Design: A Path to Agency
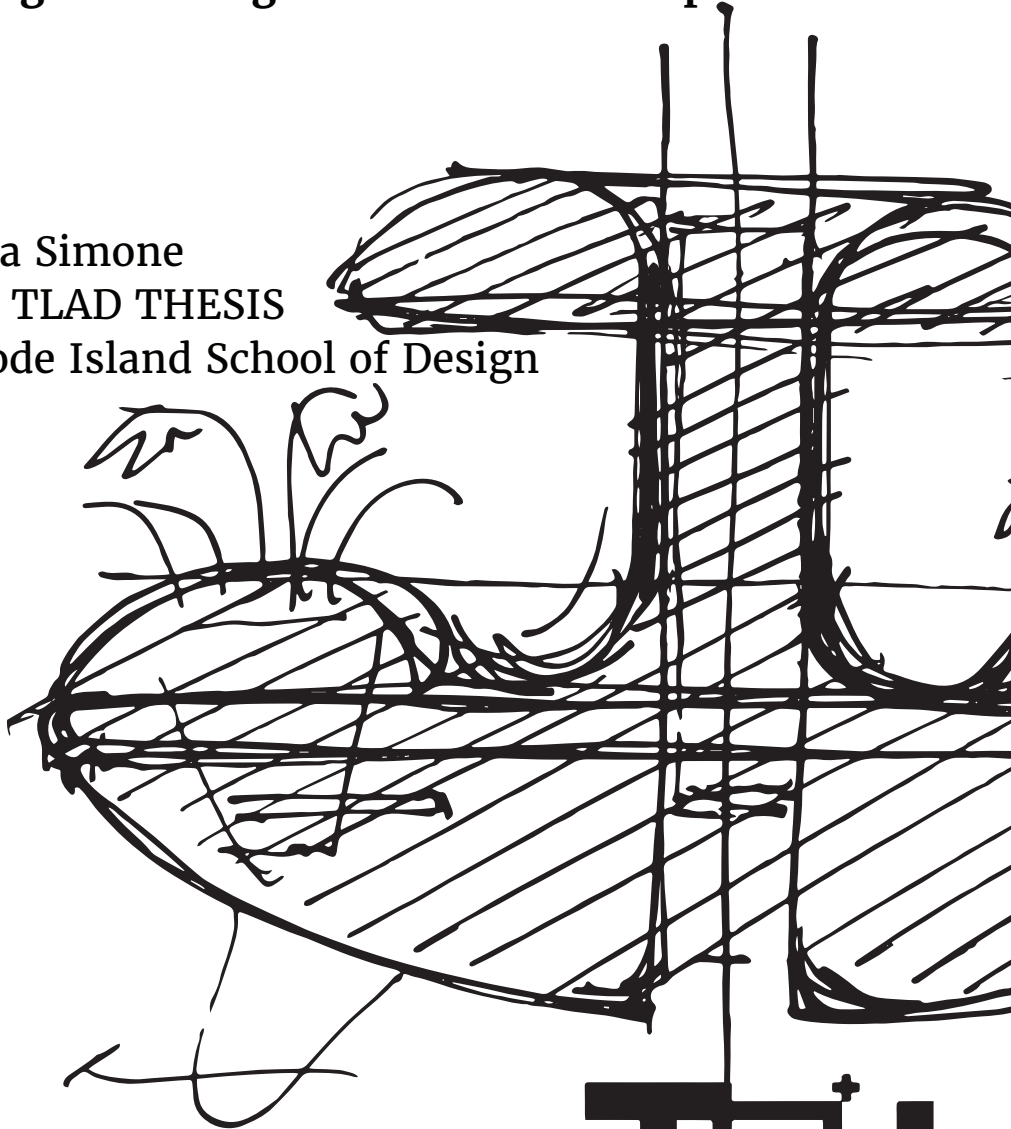## Design Thinking: An Educational Imperative

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Design: A Path to Agency
Design thinking: An Educational Imperative

This thesis project is dedicated to everyone who helped me along the way. Shout out to my Grandma, my Mom, and my Dad, as well as Funny my heterochromatic weenie dog, and my brother Daniel and sister Sofia.

Shoutout to Design and Architecture Senior High,

... and of course RISD, and all of the friends I've made along the way.

Design: A Path to Agency
Design thinking: An Educational Imperative

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Abstract

Design(ing) and Design Thinking are valuable frameworks that should be used to drive agency: This thesis explores what design and design thinking are, and builds a case for incorporating design into art education.

Design isn't a very mainstream subject of study in public schools. Design offers a unique body of knowledge that is highly relevant to the inner-workings of our world: knowledge imperative to teach if we want to succeed in solving wicked problems like global warming and mitigating global injustices. Studying design allows students to connect academic learning to the world outside the ivy, bridging the gap between the natural world and what is considered human intelligence, and finding self-actualization. Design thinking trains students to think critically, work together, and, most importantly, to ACT, instilling a sense of agency within. Best of all, design and design thinking lend themselves to be neatly applied through art education. Thus forms my thesis that design education is the future and should be applied to art education curricula.

Going into graduate school, I intended to study teaching to become a better educator, to become a better designer, and to become a better communicator. So a large part of my thesis is focused on making sense of what my approach design is and how to communicate that. Building on my various experiences learning about design, I can comment as to what works well and what doesn't. This will form the teaching basis of my document. The greatest effect of learning about design and how things are made is actually having a structured and methodical approach to creating things. This understanding is extremely important when forming an outlook on the world, as it changes everything entirely! Understanding where materials come from (where they end up) and the true costs of labor are imperative to being successful in the mission to reverse wicked problems like global warming and mitigating inequality. These ideas are hardly taught in school and are effectively conveyed through design education. Thus forms my thesis that design education can drive agency in students and should be applied to art education.

"The whole is greater than the sum of its parts"

– *Aristotle*

Preface

Growing up with Design

I was born into a world where design was a way of life– to my family, design was the reason to build a life. I saw that design brought meaning to one's life. Both of my parents were self starters with unwavering motivation to continue to pursue art and design: My mother is an artist and my father a noted architect. Their design perspective and working ethos were determining factors in my pursuit of design as a career. As a youth, I witnessed their unceasing dedication and also what it meant to flourish in a home where art was displayed everywhere. These objects were beacons of emotions, they held stories. Growing up in a home to an artist and an architect, I was bombarded with art and design from an early age. Form follows function: My parents couldn't stress the benefits of art and design enough. Whenever I would see them, it would oftentimes be either in front of a canvas or a construction site. In fact, some of my fondest memories are of my father and I going to the projects he is working on. It is here that I truly fell in love with design, because somewhere in the middle of art and architecture lies a sliver that we call product design. It is because of my upbringing that I have a passion for products.

My family moved around a lot. Almost every other year we would switch our home, and part of my life was rural. Early on, I learned that objects were things that I could cherish and keep safe with me. They were the earliest little bits of stability I could find. Objects are very indicative of their owners. Suddenly, I found myself connecting thoughts and memories with these objects. Certain objects reminded me of the past and made me nostalgic, others made me dream of a better tomorrow. I realized that we have a relationship to objects outside of the surface; they can speak to you, they can remind you of other things. It is here that I realized that I could have an impact on somebody's life, through an object.

Suddenly, the world became a playground in which I would explore and test theories: What were the qualities of objects that I liked? What were the qualities of objects that I didn't like? What about somebody else? I would constantly analyze the way objects and things affect us, why some things made us feel nice, while others didn't, and why certain objects were deemed as more expensive than others.

Growing up in Ukraine give me a unique perspective on products. Ukraine is a pretty grim place, between the oppressive soviet-style architecture and the politics of the land, and the cold landscape, life can be harsh sometimes. People in Ukraine think differently. There is more emphasis on the value of things dear to your humanity. Things like freedom from oppression. In Ukraine, we treat objects differently, we cherish them because they have to. Oftentimes, families would proudly display their passed-down heirlooms, like gigantic metallic tea-pots, or lavish persian rugs (which would be hanging on the walls). Objects were things of pride, a testament to humanity's ability to preserve through whatever life throws at them.

Constant moving when I was young forced me to spend a lot of time in unfamiliar places with unfamiliar cultural rules and ideological concepts. In Ukraine, people would cherish objects, this was completely different in America, where people are constantly looking for the next commodity to purchase. Yet, this dichotomy is exactly what I needed. I was able to understand both perspectives and thrive. I was able to compare and contrast both sides, without any bias. I believe that to be an artist, is to be in the past, present and future; to be an artist is to be both, on the outside and on the inside of popular culture.

In the narrow-minded shelter of Ukraine, I didn't really get to see a large variety of ideas: the world-view in Ukraine is extremely narrow. It is when I moved to America that my interests really exploded; in America. I had access to so many more objects than I did in Ukraine. It was also the exposure to different cultures that really allowed me to expand my understanding of how objects and things really affect us.

However, this is also the time in my life where I felt like I was an outsider. When I moved to America, I was the most isolated that I've ever been, and because of this isolation, I needed something that would make my voice heard. Around this time is when I realized that art had the potential to be a tool for communication. While language and words are different, stories and ideas are universal. A good idea a thousand years ago is still a good idea today. The breakthrough in my personal development happened when I realized that I could combine art, and storytelling to design. Suddenly design became more than just product design for me. It became a way for me to communicate stories in a medium that I was most familiar with, and use the material nature of the objects I was creating to evoke emotional reaction to create a change within the user of the object.

A scientific approach to design allowed me to methodically test theories and collect data about the world around me. Through design, I explored the natural world: My voice was heard, finally. Design was a way for me to develop and grow, as an individual. Design would help shape my views, values, and everything else that has to do with the world. I believe that we, as humans, have a fundamental desire to create. I needed to have a channel of output. I was lucky enough to attend an arts-based highschool: Design and Architecture Senior High. At DASH, I was regularly pushed to complete various design and art projects. Through an intelligent interweaving of STEM and art-based curriculum, I was able to connect my personal interests with academic research. By plugging design into this pillar of need, I was able to satisfy a craving from deep within: This substrate was perfect for intellectual exploration and growth. I would take concepts from math class and apply them, next period, to my design projects. Each pillar of knowledge would interact with others: Science class fueled my design projects, literature fueled art class. This beautiful system is still one that I use today, this system is still how I conduct my arts-based research. This synergy is one of the greatest impacts of art education, and it could be further strengthened by design.

At the Rhode Island School of Design, my approach to art making was further examined and improved. RISD expanded my philosophical knowledge. The style of teaching at RISD was very self-guided. I do not think I would be successful at RISD if I wasn't self-motivated: Many of the classes I took hinged on my own personal interests. This worked out well for me – I was able to focus on areas of research that interested me the most, and find intersections between art, design, and academia. Researching things that interest me is a crucial element as it allows me to find motivation on a whim. I base my own pedagogy on this, channeling the inner passion within the student.

My work builds on our human connection to the natural world, and forces the audience to question their relationship with objects and nature. There is a big divide between the way things are made and the way we perceive them. When we see a piece of meat in the grocery store, we don't really think about the fact that it came from an animal, or that somebody had to process it, package it, sell it, ship it, store and prepare it. We simply see a piece of meat. Through careful and thoughtful object making and collecting, we can challenge our preconceived notions about the world around us, and invent a different reality than the present one.

This kind of approach to design also shows you the darker side of the world. Through my research, I've discovered a lot of negative things that are associated with the world in its current state: Objects have the power to control us, and the potential to destroy our planet. I believe that it is imperative for us, as beings that depend on this planet to survive, to be more mindful of how we are managing the resources that our habitat offers. From this perspective, design becomes one of the most important careers for the future, since designers are responsible for the design of the products that will end up ruining the environment.

I want my own design teaching to be very general and to be able to be applied to many students. I want it to make the student question their own interest in the realm of design. I believe that we as individuals have our own idiosyncratic way of thinking and working, thus, I believe that as a design teacher, I should be able to meet the student where they are at. This style of teaching is one that allowed me to live up to my potential, setting my talents free.

