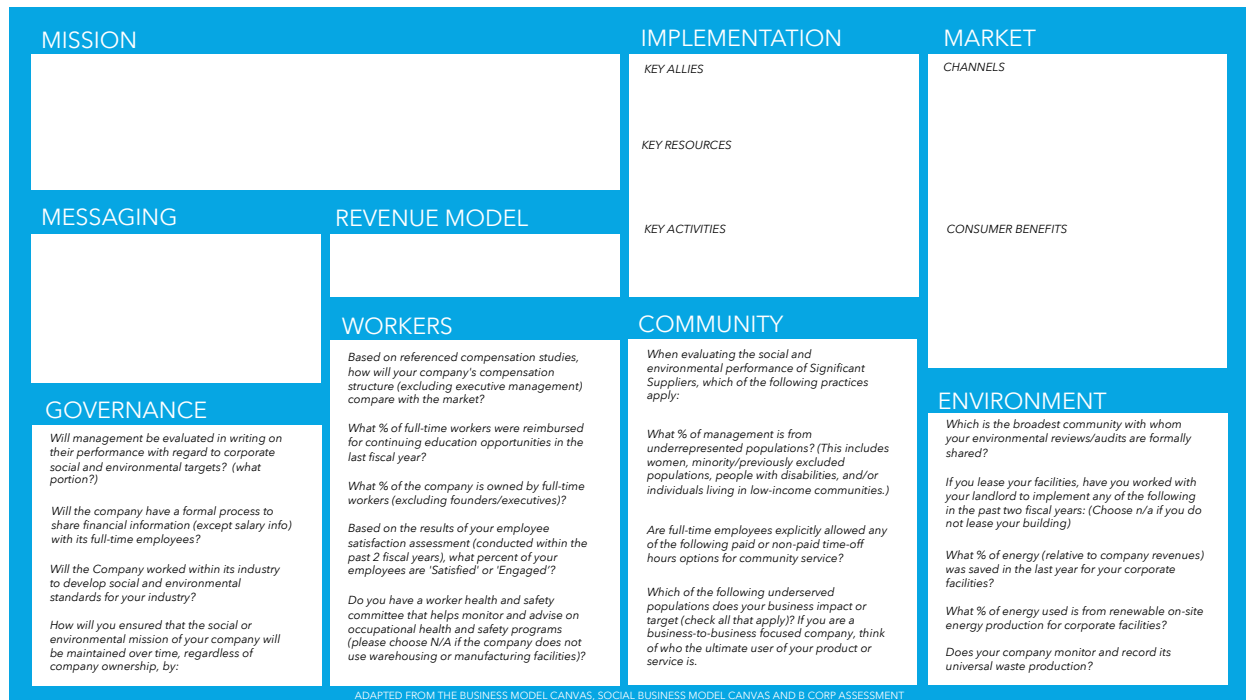

Figure 2. Ethical Entrepreneurship Canvas

5. CONCLUSION AND OUTLOOK

In the field of Design education, we have a limited amount of class time to pack in lessons and concepts that challenge world-views while also teaching skill development. By creating projects grounded in the exchange ideas, methods, and best practices stemming from design fiction, ethics, and social entrepreneurship, might we be able to instill in design students that success is incumbent upon the understanding of the immediate and longstanding consequences of design decisions? Entrepreneurial focused designers trained in ethical decision-making as part of their design process may hold the key toward solving the world's most pressing issues from climate change, health disparities, to social injustices.

Moving forward the authors seek to evolve the project entitled "Designs for Different Futures" to include ethics and entrepreneurship using the analysis tools above and will conduct qualitative studies to be able to understand the design students perspectives on ethics prior to and after the course and into their early careers. The goal is to evaluate how this approach might help to prepare a new generation of transformative designers.

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