Design, like logic, is a tool that I've used to tangibly improve my life. Design thinking has a unique characteristic of being able to be applied to virtually any situation. Ultimately, I believe this knowledge should be shared, as it is with this tool that we can deal with global crises. It is my hope that I can accelerate our journey to reaching a state of being where we are one with nature, where we live harmoniously with the world. It is difficult to imagine that possibility, there are many pieces to the puzzle. A methodical approach allows you to break down the problems into bite-sized pieces to get a holistic understanding of the system.
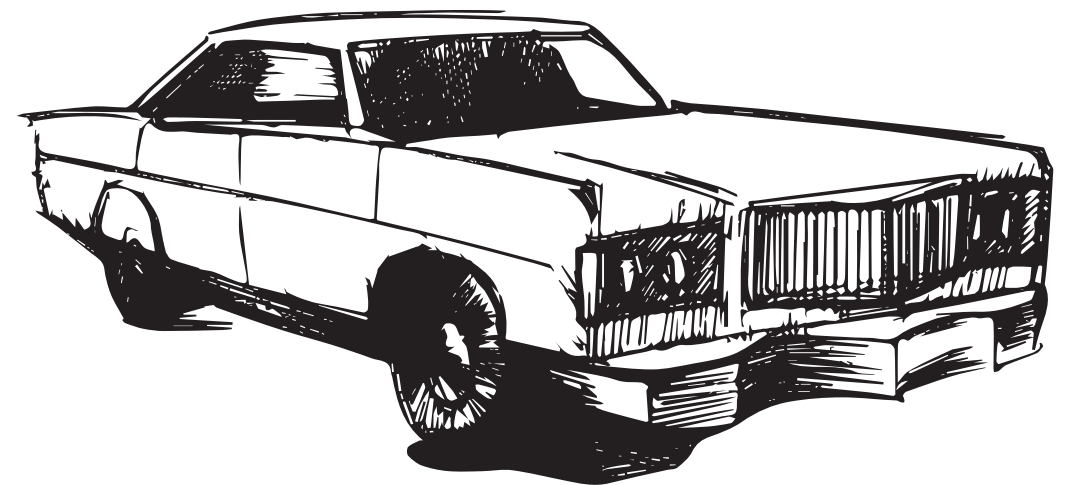
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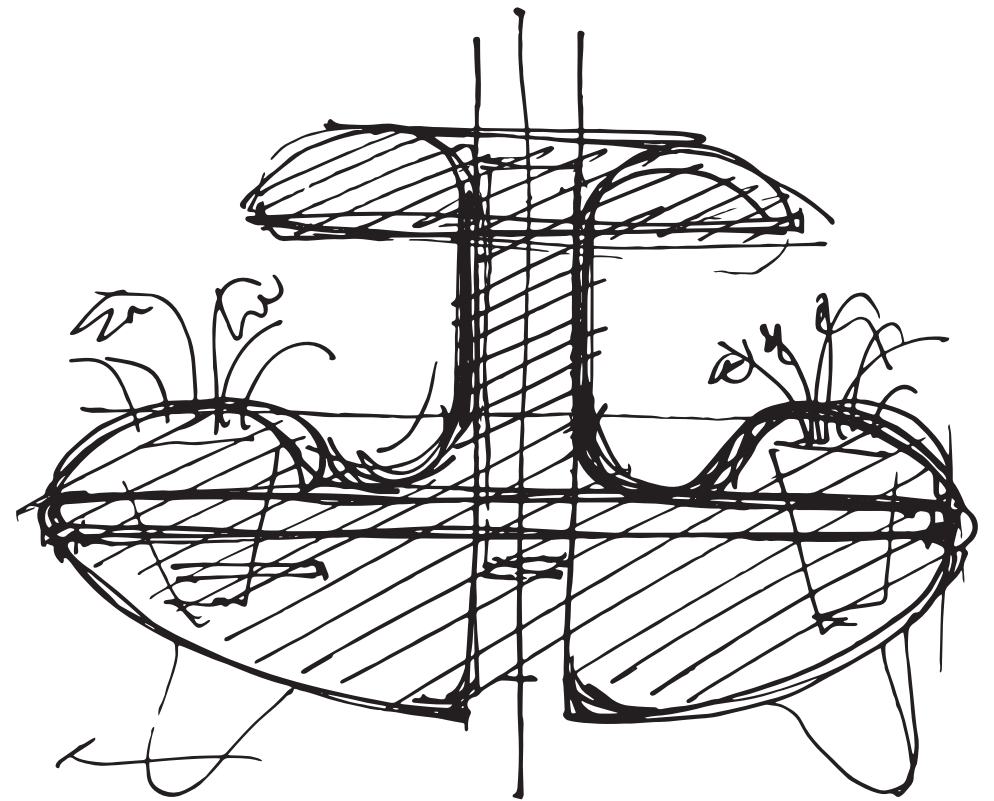
Statement of research

What is Higher Learning? **What is Education?** What is the future of Education?

What is good design, what is bad design? How do we design a better world? How do we design for tomorrow?

How to apply design thinking to art education? How does design thinking apply to pedagogy?

How can we make learning more engaging through design? How do we design a more inclusive curriculum? What is play and how can we incorporate that into pedagogy? How can we design to find intersections between the academic world and the out-of-school world? **How can design be taught effectively?**

How can design education be used to make education more accessible? How can design thinking be applied make the world more accessible?

Methodology

Narrative Ethnography. This thesis draws on my personal experiences learning and practicing design. I begin by telling the story of how I got to where I'm at. My story of growing up in Ukraine, in the home of an architect and an artist, then (in America) design high-school, and finally design college (RISD). **Chapter 2 is based on my thoughts about design and design education in the context of art education in 21st century America.** These highlight the most important aspects of design education and how they impact student development. In other words, this is the juicy part of the thesis. **Chapter 3 contains case studies that I built on in the previous chapter.** These include examples of successful design in the world, my experience as a teacher of design and the inclusion of design in art education. **Finally, chapter 4 consists mostly of interviews with Mike Fink, a professor and a close friend who is an inspiration for my teaching methodology.**

My data consists of student work, interviews, and personal recount of details. Most of the literature that I have read was based on personal accounts of experiences and discussions around that, however, I am still in the process of exploring quantitative methods of collecting data (and am open to suggestions!) Ideally, a study of how design education encourages entrepreneurship throughout a student's whole lifespan!

Scope & Limitations

As a recent graduate, I acknowledge that my design and educational experience is limited, and this can affect the scope of my thesis. However, I believe that my personal experiences with design education and design in practice, as well as my teaching experiences, can still provide valuable insights that can be applied to a high school studio-type course and to the world art education at large. While my curriculum is based on my own experiences as a student, my intention is to create a packaged unit that can be adapted for a variety of audiences.

In my thesis, I will examine key themes and how they apply to various sources, including the ideas of Buckminster Fuller, Paulo Freire, Carma Gorman, and others. One of the main focuses will be the application of design thinking to teaching, where I will explore how the general principles of the design methodology can be utilized in the classroom. I plan to draw from my experience as a teacher and from my experience as a designer at Tellart to inform this part of my thesis.

Finally, I will present my design portfolio that showcases all of my collective experiences. While this physical copy will have limitations due to time and space, I will provide a link to an online version that will be constantly updated. Through this, I hope to demonstrate my growth as a designer and educator and provide a tangible representation of the concepts discussed in my thesis.

Literature review

This literature review explores the intersection of design and education, focusing on the application of design thinking in art education. The review emphasizes the importance of incorporating design thinking into teaching, drawing inspiration from sources such as Buckminster Fuller, Paulo Freire, and others.

Buckminster Fuller, Education Automation, and what to do.

R. Buckminster Fuller's (1962) Education Automation serves as a foundation upon which I will build on: There are many principles that Fuller describes in this book that I agree with and have been speculating about before even learning about Buckminster himself. The core focus of the book is to shift the way we, as humans (businessmen, consumers), designers (scientists, researchers) and teachers (and students), perceive the world around us.

Fuller self-describes as a comprehensive anticipatory design scientist. In modern words, this would mean something like a design thinker or a systems designer. He defined it as human practice that would align men and women to the conscious design of our total environment. In fact, Fuller's main point in Education Automation is:

"*To make the world work for 100% of humanity in the shortest possible time through spontaneous cooperation without ecological offense, or the disadvantage of anyone.*" (Fuller, pg. 100)

This quote goes a long way in describing what Bucky's idea was. He is encouraging us to think about the world as a whole, instead of as little parts. There are many applications of this framework into the real world: countries & borders, capitalistic corporate competition, Darwainian you versus me ideology. Fuller is the one that is responsible for the Dymaxion-projection map, the first map that displayed every country in the world without any distortion. The map could be shifted around to center on a particular country, notably removing any sense of left-right, up-down; in a Dymaxion-projection map, there is no "West" or "East".

"*[Humanities'] multi-million year idea that we live on an infinite plane, and have nothing to do with the fact that we are on a spherical plane that is moving around the sun at 60,000 miles an hour in a universe where there is no up and down what-so-ever.*" (Fuller, pg. 27)

This holistic thinking about the planet at large helps break out of traditional patterns of thought. A target of discussion in Education Automation was about scientists that lose touch with the world around them and devolve into their respective study chambers. These extremely intelligent scientists silo themselves away from everyone else. This negatively impacts not just the scientists and the scientific community, but also literally everybody else. Fuller points out the huge amount of gate-keeping within the scientific community like scientific jargon or extremely strict guidelines for what defines science or even is a legit topic of expiration.

What ends up happening is that these hyper-intelligent scientists do not end up running companies or deciding the course of the world, instead they become in-house scientists, employed by corporations that are run by people who are "less-smart" and thus, have never isolated themselves from the rest of society. These "less-smart" people are actually quite smart, but not academically. These individuals end up excelling in fields like business, due to their social skills and leadership. In essence, the underlying narrative is that we should be letting these scientists pilot planet Earth, instead of letting them be dominated by people with "less intelligence". Granted, there are issues with this thought as well; what defines intelligence (which is why I use quotations), and who gets to say who runs the planet? However, I feel as if this issue has some validity to this day.

Fuller's second point in Education Automation is synergistic thinking. What does synergy mean? Synergy means "the behavior of whole systems that cannot be predicted by the behavior of any parts taken separately." Going from "Micro to Macro", each more inclusive aspect of the universe is predicted by any of its respective subparts. The universe is inherently interconnected: the globe lives in an ecological balance which relies on sunlight to regenerate and proliferate all life on our planet. Bucky encourages us to stop thinking about parts and to start thinking about the whole, synergistically.

Fuller's answer to the question of what a siloed scientist should do is to focus on how their science interacts with the rest of the world. What does it influence, and what forces influence the science? By thinking about the bigger picture, the scientist can learn a whole lot. They will surely learn new things about their field, from the fields related around it, but also about the rest of the world. Perhaps this can lead the scientist to learn about a new direction to take their craft? Or an essential mechanism that can be turned into a lucrative business and save the planet simultaneously? Synergy is the essence of my pedagogical approach.

Paulo Freire, the Banking Model of Education, and moving toward student centered design.

Fuller's ideas of generalist education, or the de-specialization of higher learning institutions is reinforced by Amy Kulper and Sheila Crane's Design Agency the New Heuristics. In this journal article, Kulper and Crane explore shifts within the architectural program at large, but I highlight the shift in regards to creating a more collaborative and responsive learning model, based on modern trends, rather than the traditional banking model of education, first introduced by scholar Paulo Freire.

According to Freire, the banking model is described:

"*The contents, whether values or empirical dimensions of reality, tend in the process of being narrated to become lifeless and petrified. Education is suffering from narration sickness. The teacher talks about reality as if it were motionless, static, compartmentalized, and predictable. Or else he expounds on a topic completely alien to the existential experience of the students. His task is to "fill" the students with the contents of his narration - contents which are detached from reality, disconnected from the totality that engendered them and could give them significance.*" (Freire, 71)

Here Freire highlights what is wrong with the banking model. It creates negative associations with education and leaves the students paralyzed, the opposite of agency. Through this sort of teaching, the students are not actually gaining any knowledge at all, and in fact, are being shot in the foot by the teacher. This is the sort of teaching that I want to avoid at all costs.

"The first heuristic argues for actively reflexive forms of engagement, focused especially on restructuring architectural education to prepare students who will be operating in increasingly flexible, team-based, and extra disciplinary situations. Reflecting on recent curricular changes at the University ofMinnesota, Renée Cheng reveals that by tackling architectural curriculum as a complex design problem, faculty have self-consciously modeled the very skills of collaboration, nimble thinking, and strategic entrepreneur-ialism that they aim to instill in their students. Responding to national debates about the spiraling costs of higher education, the new Master of Science in Research Practices (MS-RP) degree has also catalyzed a more integrated feedback loop between research in the academy and the most pressing concerns of professional practice. Whereas Cheng highlights dynamic connections between the academy and professionals, Nadia M. Anderson positsthe studio as a forum for community engagement, challenging educators and students to actively pursue collaborative design interventions in dialogue with non designers contribution offers a framework for understanding the theoretical foundations of public interest design, while highlighting specific tactics of activism and participation that have informed the Bridge Studio at Iowa State University. Kenny Cupers asserts a more circumspect reading of architecture's social project in his call to shift the focus from design intention and spectacular critique to empirical investigation of consequences, renewed material exploration, and sustained, reflexive experimentation." (Kulpter, pg 3)

In general, as a response to the banking model of learning, it is common for higher learning institutions to turn towards a more agile method of teaching that is focused on training the student's own natural talents and interests, rather than feeding them irrelevant information. This is commonly called "student centered learning" or "student centered design". The conceptual shifts also highlight the studio as a community space, a place where students are free to be themselves and work collaboratively with one another.

This is the intrinsic power of the studio; it is effectively a third space, where students can exist in a heightened and engaged state of learning. Through group discussion and thinking, multi-perspective ideas are developed. This kind of learning is ideal when preparing students for the careers of tomorrow. Studio time prepares students for working in interdisciplinary environments and working collaboratively towards a common goal. It prepares students to listen and to be open to new ideas, and encourages healthy feedback to grow.

"*It is not my aim to reject all the knowledge that I hold as a teacher, but to create a shared classroom space where both the children's knowledge and my knowledge can interact with each other, forming a discourse together. Kincheloe (2008) argues that at its core, education is a political activity that can never be neutral. There are always power hierarchies that exist, but educators can help to diminish the effects of traditional conceptions of teacher power on students. This occurs not through a relinquishing of the teacher's authority but rather through acceptance of the student's own knowledge as a part of the curriculum (Kincheloe, 2008). By providing time and space for my students to exert elements of freedom and choice in the art classroom, an authoritative shift takes place, which rejects my position as an educator who holds all the power, authority, and knowledge*" (Cinquemani, 14)

In this journal article Cinquemani highlights the effect of creating a studio-like environment by allowing students to play with cameras. An emphasis is placed on the difference between good play and bad play, and how schools are limiting their student's learning by their definition of what is considered good play. This article is interesting in many ways, the most interesting though was about how engaging in 'bad' play students are engaging in activities that are similar to what they would be doing outside of school. I can draw many parallels between 'bad' play and designing within the studio, and how it is closer to outside-of-school activities rather than inside-the-school activities.

"The second heuristic foregrounds sociomaterial conditions, emphasizing modes of design agency predicated on adaptation, redistribution, and optimization. Instead of searching for absolute "fixes," small shifts might affect big changes. Contesting the received understanding of scarcity as a universal presumption or as a threat to progress, Jeremy Till finds, in this seemingly infertile terrain, new possibilities for agency. Reframing scarcity as a dynamic, relational construction, Till argues that the problem-solving paradigm of design should be abandoned in favor of productively making sense of contingent, prevailing conditions. Rather than supplies to be managed, resources might be better under- stood as integral threads within broader networks of social and temporal relationships, a conception that likewise informed Pliny Fisk's radical embrace of distributive alternative technologies. Examining Fisk's distinctive brand of advocacy planning, appropriate technologies and systems thinking as it shaped his work in the 1970s and 1980s, Sarah Deyong contends that his capacity to radically subvert and reorganize the socioeconomic field was a direct result of leveraging change at the limits of a system toward new and not entirely predictable ends" (Kulpter, pg 3)

The practice of design is intrinsically difficult because we are designing for an uncertain future. There is no certainty that tomorrow will come, only a reasonable belief that it will. Therefore the traditional banking model of education hardly applies to this context; the information that is relevant today may no longer be relevant tomorrow, design is an elusive field of study that is more similar to the way things work outside of school in the real world, rather than other academic disciplines that have "perfect" institutional teaching models. Thus, design creates a bridge between what is studied within an institution and what is outside of the walls, and prepares students for the real world better than other academic disciplines can.

Design studio and its connection to the outside world.

At Furman University, a small liberal arts school in North Carolina, a new approach to liberal arts education has been underway. This approach focuses on entrepreneurship and the array of skills that come along with it. Entrepreneurship and arts education go hand in hand, and the skills that students learn are applicable to many fields outside of the arts. The Furman program frames education around five core skills: "(1) the capacity to think creatively, strategically, analytically and reflectively, (2) confidence in one's abilities, (3) the ability to collaborate, (4) well developed communication skills and (5) an understanding of the current artistic context." This method of teaching arts is supported by data that shows that most students do not end up pursuing careers as fine artists. The models taught at Furman allow students to excel in non-art fields due to the core principle of entrepreneurship; allowing them to continually find innovation. The synergy of art and entrepreneurship allows students to pave their own path with art, rather than forcing the choice of employment. In other words, the skills received gave students the freedom to pursue their art, take risks, and create innovative careers instead of turning away from art all-together by selecting a ready-made job.

"We amassed no evidence that studying the arts, either as separate disciplines or infused into the academic curriculum, raises grades in academic subjects or improves performance on standardized verbal and mathematics tests." (Hetland, pg 4)

The findings that the authors of Studio Thinking wrote about were very interesting to me. It surprised me that their studies found little to no correlation between arts and other subjects in terms of test scores, however, what this means is that doing art alone doesn't increase your capacity for intelligence. Just like how art can never be created in a vacuum, it is through the process of making art that a student can learn how to think. Thinking like an artist means thinking critically, analyzing the problem as a whole and then diving into parts. By thinking about the whole, much like Fuller suggests, is the driving force in increased test scores.

"*There is in fact a correlation in the United States between how much arts students have studied and the level of success they demonstrate on the SAT: SAT scores increase steadily as students take one, two, and three years of arts courses in high school, and they rise more sharply with four years of arts courses.*" (Hetland, pg 3)

The idea of studio art in school curriculums is powerful because it allows the students to experiment. It allows them to think and explore topics that they wouldn't have thought about otherwise. Studio time allows students to work and learn on their own, away from teacher instruction, but then come back and go over what they learned. The teacher is there to provide them with feedback and suggestions as to where to go next. Critiques are essential as they allow the students to talk to each other and expand their knowledge and perspectives by discovering things they previously overlooked.

"*Holistic art education, as described above, is an approach to teaching and learning—not a technique or set of methods. It is therefore shaped by each individual teacher in light of his or her own interests as well as in response to the needs and interests of one's students. There are, however, certain foundational concepts that must be included if the approach is to be holistic. These include ideas like self-inquiry and self-expression, which are not new in art education, and those those that provide new possibilities for teaching visual arts, such as discussing spiritual awareness, learning empathy for others, promoting a sense of purpose, valuing relationships with all living things, learning responsibility for the well-being of others and the environment, and promoting personal transformation.*" (Campbell, 23)

The idea of holistic art education works perfectly with design education. The best experience I've had in design class usually had to do with my sense of community. The studio becomes a community in itself. Participation in the community encourages being open and honest, and sharing personal experiences to strengthen each other and each other's work. The work is based on personal interests and is therefore strong and applicable to the student's paradigm. The instructor has a deepened connection to the students because of the community, and is able to be more efficient as an educator. Holistic education also encourages students to have agency in the world, to not be afraid to go out of their comfort zone and to do something significant. Design encourages students to be fearless and make a change.

The next source is Working in the Black Box: Meaning-Making and Artmaking by Sydney Walker. In this paper, Walker is conducting an installation in which students are invited to participate. Walker provides little to no instruction as to what the ultimate goal and meaning of the work is. It is through the process of making that the meaning presents itself to the participants.

"*Seeking meaning during the artistic process is standard practice for Skoglund. Rather than beginning the colloquium installation with a predetermined meaning, the artist left meaning-making open. She preferred not to direct meaning by suggesting themes, ideas, or specific situations for the installation.*" (Walker, pg. 34)

In a studio context, students are allowed to explore their unique interests and passion with the guidance of the instructor. The job of the instructor is critical, as it is directly responsible for the success of the project. The instructor can accidentally give too much instruction and lock the students in a hypothetical box, preventing them from exploring new themes and truly uncovering something novel. On the other hand, the instructor can also not give enough context leaving the students confused. It seems like a difficult situation to balance.

"*My intent wasn't really for the group to make my work. My intent was, I guess, to be a little bit more conceptual, quite frankly. The goal here is to understand that no matter how chaotic and seemingly disparate all this stuff is that one simple thing can unify the whole thing. Just by eliminating all the other colors, suddenly the whole thing comes together. So from my point of view to me it's a valid experience.*" (Walker, pg. 33)

Framing is an important aspect of studio practice. Walker uses her unique artistry as the frame for which to base discovery on. This had mixed results as the students were generally confused as to what they were doing during the process, but most of this confusion was mitigated by discussion and (presumably) critique at the end of the project.

"*Skoglund's goal for the participants to discover and create their own meaning reflects many art educators' instructional goals for studio activity. In spite of this intention, classroom studio activities are often more successful in reproducing the art teacher's ideas or the artist's works under study rather than the students' concept.*" (Walker, pg. 37)

This does sound like a familiar scenario; a very passionate instructor tried to inspire the students with the same material that worked for them, however, we know too well that nobody is really the same. It seems like Walker's studio was left too open ended, as students followed her style and some even reproduced her work. This is where product design shines!

Design provides a solid foundation on which students can frame their exploration without limiting their explorations. This unadulterated exploration is what ultimately leads to discovery. Through setting a clear goal and intentions for the project, one is able to work towards something concrete, using the scientific method to test hypotheses. This sounds kind of similar to scientific research, well, I would say that this is scientific research.

If you were to ask creatives what is the difference between art and design, a lot of them would say that art you create for yourself and design you create for others. In a sense, art is much more subjective than design since it touches on more ephemeral parts of life. Design, however, is focused on tangible things: is the shoe comfortable? Can both a tall and short person reach this button? In the same way that Walker uses color to unite objects, objectivity is what unites all the designers in the studio. Design can be tangibly rated based on how successful it is in predetermined metrics.

"*I was presenting a very different approach to interdisciplinarity, and not only to accounting, marketing, corporate finance, and human resources. Rather, I was suggesting that learning to think through the humanities prepares students to become visionary critical thinkers, ready to take on the challenges of twenty-first-century conscious capitalism, to thrive in an unknown workscape, and to change fact-based learning methods into larger concepts of seeking consilience and interrelating seemingly unrelated disciplines.*" (Frost, pg. 195)

Design thinking allows students to become visionary thinkers by teaching them critical thinking skills that allow them to become sponges of information and know what to do with it. Design is a field of study that synergizes with other disciplines.

Design prepares students to take on the challenges of 21st-century conscious capitalism, as mentioned by the author. Design teaches students how to thrive in an unknown workscape, and how to think through a multitude of seemingly unrelated disciplines. These are the skills that are required to build the future. These are the skills that are required to deal with our problems of today. I am not anti-capitalist, but I do recognize the issues. It is difficult to say whether or not the future will function similarly to how it functions now. But the skills that design brings are useful regardless.
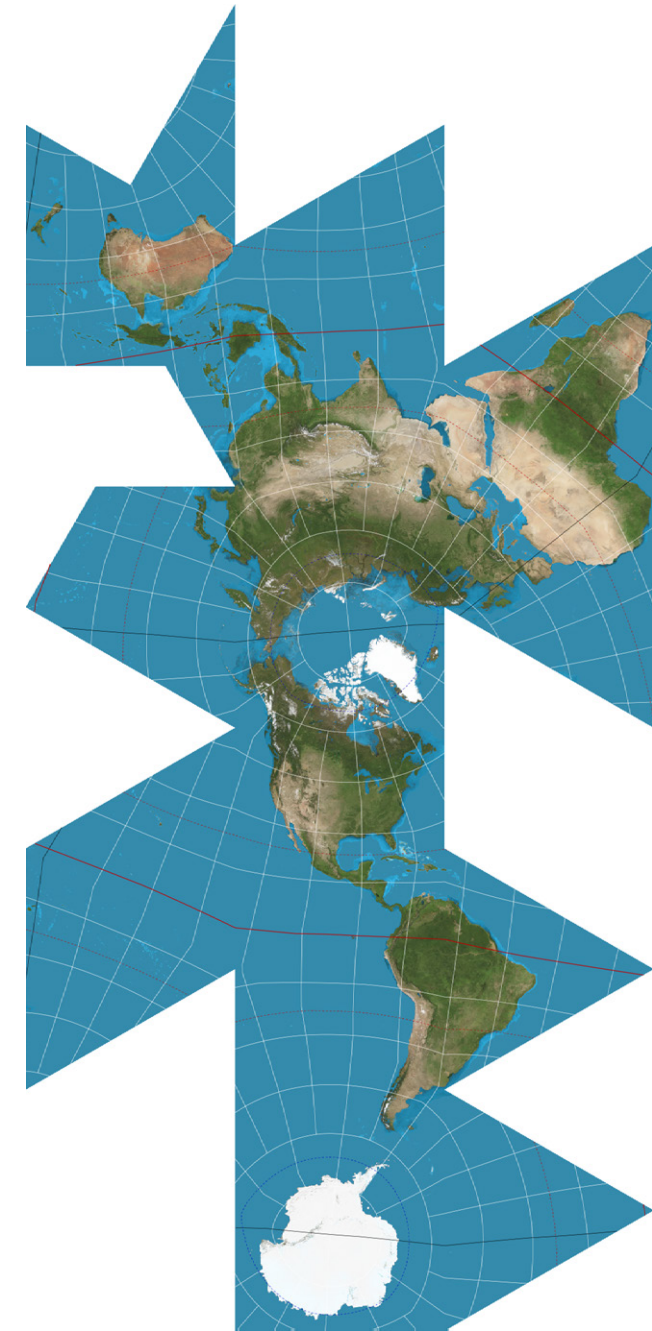
Dymaxion or Fuller map, invented by Buckminster Fuller.

Chapter 2

teeth three
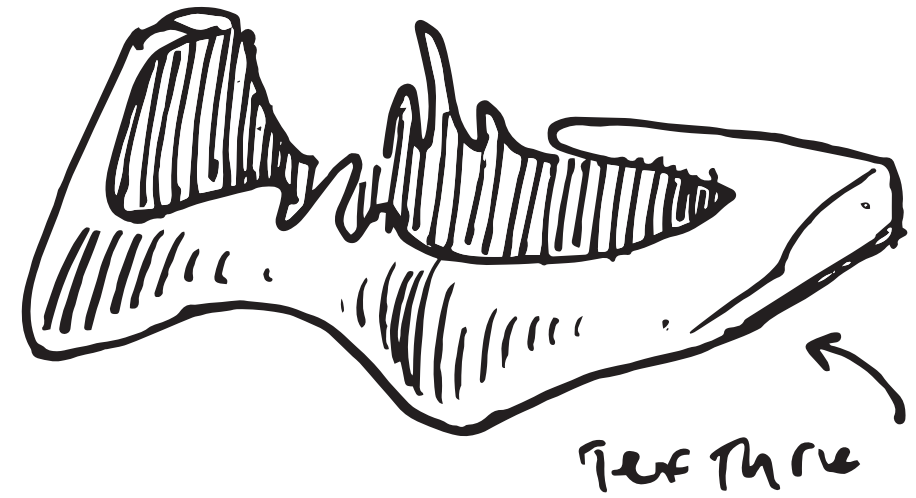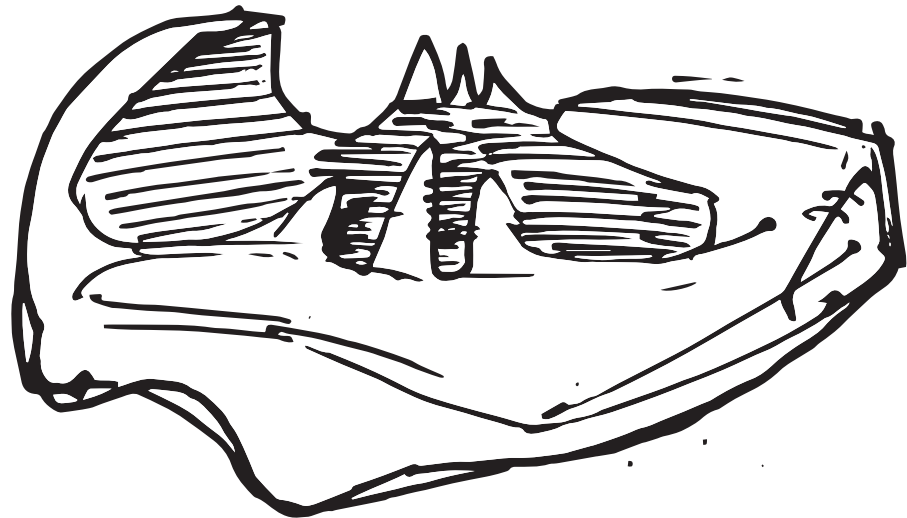
Overview

In essence, art education is like a bucket of legos, a set of critical skills with which we are free to imagine a world we want, limited only by our ideas; Design provides accessibility for collaboration with other disciplines to actually build that world.

Design is a fundamental aspect of art education that involves the creation of visual compositions, objects, or ways of accomplishing tasks that are not only pleasing to the eye but also serve a functional purpose. Design thinking involves problem-solving and critical thinking skills, and it requires a unique set of abilities that help artists to create effective and efficient designs. However, despite its importance, design is often overlooked in traditional art education curricula, which tend to focus more on traditional art techniques and processes.

Art classes are often seen as an opportunity for students to explore themes and ideas that they would not be able to explore in other classes. However, many students see art class as a chance to have fun and escape from their daily lives. Some students may even use the class as an opportunity to chat or text with their friends. However, for others, art class is a chance to engage with the material with an unquenchable thirst, feverishly working until the very last minute and taking pieces home. For these students, studying design in art education can provide a unique opportunity to combine their love of art with practical skills that are relevant in many industries.

Design interventions offer critical lessons and knowledge that students can utilize outside of the classroom. By combining multi-disciplinary knowledge with the student's personal interests, design thinking can deepen engagement and learning. This approach can provide students with a well-rounded education that not only emphasizes creativity and self-expression but also equips them with practical skills that are highly relevant in today's world. Whether it's designing a website or creating a marketing campaign, the skills that students learn in design can be applied in many industries, making it a highly valuable subject to study in art education.

Terminologies

Design and Design Thinking

Key terms: **Art Education, Design Education, Design Thinking, the Design Process, Product Design.**
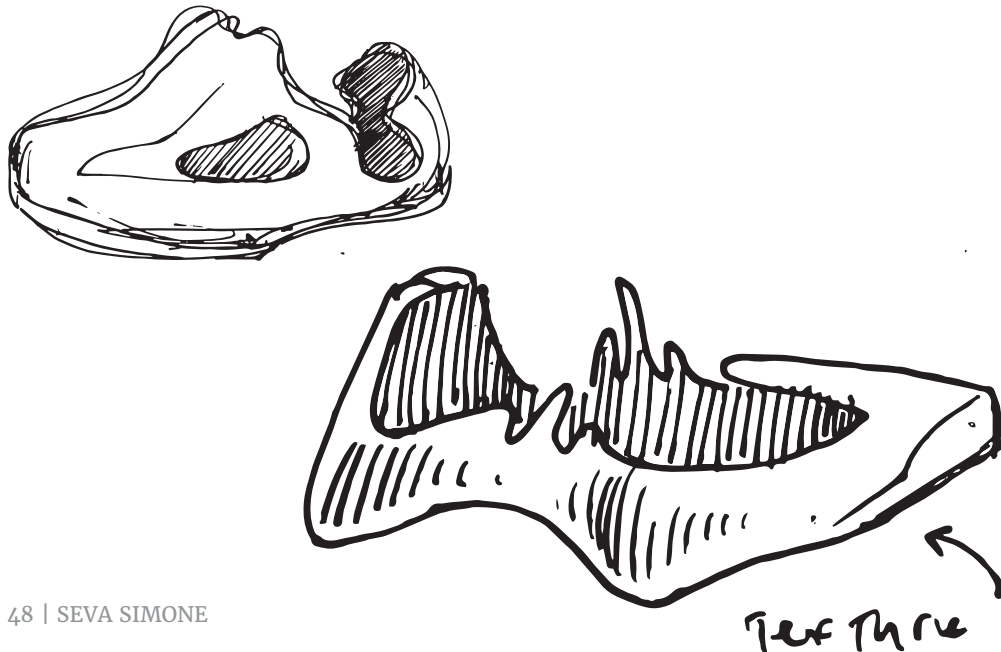
Agency the capacity for taking action, and knowing what to do.

Design an arrangement of key decisions that results in the particular look, feel, and function of an object.

Design(ing) a valuable tool and process that can be utilized to deepen engagement and drive agency inside and outside the classroom. This document highlights tangible approaches to teaching design effectively and builds a case for incorporating design education into art class curricula.

Design Thinking a systematic approach to design, a methodology with which one can systematically analyze the world from the lens of an industrial designer. Mapping with origins in UI/UX design, that can be used to standardize innovation and contextualize the design behind a product, with applications beyond products.

Product Design the study of the design of products that we use on a daily basis in the 21st century.

Pedagogy an approach to teaching or the method of teaching.

Play a low-stakes approach to learning where there is no end deliverable except having fun.

Industrial Design the study of products and what goes into manufacturing the products industrially.

Universal Design design of products, environments, and systems at large that is accessible, inclusive, and useful to all people, regardless of age, size, ability/disability.

The Business of Emotions (Business and emotions)

Comfort with ambiguity

In today's day and age, a complex ever-changing world, the challenges presented by ambiguity and the unknown have become more pertinent than ever. While traditional art classes focus on building an individual's creative skills and fostering emotions, design-based classes teach students to deal with the uncertainty and the ambiguity of the world outside the classroom. Design-based assignments provide a unique blend of art, engineering, science, and business, which requires multiple iterations to create a "perfect" product. Design classes also teach essential life skills like perseverance, decision making, and problem-solving, which are vital in today's world of wicked problems. In contrast, traditional art classes tend to repeat the same assignments, leading to boredom and disengagement among students.

Paulo Freire, in his book Pedagogy of the Oppressed, emphasizes the importance of teaching students to think critically and problem-solve rather than merely rote learning.

He argues that the traditional banking system of education, where students are passive receptors of knowledge, is ineffective and should be replaced with a system where teachers and students engage in a dialogue to develop critical thinking skills. Design education follows this principle of critical thinking by encouraging students to find answers for themselves through a hands-on approach.

Ambiguity is an area of anxiety that is the biggest challenge for art and design education, and is a constant in art and design methods, in general. Artists and designers alike learn very quickly that not knowing is something they will have to deal with all the time. When presented with a project, there are a couple broad requirements: One requirement is a skill or a way of doing something, like painting or drawing, or sketching and making in the design context. The other is the How/What? How are you going to make that, or what exactly is it that you are going to be painting? Hard skills aside, it is difficult to teach students effective methods for dealing with ambiguity. Learning how to cope is a very personal journey, which is oftentimes very slow and can result with answers coming forth after the completion of the course. However, design offers a tangible approach to building resistance to the anxiety of living in the unknown. In other words, design education can provide students with a methodology or a framework for finding answers and generating progress.

Carma Gorman, in Industrial Design Reader, highlights the importance of ambiguity in design, in general. She argues that ambiguity is a crucial aspect of design, and designers learn to deal with it by developing a methodology or framework for finding answers.

Similarly, Buckminster Fuller, in Education Automation, stresses the need for education to adapt to the demands of the world outside the classroom. He advocates for an educational system that teaches students the skills necessary to thrive in the changing job market, emphasizing the importance of problem-solving, decision-making, and innovation. Design-based education aligns with this approach by focusing on skills and problem-solving methodologies that students can apply to the real world.

Design can teach us skills that are useful in the 21st century to acquire success.

Design based assignments have a unique flavor to them. There is something special about the blend of engineering, science, business, and art that is required from a project. For one, there are many avenues to go down within a design project. Depending on what kind of project the students want to complete or how much time the class has, there is a certain amount of flexibility permitted when it comes to the deliverables, or the final product. A good design project would probably take a bit of time to complete; James Dyson created over 5,000 iterations before finally creating a "perfect" vacuum cleaner. Many tasks with a broad range of scope are required to be completed, usually in succession. With that, comes management. You have to be able to manage your project well to succeed. You must plan out each phase, and know when to slow down or move on. Then comes communication. Design projects could be completed individually or you could form a student team. Students can be left to establish ranks and order, and guide themselves. Additionally, finding and interviewing potential customers, and successfully understanding their needs. I hardly know of any fine arts assignments that have the flexibility to be so broad.

Communication is a somewhat understated part of design, but is the most important one. This is because, fundamentally, design choices aren't based on the designer- they are based on the consumer. When faced with a question that the designer does not know the answer to, the best solution is to sometimes pass that question on to the end-user of the product. The designer does not have to be the one with all the answers. Designers act much more like facilitators, than all-knowing gods. This builds confidence in the design because it is based on tangible data, collected from the source.

Another benefit of combining design thinking with art education is the development of collaboration skills. In many design projects, teamwork is essential, and students learn how to communicate and work effectively with others to achieve a common goal. This collaborative approach not only promotes stronger social skills but also encourages students to consider multiple perspectives and work towards more comprehensive and innovative solutions.

This is what I would call the business of emotion. Where typical art classes call on students to create with their emotion, design projects deal with the business of managing emotions: A project will challenge you, multiple iterations are typically required because there will be lots of failure- learning how to deal with these failures is an important life lesson. Learning how to make decisions based on data rather than intuition is another important life lesson. Learning how to live in the unknown is critical in today's day of hyper communication and wicked problems.

The DOW, also known as "the way," is a concept that can be applied to various aspects of life, including design, design thinking, and art & design education.

When someone asked a master what DOW or the way is, the master replied that the key to understanding it is to keep going, to take steps without stopping. This advice is particularly relevant to design because progress can only be made through perseverance.

In the context of design, DOW can be interpreted as a journey rather than a destination. It's about continuously moving forward, taking small steps, and making progress along the way. Designers face many challenges throughout the design process, from coming up with creative ideas to executing them in the final product. However, by keeping going, designers can overcome these challenges and achieve their goals.

Design thinking is also influenced by the concept of DOW. Design thinking involves a human-centered approach to problem-solving, and it requires designers to continually iterate and test their solutions. By embracing DOW, designers can remain focused on the end goal while also being willing to make adjustments and pivot when necessary.

Finally, DOW is also relevant to design education. Design educators often face challenges that do not have clear solutions when it comes to teaching design. However, by embracing the concept of DOW, they can persevere through the challenges and setbacks and continue to make progress in their classrooms. The DOW teaches art and design educators how to teach by being agile and constantly adapting and overcoming these challenges and setbacks.

There are overlaps in the knowledge that design-based and fine arts based assignments bring to the classroom. The similarity is the **ability to latch onto the student's interests, and to use those interests to drive critical learning.**

Establishing a deep connection between what is interesting outside of school and an in-class assignment is what makes it worthwhile. Design based assignments appeal to a different category of students sitting in the art classrooms. These students are ones that go on to engineering or finance schools. These kinds of students are the ones that disengage once the challenge of skill in the assignment goes away and the question becomes which room am I going to draw, and why. An assignment in product design is one that these students are more naturally geared towards, while still falling under the category of art class assignments. In other words, design challenges thrive in a multidisciplinary setting.

In conclusion, design education provides students with a unique set of skills that are useful in the 21st century, including critical thinking, problem-solving, and decision-making, which are essential in today's ever-changing job market. By providing a hands-on approach to learning, design-based assignments teach students to deal with ambiguity and uncertainty, preparing them for the challenges of the real world. Whereas in contrast, traditional art classes tend to focus on developing specific hard skills, leading to boredom and disengagement among students.

Creativity in the 21st Century

Idea generation / ideation

Design thinking is a process that encourages experimentation and iteration, which means that it is perfectly acceptable to make mistakes and learn from them. This approach to problem-solving fosters a growth mindset in individuals, which is essential in the creative industry. Carol Deck's concept of growth and fixed mindset is particularly relevant in the design education context, where students must be willing to take risks and explore new ideas. A growth mindset encourages students to embrace challenges and persist in the face of obstacles, whereas a fixed mindset can lead to a fear of failure and a reluctance to take risks.

According to Deck, it can be said that there are two kinds of people; ones that have a growth mindset and ones that have a fixed mindset. People with a fixed mindset believe that we are born with certain skills and spend our lives trying to discover our hidden, inner talents. People with a growth mindset believe that we are seldom born with skills but instead develop these skills throughout the course of our lives.

I don't necessarily believe that its a black or white scenario; I think there is truth in both sides of the coin. I do believe we are born with certain skills and can develop better in certain areas than others due to our intrinsic nature. In other words, we can become successful in any realm of doing, regardless of whether we are born with that skill or not. However, it is by committing to a genre and sticking to it that gives us the success that we oh-so desperately crave.

Design thinking teaches us that it is okay to be wrong. Design is an iterative process, and much like life, very rarely (if at all) do you get it right the first time. Design, however, teaches us that through consistency success can be attained.

The critical value of art education is the ability to "teach" creativity. It is difficult to measure creativity: creativity is an elusive skill. Design education offers a structured approach to problem-solving that is iterative and creative. It provides them with a set of tools and techniques to generate new ideas, prototype and test solutions, and evaluate their effectiveness. Through this process, students develop a designer's "eye," which enables them to analyze and critique existing designs and identify areas for improvement. This ability to observe and analyze the world around them is a valuable skill in any industry, not just in design.

The saying "practice makes perfect" is a well-known phrase, and it is no different when it comes to design thinking. Through repeated critiques and design projects, students can master the skills of design thinking and apply them to their everyday lives outside of art education.

However, good design is not just about coming up with good solutions; it is also about refining and improving those solutions.

This is where practice comes in. By practicing design thinking on a regular basis, students learn to recognize patterns and develop problem-solving skills that they can use in any area of their lives.

Design thinking involves a process of iteration, where ideas are tested, evaluated, and refined through multiple rounds of feedback. Through repeated critiques, students learn to take feedback constructively and use it to improve their designs.

As students progress in their design education, they become more proficient in their craft. They gain a deeper understanding of the design process and can apply this knowledge to their everyday lives. For example, a student who has mastered design thinking can use these skills to solve problems in their personal life, such as organizing their workspace or planning a party.

Furthermore, as students practice design thinking and develop their skills, they begin to produce work of higher quality. The more they practice, the better their work becomes. This is where the saying "quantity grows into quality" comes into play. By producing a high volume of work, students gain experience and improve their skills, ultimately producing work of higher quality.

Design thinking is a methodology that is focused on finding creative solutions to real-world problems. It teaches students to think critically and to approach problems from multiple perspectives, rather than relying on preconceived notions or assumptions. This approach encourages students to be more open-minded, flexible, and adaptable in their thinking, which are essential qualities for developing creativity.

In contrast to art education, which often produces work that is subjective and difficult to measure. Traditional art education often emphasizes the mastery of technical skills, such as drawing or painting, and the creation of original artwork[1].

While these skills are important, they do not necessarily foster creativity in the same way that design education does. Art education may teach students how to express themselves through their art, but it does not necessarily teach them how to solve real-world problems or think creatively in a structured and iterative way.

Design education, on the other hand, provides students with concrete skills that can be tested and evaluated. For example, a student's ability to design a product that meets a specific set of user needs can be assessed based on how well the product fulfills those needs. This ability to measure success provides students with a sense of accomplishment and encourages them to continue refining their skills.

Integrating design thinking into the world of art education can provide students with a more comprehensive and practical approach to learning creativity. By learning how to approach artistic projects in a structured and strategic manner, students can develop critical thinking and collaboration skills, as well as a deeper understanding of the impact of design on society. This combined approach can help students become more well-rounded artists and designers, better equipped to tackle the challenges of the modern world.

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1 Traditional fine art is a very "do it yourself" process; artists create work removed from the public, and later present completed pieces, oftentimes leaving little room for feedback or critiques. With the rise of modern approaches to fine arts, such as community arts, this is becoming less and less true, while, on the other hand, is becoming less and less fine art and is heading in the direction of design education that I am writing about. I digress...

Design thinking encourages students to think about the broader implications of their designs. This focus on social responsibility can inspire students to use their artistic skills to make a positive impact in the world.

In today's world, it is essential for students to learn about the broader implications of their designs, especially regarding environmentalism, social, and economic impacts. This is because we live in a world where every design decision we make has far-reaching consequences. From the materials we choose to the manufacturing processes we use, every aspect of a design can have an impact on the world around us.

Design education can provide students with the tools to explore and understand the implications of their designs. By incorporating elements of environmentalism, social justice, and economics into their design thinking process, students can create designs that are not only aesthetically pleasing but also sustainable and socially responsible.

Design thinking encourages students to take a holistic approach to problem-solving. It encourages them to consider the broader implications of their designs, including their impact on the environment and society. This mindset can be effectively applied to art education, where students learn about how their art impacts the world around them.

For example, by incorporating recycled materials into their artwork, students can learn about the importance of sustainability and how they can reduce their impact on the environment.

By considering the social and economic impacts of their designs, students can learn about the power of design to effect positive change in the world.

Ultimately, a guided approach to design thinking can lead to a more engaged and responsible generation of artists and designers who are equipped to make a difference in the world. The benefit extends well beyond the worlds of art and design and applies to students in other disciplines as well. Design can help students power through any challange presented in front of them in all aspects of life.

Science Technology Engineering Art Mathematics + DESIGN

Transdisciplinary research

Buckminster Fuller, a renowned architect and designer, emphasizes the importance of transdisciplinary education in his book Education Automation. He argues that education should not be limited to traditional subject areas but should instead focus on the interconnectivity of knowledge and the integration of disciplines. Similarly, Paulo Freire, a Brazilian philosopher, emphasizes in his book Pedagogy of the Oppressed the importance of education that is grounded in the students' experiences and leads to critical consciousness and action.

The best art education gives the students the capacity to think creatively and the capacity to make connections. I would take it a step further and say that design does the same thing, but on the polar opposite end of the spectrum.

While art education looks to the inside, design education looks from the inside out, asking the students what kind of issues they see in the world, and what kind of experience and knowledge can they bring to the design table.

Combining design thinking with art education allows students to engage in transdisciplinary research and explore complex issues from different perspectives. The Wallace Foundation's report on excellence in arts education highlights the importance of developing students' creative thinking and ability to make connections (Wilson, 2010). By adding design to the art curriculum, students can go beyond creating aesthetically pleasing artwork to designing solutions to real-world problems.

Unlike art projects, design work is generally more geared towards exploring the wonders of the natural world. This phenomena is oftentimes covered in traditional STEM classes – science, technology, physics, and mathematics, but in such a boring way that students do not get to appreciate the beauty of it all. Design projects, and especially when combined with art projects, connect the dots between exciting natural phenomena and boring class, highlighting the natural beauty of the world.

Design projects often involve exploring the wonders of the natural world and drawing connections between seemingly unrelated concepts. This approach to education can help students appreciate the beauty of the world and develop a passion for learning. Through design projects, students can receive fundamental concepts in STEM classes while engaging in a creative process that draws their interest and builds connections with their peers.

Design education also promotes entrepreneurship and critical thinking skills. By studying products and the intentions of corporations, students can create better solutions and challenge the status quo. By studying products and what goes into making them, one can learn about the intentions of the corporations that mass produce our products today. Oftentimes these products aren't actually as helpful as they seem and sell because of marketing that targets people's virtues or other reasons (Bowen, F., & Aragon-Correa, J. A., 2014). Through design research, students can create better products and solutions to our struggles as humanity. This ability to visualize the future using objective information is a skill that is infinitely important for our future and for the future generation, especially in the days of the AI revolution where the emphasis lies on great ideas (and not necessarily our hard skills).

The most important aspect of a healthy classroom is a lively community (Johnson, I. E., 1953). Students interacting with one another, productively, and supporting each other. Design education fosters a sense of community and collaboration. By bringing together students from various disciplines, design projects create a space for students to engage in productive and supportive interactions. In a world where isolation and loneliness are increasingly common, design offers a unique community focused on creating positive change in the world. This support system is crucial today as, not just teens, but people in general are feeling more and more lonely today than ever (Parigi, P., & Henson, W., 2014). Design offers a community that is focused on creating positive change in the world around us. This community isn't limited to just designers, in fact, it functions best when there are members from many disciplines, the more the merrier. Much like the world that schools prepare students for.

In the professional world, collaboration and teamwork are essential for success. Employers often seek candidates who can work well in teams, communicate effectively, and offer constructive feedback to their colleagues. Art and design classes create a learning environment that emulates the collaborative process of the real world. Students learn to collaborate on projects, share their ideas and perspectives, and provide constructive feedback to their peers. These experiences can help students build the skills they need to work effectively with others in any field they pursue.

Furthermore, art and design classes provide a safe and supportive community for students to express themselves freely. This sense of community can be particularly important for students who may feel isolated or marginalized in other areas of their lives. By providing a welcoming and inclusive space, art and design classes can help students build confidence, develop a sense of belonging, and find their voices as creative thinkers.

Art and design classrooms can provide a safe spaces for marginalized and challenged students by creating an environment that encourages students to express themselves and their ideas without fear of judgment or discrimination. In such classrooms, all students are valued and respected, regardless of their background, identity, or ability level. This inclusivity helps create a positive learning experience for everyone and fosters a sense of belonging among students who may feel marginalized or challenged in other areas of their lives.

In today's world, where diversity and inclusivity are becoming increasingly important, it is crucial for schools to create environments that welcome and support all students.

Marginalized students, including those who are from underrepresented groups, those who have disabilities, and those who are struggling academically, may face additional barriers to success in the traditional classroom setting. Art and design classrooms can provide a safe space for these students to explore their creativity, build their confidence, and develop their skills, while also connecting with other students who may share similar experiences.

Research has shown that creating a supportive and inclusive environment can have a positive impact on student learning and academic achievement. For example, a study by the International Journal of Leadership found that schools with a positive school climate have higher test scores and graduation rates than those with a negative climate (MacNeil, Angus & Prater, Doris & Busch, Steve., 2009). By creating an environment that fosters a sense of belonging, art and design classrooms can help prepare students for the real world, where diversity and inclusivity are becoming increasingly important in the workplace and in society as a whole.

In addition to the academic benefits, art and design classrooms can also provide a space for students to develop important life skills, such as problem-solving, communication, and teamwork. By working on design projects and collaborating with their peers, students can build their confidence and develop important skills that will serve them well in their future careers and personal lives.

Creating a safe and supportive community in art and design classrooms is essential for the preparation of students for life in the 21st century. By fostering inclusivity, building confidence, and developing important life skills, art and design classrooms can help students succeed academically and in their future endeavors.

Chapter 3
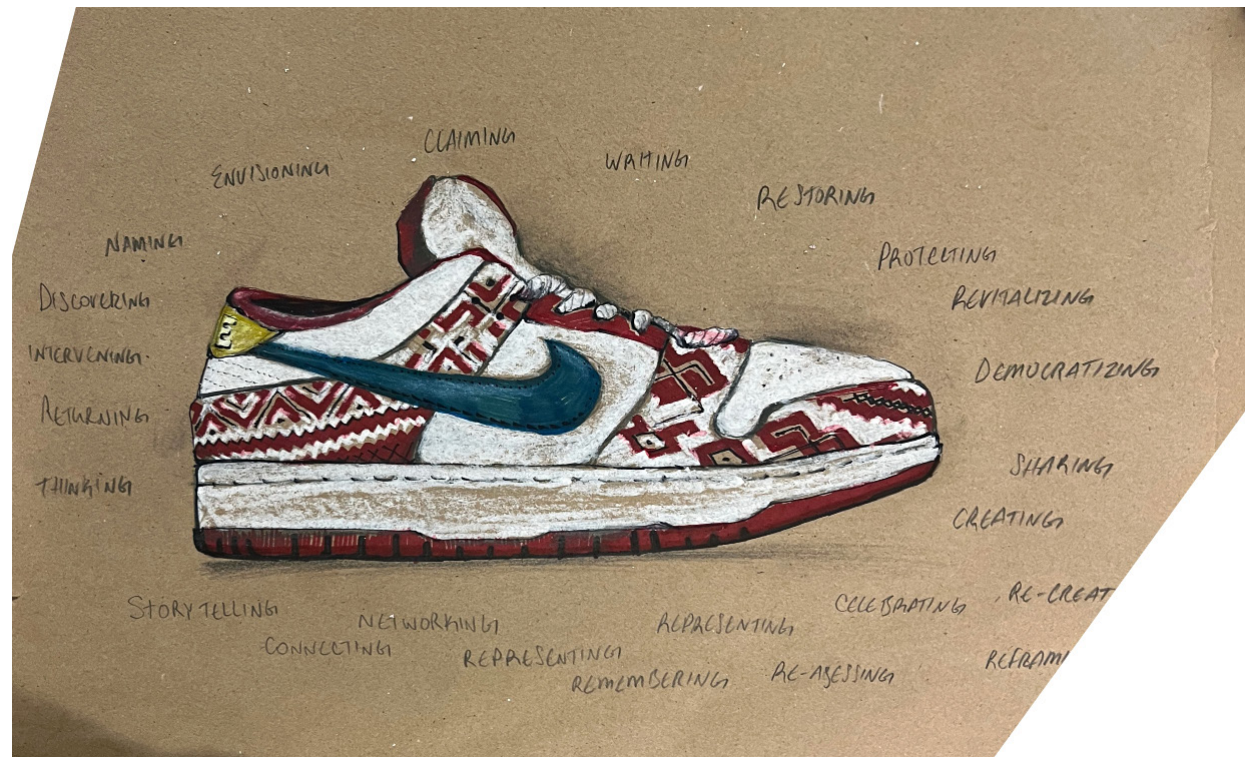
Case Studies

Comprehensive Anticipatory Design Scientist

Micro – Macro

An important aspect of the most successful of design interventions that is clear, is that real systemic change takes synergistic effort. By definition, synergy is "the interaction or cooperation of two or more organizations, substances, or other agents to produce a combined effect greater than the sum of their separate effects". A design solution can only go so far – in today's world the multiplex inner workings of every day processes have gotten so complex that it is extremely difficult to create a rift in the system. If we want to address issues like global warming, inequity, the hunger crisis, or the nuclear crisis we have to create a new generation of thinkers that focus on not a specific thing, but rather how all of these specific things work with each other, in other words, we have to focus on the general workings, or macro, rather than the micro.

Buckminster Fuller should be credited for connecting Whiteheads dilemma[1] with design at large. Fuller's life is one that is filled with many exciting events.

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1   Whiteheads Dilemma is the idea that higher learning specialization are "academic silos." The problematic aspect of this is that these academic silos are removed from one another, and the knowledge cannot be used to strengthen each other.

Fuller was a lifelong designer, finding outlets for his ideas in magazines, as a science and technology consultant, and oftentimes through lengthy talks that he would go on to give over 200 of. Indeed he was very well known for his "talk-a-thons" where he would go on for hours. Buckminster self-describes as a comprehensive anticipatory design scientist. In modern context this would mean something like Design-thinking or a systems designer. He defined it as human practice that would align men and women to the conscious design of our total environment. I have a quote that summarizes it best here:

"To make the world work for 100% of humanity in the shortest possible time through spontaneous cooperation without ecological offense, or the disadvantage of anyone." (Fuller, pg. 100)

This was Bucky's ultimate goal. He came up with this idea when trying to figure out what is humanities' mission statement. A great example which he talked about a lot is the fact that the US and Russia combined would spend around 200 Billion dollars a year on war research. He compares that huge figure to the fact that if you live to be 70 years old, your heart beats 2 Billion times, and 3 Billion times if you live to be 100. Yet they would spend 200 Billion every year just on trying to figure out how to best kill the enemy, just to put that into perspective.

Bucky always encouraged his students when solving critical thinking problems to start thinking about the whole, the overview, and then dive into the details. This is what he meant by Macro to Micro. Comprehensive Anticipatory design science essentially means having a holistic view of the world, it means to be a global thinker, if you will, considering every part of the world.

Buckminster is known for popularizing the idea of "spaceship earth" and for using words like Sunsight and Sunclipse and Sunrise and Sunset.

Bucky's holistic world view is what allowed him to hypothesize a map like the Dymaxion Projection map. For all of eternity, we have used the worlds up and down without thinking much about what ideas they propagate. But in fact the words up and down reinforce our "multi-million year idea that we live on an infinite plane, and have nothing to do with the fact that we are on a spherical plane that is moving around the sun at 60,000 miles an hour in a universe where there is no up and down what-so-ever (page 27)" This Dymaxion Projection map helps facilitate this transformation in thinking and perception.
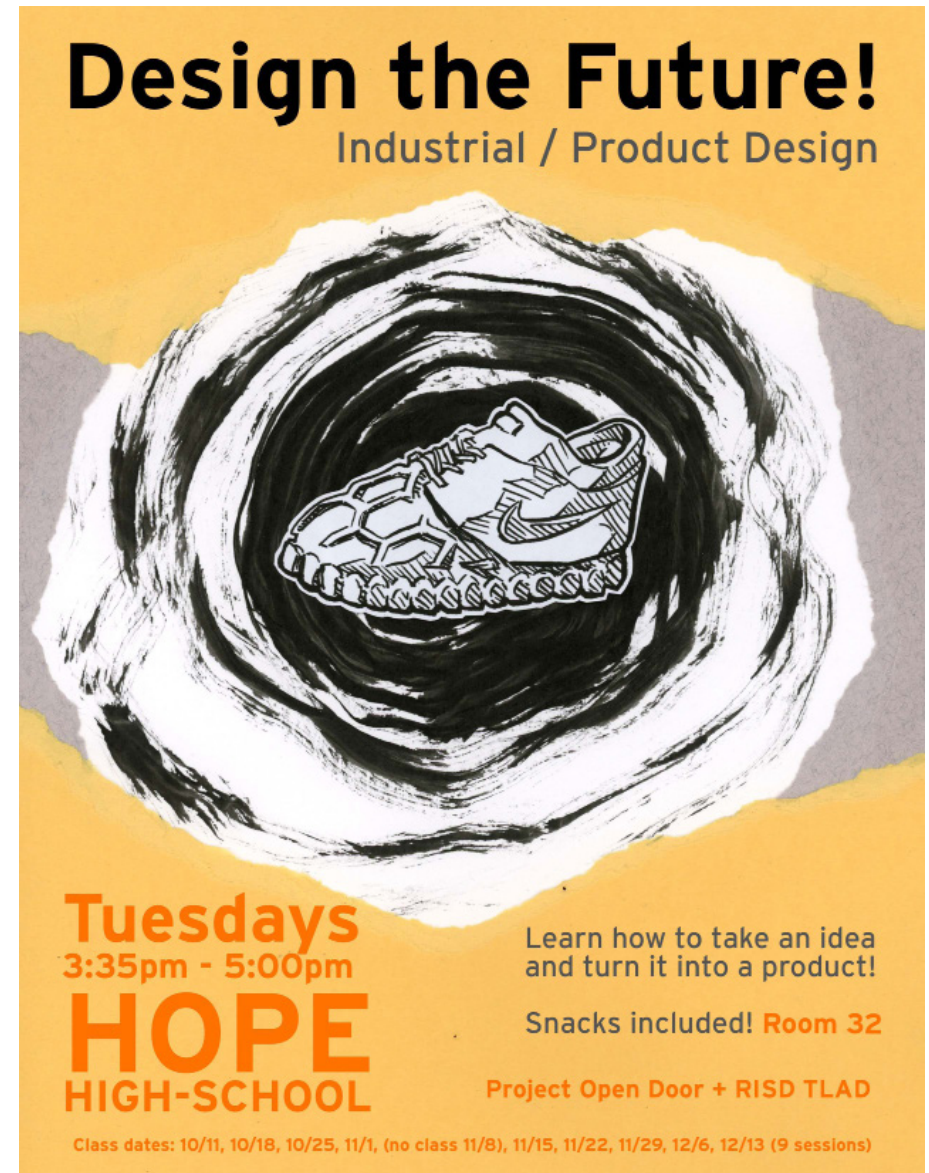

Student artwork from Design the Future.

Sophia's artwork from Design the Future.

Design the Future

Project Open Door after-school class

Project Open Door is the Rhode Island School of Design's college access initiative for teens attending urban public high schools. This program took place after school and provided studio-based learning opportunities to introduce teens to ways of making not typically experienced during a high school's visual arts program and provide opportunities to develop their creative talents while exploring different approaches to art making.

In the fall semester of my Master's degree, I was invited to teach a Project Open Door class at a local (I hate the word urban) highschool called Hope. This class was design based and was titled Design the Future. The goal of this class was to introduce ways of making that designers use, to teach the students how to view the world as a designer, and to inspire them to pursue a career in creativity.

Illustration courtesy of Tom D'amore

Design the Future Curriculum

General overview

Design thinking is a valuable skill set that is essential for 21st century students to learn. As a design educator, my classes were designed to provide students with a cohesive overview of the product design process. Topics covered include idea generation, materials, 2D communication, computer–aided design, prototypes, market research, business strategies and portfolio development.

The class begins with idea generation, which is the starting point for any successful design project. Through various brainstorming techniques, students learn to develop and refine their ideas until they are able to move forward to the next step.

In addition to idea generation, the course also covers material selection. Understanding the properties of various materials and how they can be used to achieve specific design goals is crucial for any aspiring designer.

Students also learn about 2D communication techniques, such as sketching and rendering, which are essential for communicating ideas to others.

Computer-aided design (CAD) is another key topic covered in the course. I showed students how to use software such as SolidWorks or Fusion360 to create 3D models of their designs. This allows them to refine and iterate their designs more quickly and efficiently than traditional methods would allow. Additionally, we explored manufacturing methods such as 3D printing and machining, which lend themselves well to 3D modeling.

Prototyping is also a critical step in the design process, and the course provides instruction on how to create prototypes using various materials and techniques. Market research and business strategies are also covered, as it is important for designers to understand how their designs will fit into the market and how to effectively market and sell their products.

Finally, the course covers portfolio development, which is essential for any designer looking to showcase their work and land a job in the field. By the end of the course, students have gained a comprehensive understanding of the product design process and have developed a set of skills that will serve them well in the industry.

The skills and content covered could be seen as the 21st century designer's toolbox. Think of it as a quick-start guide for creating functional products and "becoming" a designer. The classes are packaged as standalones that represent a particular rung in the ladder of the industrial design process.

Week-by-Week breakdown

Week 1 The first class was called empathy, an overview of how designers view the world. We discussed topics such as what industrial design even is and how to design for somebody and some popular design topics like sustainability, consumerism, capitalism. We then brainstormed what kinds of products we as a class liked and wanted to study.

Week 2 For the second week, I introduced the kids to ideation sketching. Through sketching, we were able to develop a 'design' vocabulary to communicate our ideas with each other effectively. Additionally, I showed the kids an MIT method for generating innovation. This method is called the Break-It-Down Strategy.

Week 3 The third week was devoted to rapid prototyping. I covered various methods of making their sketches come to life and testing them. These methods were connected to industrial manufacturing. For instance, the subtractive (removal) method of working with Blue Foam was related to industrial machining and CNC milling. The goal was to demonstrate that industrially produced goods are not all that different from one-off test prototypes and to get the students to think ahead about manufacturing their designs.

Week 4 By the fourth week, the students had a sense of a direction of where they wanted to go and were busy cutting, sanding and plastering their blue foam mockups. This allowed for them to have something to do with their hands while I presented more information. In the fourth week of class, I covered Computer-Aided Design Software (CAD). Using CAD allows students to become very precise with their work and to develop their ideas even further.

Week 5 In the fifth week, I brought a box full of interesting and inspirational materials that I've come across in my personal work. These materials ranged from natural leathers like kombucha and fruit leathers (that I grew), bio-plastic and bio-ceramics, fibrous cloths like hemp and velour, carbon fiber, exotic lumbers, 3d printed and machined pieces. This class was grounded in play, by playing with these unusual materials students could come up with new ideas to add to their designs as they're thinking about them.

Week 6 In the sixth week, we discussed some more industrial methods of manufacturing. Now that the students have more of a sense of what they were doing, we were able to have deeper conversations about making, both by hand and industrially. Additionally, we discussed working with blue foam in depth, as this was most interesting to the students.

Week 7 This week, we focused on wrapping up student projects and completing any additional work required. This included finishing up sanding, drying and painting.

Week 8 Portfolio week. Towards the end of the experience, I was gearing the students to curating their work and applying to design colleges. In this class I showed them my personal portfolio for undergraduate studies and my graduate portfolio as well as my co-teacher's portfolio.

Week 9 In the final class that we held, I brought a make-shift photo booth and my DSLR camera to photograph student work, both from my class and any additional pieces that they wanted edited. I spent the majority of the class helping students with any issues or questions that they still had.

Benny and Sophia, Design the Future students.
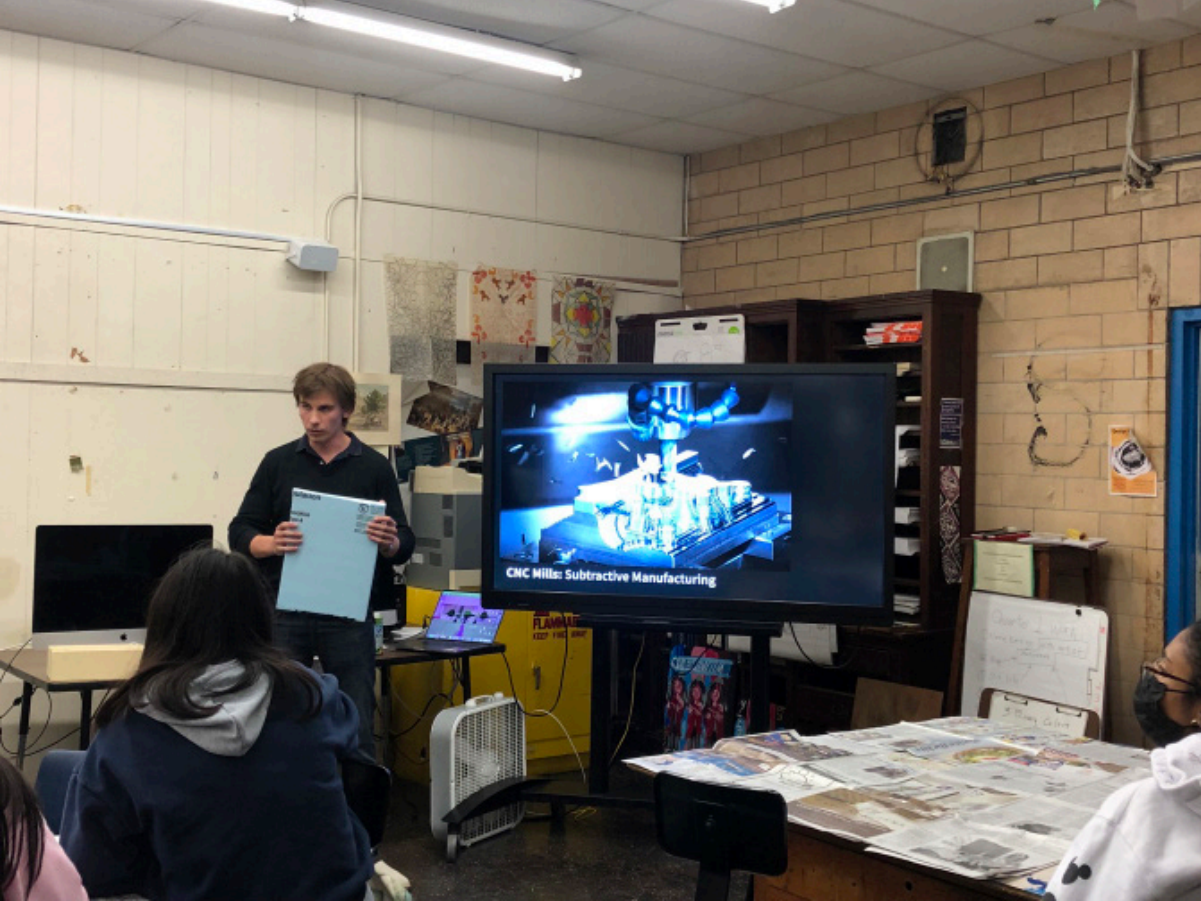
Seva explaining industrial manufacturing techniques.

Seva demo-ing how to work with blue foam.

Sophia's story *Design at Work*

I had a student named Sophia join my class. Sophia is an excellent student and always went the extra mile when working on her projects. Throughout the course of the class she naturally gravitated towards 3-dimensional work but, I noticed, something always held her back. In one of my classes, I allowed my students to experiment with clay, in order to work in space, 3-dimensionally, rather than 2-dimensionally on paper. I noticed that although Sophia did well, she always saved a piece of clay for later. Clearly, she was afraid of making a mistake, or wasting material, therefore she saved some "just in case". I had many conversations with her about her work, and I discovered this fallacy. At the end of the class, I gave her a chunk of clay to bring with her home and continue her work there. Next week she brought with her a beautiful clay sculpture that was based on a flower.

Sophia's experience is a great example of how design thinking can help students overcome their fears and build confidence in their creative abilities. Design thinking is a problem-solving approach that focuses on empathizing with the user, defining the problem, ideating, prototyping, and testing solutions. In Sophia's case, the problem was her fear of making mistakes, which was holding her back from fully exploring her creative potential.

Through conversations with Sophia, I was able to identify the root cause of her fear and provide her with a safe and supportive environment to experiment with clay.

By encouraging Sophia to try new things and giving her the space to make mistakes, she was able to overcome her fear and produce a beautiful sculpture.

This process of using design thinking to identify and solve problems can be applied to many areas of life, not just art and design. In the 21st century, where innovation and creativity are highly valued, being able to think critically, identify problems, and come up with creative solutions is essential for success.

Moreover, students like Sophia who come from marginalized or challenged backgrounds may find it difficult to express themselves and their ideas in traditional educational settings. Art and design classrooms provide a safe and supportive community where they can explore their creativity, develop their skills, and build confidence in their abilities.

Overall, Sophia's experience highlights the power of design thinking in helping students overcome their fears, build confidence, and grow as creative individuals. It also emphasizes the importance of safe and supportive communities, especially for marginalized and challenged students, in helping them reach their full potential.

Design thinking is an integral part in my process of planning classes and curriculum. The design thinking approach emphasizes empathy, experimentation, iteration, and collaboration. By considering these factors, I was able to create an environment in which Sophia could grow and thrive.

One of the core principles of design thinking is empathy, which involves understanding the needs, desires, and challenges of the individuals that one is designing for. In this case, I recognized that Sophia was struggling with 3-dimensional work and was hesitant to experiment with new materials. By empathizing with her perspective, I was able to create an environment in which she felt comfortable exploring her creativity.

Another important element of design thinking is experimentation. By introducing clay as a new material for Sophia to work with, I was able to encourage her to step outside of her comfort zone and try something new. This allowed her to experiment with different techniques and approaches, and ultimately led to her creating a beautiful clay sculpture based on a flower.

Iterative design is also a key component of the design thinking approach. Through ongoing conversations with Sophia, I was able to identify the fallacy that was holding her back and work with her to overcome it. By providing her with a chunk of clay to work with at home, I enabled her to continue her experimentation and iteration outside of the classroom.

Finally, collaboration is a vital aspect of design thinking. Through working with Sophia and other students, I was able to create a safe and supportive environment in which they could learn and grow together. This collaborative approach allowed Sophia to receive feedback and support from her peers, which ultimately helped her to develop her skills and confidence as an artist.

Overall, the use of design thinking in planning the classes and curriculum helped to create an environment that fostered growth and development in Sophia and other students. By emphasizing empathy, experimentation, iteration, and collaboration, I was able to provide a space in which students could explore their creativity and develop their skills in a safe and supportive community.

Some of Sophia's clay works.

Drawing Conclusions

As I reflect on my experience teaching a high school level design course, I am struck by the power of focused making in teaching larger concepts. Through discussions about the students' work, we delved into the nature of the world in which their designs would exist, sparking meaningful and fruitful discussions. Seeing the students engage with these concepts was truly enlightening, and I was thrilled to hear about their experiences and interests within the design world.

However, I must admit that there is one thing I would change about my experience: the amount of time I had with the students. By the fourth class, my co-teacher and I both felt that we were running out of time. With so many topics to cover and so much to discuss, it often felt like we were only scratching the surface of something by the time we were cleaning up. Nonetheless, I do believe that the students benefited greatly from the class. While many of them came into the course unsure about the role that art and design plays in their lives, by the end they were able to hold comprehensive discussions about popular topics in the world of art and design.

For me personally, this experience was incredibly informative and transformative. I believe that I became a better designer by applying design thinking methodology to the world of education. Throughout the course, there were many times when I had to adjust and adapt the lesson to better meet the needs of the students. With the planning of the class being somewhat loose, given the nature of design classes, it was a challenge to keep the students engaged and motivated while ensuring that they were gaining a deep understanding of the concepts at hand.

As an art and design educator, I believe that communication and empathy are crucial elements of the design process, and they should be emphasized in art education curricula. Communication allows us to exchange ideas, discuss possibilities, and collaborate with others. Empathy enables us to understand the needs, perspectives, and experiences of others. Both communication and empathy are vital in designing experiences that are effective, inclusive, and meaningful, especially in curricula.

One way to apply these principles in art education is by actively listening to our students. Listening is an essential part of communication and empathy, and it allows us to understand our students' unique perspectives, experiences, and interests. By listening to our students, we can gain insights into what motivates them, what challenges they face, and what they hope to achieve in our classes. We can then use this information to tailor our classes to fit our students better.

Adapting and tailoring our classes to fit our students better is a key aspect of the design thinking process.

Design thinking is a human-centered approach to problem-solving that emphasizes empathy, ideation, prototyping, and testing. By applying this approach in our art education curricula, we can create classes that are more engaging, relevant, and effective for our students.

For example, if we notice that our students are struggling with a particular concept or technique, we can adapt our teaching methods to provide more support and guidance. We can also incorporate feedback from our students to improve our classes over time. By doing so, we can create a learning environment that is more collaborative, inclusive, and responsive to our students' needs.

Overall, I am proud of what we accomplished in the class, and I truly believe that both the students and I learned a great deal from the experience. The power of design in education cannot be understated, and I look forward to continuing to explore the implications of studying design in art education in the future.

Benny's illustration.
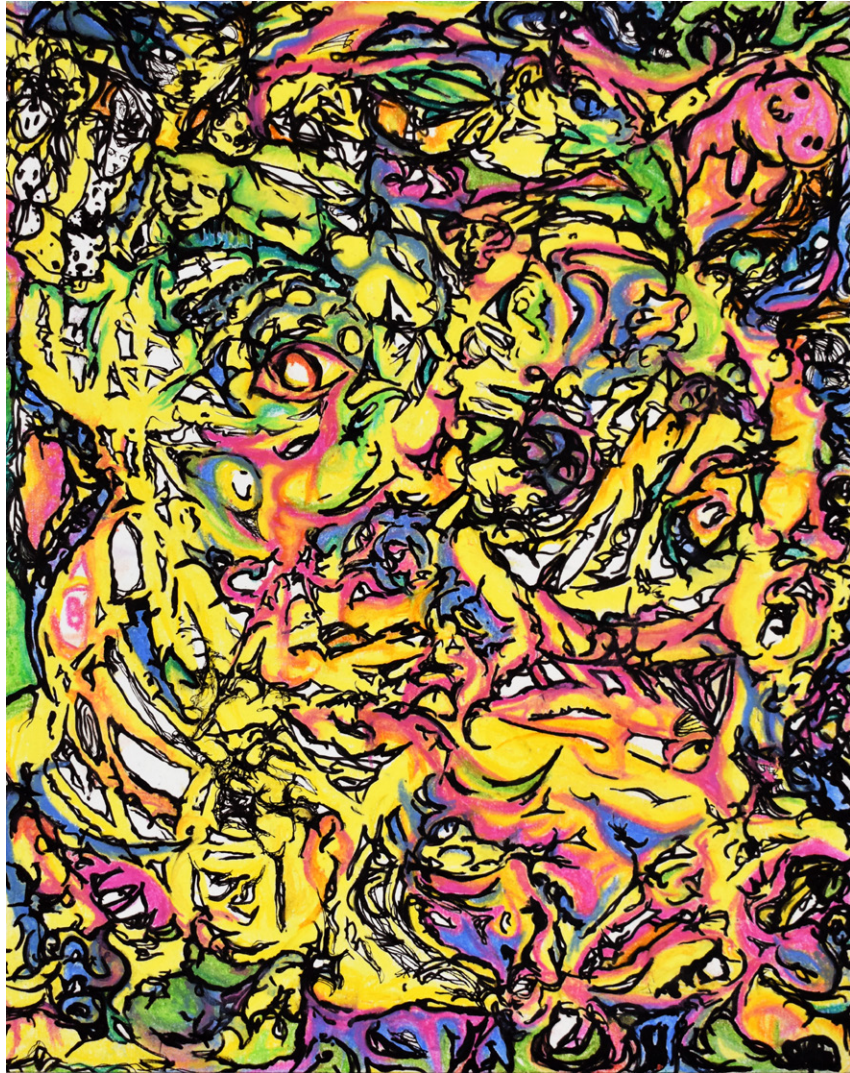
Sophia's artwork from Design the Future.
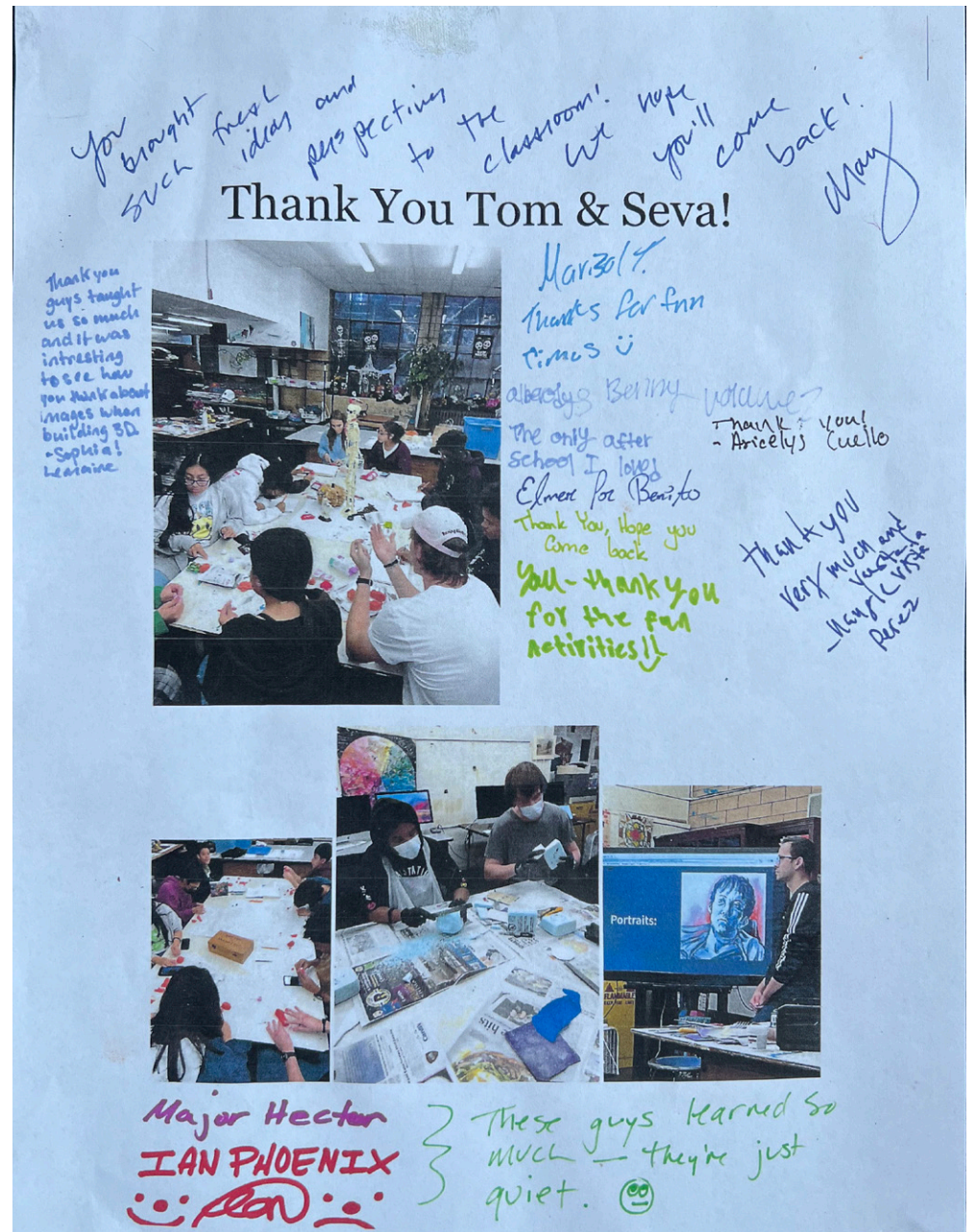
Applying Design Thinking to Curricula

General methods of incorporating design thinking into art education curriculums.

Focus on problem-solving: Design thinking starts with identifying and understanding the problem before brainstorming and implementing solutions. Educators can apply this approach by encouraging students to identify problems they want to solve through art and design, and then guiding them through the process of finding creative solutions. This also translates into designing an art class. Educators can focus on solving what doesn't work through design thinking, and simultaneously expanding on what works well.

Incorporate interdisciplinary collaboration: Design thinking often involves collaborating with people from different disciplines to come up with innovative solutions. Art educators can apply this by incorporating interdisciplinary projects into their curriculum that allow students to collaborate with others outside of their art class and collaborating with other teachers to teach content that transcends the boundaries of traditional art education.

Foster a growth mindset: Design thinking encourages a growth mindset, where failure is seen as an opportunity to learn and improve. Art educators can apply this by creating a safe and supportive environment where students feel comfortable taking risks and learning from mistakes.

Empathy and user-centered design: Design thinking emphasizes understanding the needs and experiences of the user. Art educators can apply this by encouraging students to consider the audience or user of their art and to design with their needs and experiences in mind. Oftentimes this manifests as designing for themselves, however it is important to understand how to design for others. This is where communication becomes important. Fundamentally teachers must realize that they are teaching the students, thus what matters is what the students actually retain, not what is in the curriculum.

Encourage experimentation: Design thinking encourages experimentation and iteration. Art educators can apply this by encouraging students to explore different materials, techniques, and styles in their art making, and to revise and refine their work through a process of iteration. This helps students grow through play and encourages them to continue their studies outside of the classroom, drawing connections to the real world. Additionally, educators can use experimentation in their own classrooms to test and evaluate new methods of teaching and subject matter.

Applying design thinking to art education can help students by developing valuable skills in problem-solving, collaboration, experimentation, empathy, and growth mindset by providing students with a framework for creating innovative and impactful art and design projects. They can also strengthen their own art curriculums with design thinking, by using concrete methodologies to ideate, test, evaluate, and improve their methods.

The Future of Education

Some final thoughts.

I firmly believe that the future belongs to those who are hopeful, and that the arts play an integral role in shaping that future. As educators, it is our responsibility to instill this sense of hope in our students and encourage them to think creatively and critically. The liberal arts education that we offer not only teaches students what to think, but how to think, and this is the key to unlocking their potential as the visionaries and leaders of tomorrow.

It is through art and design that we can learn to communicate and empathize with one another, ultimately creating solutions that benefit society as a whole. By listening to our students and adapting our curricula based on feedback and the design thinking process, we can tailor our classes to better suit their needs and foster their growth as artists and designers.

As Plato taught us, there exists a perfect form of anything, and it is through the lens of art that we can see this form most clearly. As such, art and design education is not just a physical endeavor, but an intellectual one, requiring us to think deeply about the world around us and our place within it.

Therefore, we cannot take this responsibility lightly. It is imperative that we engage our students in meaningful conversations and encourage them to find their own voice, even if they feel they have nothing interesting to say. We must inspire them to use their talents for the betterment of society, to create solutions that address the problems of today, and to never stop thinking critically and creatively.

In the words of Jordan Peterson, if you can think, you are unstoppable. Let us instill this sense of empowerment in our students and together create a brighter, more hopeful future.

Chapter 4

I AM SO PRECIOUS

I AM SO ENERGETIC

I AM SO FAST

I AM SO HUNGRY

Professor Mike Fink has been teaching poetry, journalism and film criticism courses at RISD since 1957 and frequently writes about local discoveries, memorable people and everyday wonders that enrich his life.
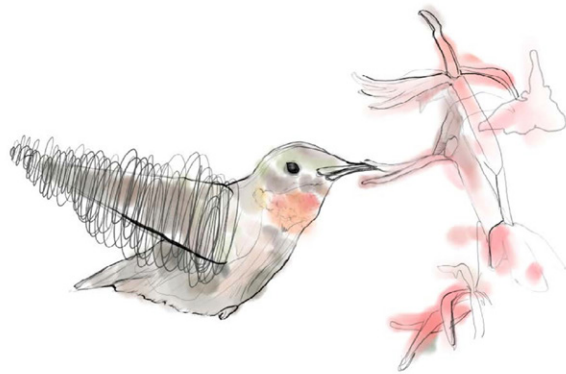
The Bird–Boy of RISD

Michael (Mike) Fink and his monumental influence

It is common among young designers to be actively involved in thinking about what they are trying to say as they are saying it. In the search for my own voice as a designer, Mike Fink taught me how important it is to be able to interweave stories into my design process. I hold the view that well designed objects are beacons of stories that can articulate meaning. Moreso, Mike taught me to find a certain beauty in nature, in the class Birds in Books, where coincidentally I had a Fink (Finch) bird visit my apartment's windowsill several times over the course of the class. Through constant analysis of ancient texts, such as the bible in The Bible as Narrative Art and The Jewish Narrative, and Golden-era Hollywood movies, With a Pen of Light and Film Investigations, Mike was able to teach me how to process thoughts and ideas that transcend time.

Mike Fink's repertoire of stories are gathered from being a religious Jew, a proud native of Rhode Island, and a prolific reader across many literary genres. Where I grew most as a design thinker and maker was in response to his poetic capacity to create rich connections between myths and real life. His stories acted in my imagination as I felt a passion grow in connection to characters, whether from the natural word or from fiction. This associative capacity is necessary as stories help reframe context. Design requires this ability to reframe context.

Take for example my project on the Ruby Throated Hummingbird. This project was an informational outreach booklet that featured seeds that people could plant which would attract hummingbirds. The booklet was based on the story of Charlie, the hummer. By connecting Charlie's perilous journey with the everyday dangers that Hummingbirds face, I was able to craft an exciting and educational story.

The relationship I had built up with Mike Fink over the course of my undergraduate years at RISD was instrumental in the development of my personal design Ethos. It is through Mike's coursework, which was mainly based on storytelling through personal interests, that I was able to develop my design philosophy. The beauty of Mike's coursework, and his personal teaching style, is the ability to tap into your life outside of the classroom. Mike accomplishes this by relinquishing the traditional approach to teaching, where the teacher is the know-all and the students are afraid of answering questions incorrectly. Instead, Mike uses a different approach, where he is one of the students, as we are all students of life in his (and outside) his classroom. His approach to assigning homework is based purely on the students: He meets you where you are at. Mike understood that some students learn differently than others, and as such, he approached each student individually, with a unique set of questions designed to challenge your individual paradigm.

CHARLIE THE HUMMER
RUBY-THROATED HUMMINGBIRD - ARCHILOCHUS COLUBRIS

Mike's description of the Aerie.
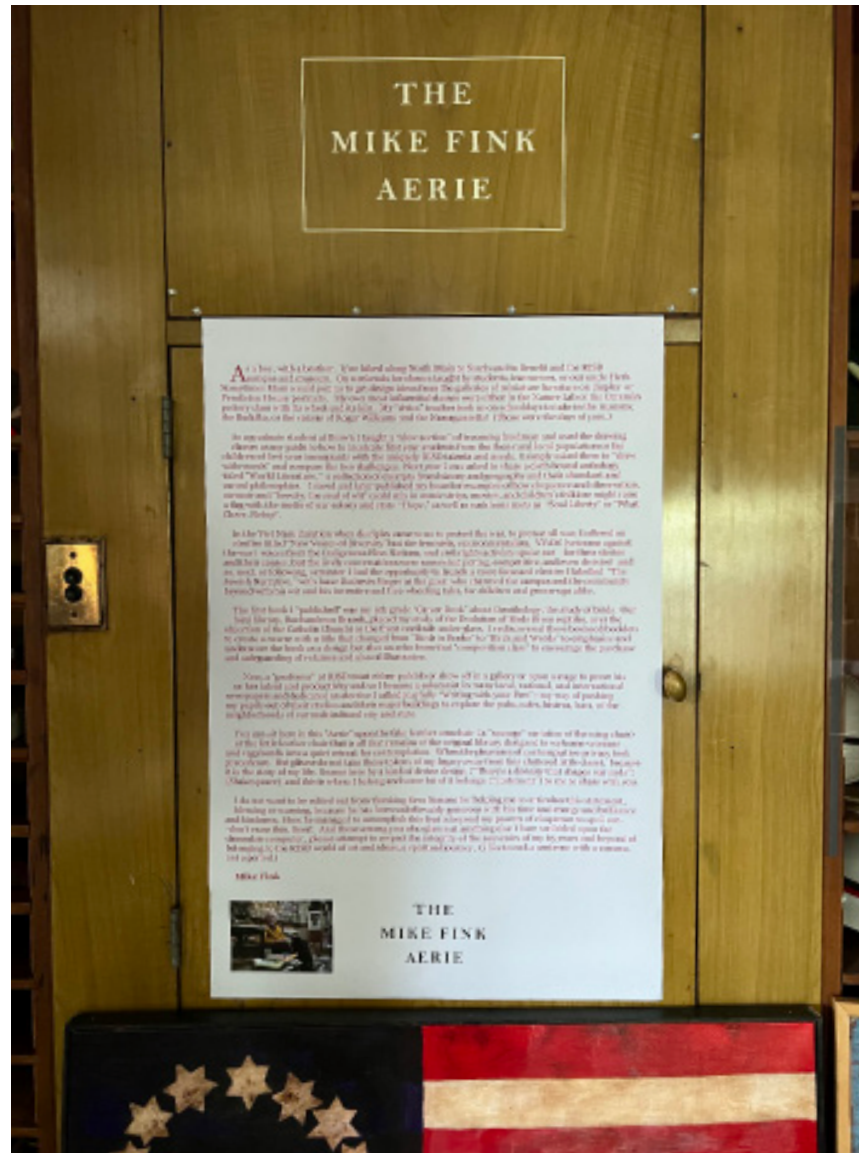
Rifts in life

The Mike Fink Aerie

Changing bases from the office to the basement

Over the course of the past two years or so, I have been personally working with Mike to move his office from the College Building, back, into his house. Mike has been a professor at RISD for over 65 years and he is only now retiring. To commemorate his time at RISD, he was given a space in the Old Library, the Mike Fink Aerie. This was awarded to him in 2012, and since then, it has been torn down. So, last year, Mike and I revamped the space. We moved personal items that he didn't mind leaving behind at RISD, upstairs and behind plexi-glass. We moved a great deal of items, including chairs and tables, paintings and sculptures, and ofcourse a lot of books.

Beginning this summer, we have been focusing on moving objects into his basement. It's much more difficult as it is further, and he has more stuff (Mike is a bit of a hoarder). However, it is a vitalizing experience for Mike.

Throughout my time helping Mike, I have been able to candidly observe him in-action and really understand what Makes him such a brilliant professor.

Plaque describing the significance of the space and a metal sign I made.

A picture of the completed Aerie.

Mike enjoying the Aerie.

Recorded Conversations with Mike Fink

Unadulterated conversations with Mike

Birthday Wish: Personal email conversation

Mike: first and foremost, happy (belated) birthday! sorry i didn't make a toast with a clink of a glass of good champagne.   now on to "hope"---as you know and we discussed, there are two islands in our bay, one is labeled "hope" and is green with pine trees, and the other is named "despair" for several reasons i have rambled on about with you. in the war of my boyhood, w.w.2. the existential resistance movements made much of the concept of "despair" and believed in what might prove to be lost causes, so victory alone just ain't good enough! so they kind of go together, hope and its opposite. it is indeed a perfect motto for a school, and its visual design logo, of course, on our flags, is HOPE.and since i like to go on and on about words, why, i might ask, is an anchor an image of hope? (i know it has bible connections but prefer to ignore them here.) an anchor means, okay, land is safe, moor your boat and get out and explore. so i guess some degree of security is a metaphorical suggestion of an anchor. this is what is fun about design, you try to draw, sketch, sculpt, meanings instead of ranting and raving about them.   so, anyway, IF i came to your i.d. class at hope i would guide them with a walk and talk about the history of the neighborhood, and how it was once a RESERVOIR, a pond in fact.   thinking IS storytelling. i would rather enjoy just telling the tale of my own life, and then of my career, with an emphasis on the students and what they brought TO the school and the ? what did they get out of it? design is a word i like and you like, and the word "industrial" can also raise questions and we could seek answers. i also believe that simply and straightforwardly describing our experiences, setting up the succah, sipping coffee at choklad cafe, and digging downward in cellar and in attic to figure out what to hope for??? an easy death? a super-long life? fame? fortune? love? (ah, what is love?)   anyway, i look forward eagerly to our reunion, our work, my help if possible with your project, and the possibility of a potential collaboration (a minor one) in your student teaching! i did my stints of student teaching at harvard, on television, in new york, all over the place.

Strolling around the Aerie!

Class Politics Discussion

October 14, 2022

Summary This chat covered topics such as politics, design, and high school experiences. Mike discussed visiting my POD design class and the different types of high schools in Providence. He reflected on his past experiences growing up in Rhode Island and high school. We discussed potentially incorporating Mike's teaching into my POD class and future meetings.

Mike: One of the things I'm proud of is the inscription on the back of the World War Two memorial on our campus, which I was a part of. The second thing I'm very proud of is the bird class (Birds in Books). And then I feel as if I created a lot of the uh liberal arts supplements or inspiration, you know, all the contemporary concerns that we have politically, the climate control issue that connects to the Birds class, and the rise of anti Semitism, which is a political concern.

Seva: See, that's the thing I noticed that your classes, they connect to real life issues versus some of my other classes that are just way too hypothetical. They don't actually form a connection between the lived reality that we have as students and the world around us.different from one-off test prototypes and to get the students to think ahead about manufacturing their designs.

Mike: … a joke and everybody laughs. And the black guy, … the Democratic ticket, he said, uh you brought joy to the debate.

Mike (cont.): He said that to me, and he meant it and he didn't win his struggle for the Democratic nomination, but he almost won. He came very close to winning. But he understood that a sense of humor and respect for the audience, the audience isn't there to absorb what you want. It's there to help you along your way just as you try to help them along. So it's not a matter of ego, it's a matter of genuine communication, going and coming.

Seva: I can definitely resonate with that, that's something I think about during a critique. Often times, as an artist, I would be standing up there showing my work to the audience and they would be questioning me and it would almost feel like I'm defending my artistic choices versus like in reality, the audience is there to support me in my artwork as much as I am there to share my artwork and genuinely help the audience. So it's this weird thing where it's like, why is there this air of negativity and in politics it feels like there's this huge pretense, politicians are so fake, they have agendas, they don't actually even listen to the audience.

Mike: Also, they're also trying to sell you something or themselves.

Seva: Right. Well, I guess that's ultimately the thing about politics, ultimately there is an agenda, you have to win if you're running, you can't just be running forever.

Mike: I want to think about schools in the Providence area. One of them was Central high school and that was where you knew a craft, a skill, uh…

Seva: Classical?

Mike: Yeah. Classical was the one where we were gonna go to college with respect for literature and for, well, mostly literature. So one of the things on my program is I wanna go back to older times. I mean, I've always lived in the house I live in now since I was three years old anyway. And I wanted to keep some of the skills that you used to learn. How to sew a button, the girls learned how to make soup (most of the girls) but not only the girls and then after school, you have to belong to some club or other and you might even make an onion soup and serve it to all your friends or you design your own clothing for a play that you, and so you kind of, this whole high school gave you more choices than the other two schools did I think. A lot of immigrants go to high school to become American. And that's still the case.

Seva: I think it's interesting that in Providence um that they sort of categorize the schools for a particular genre. Like you were saying, you know, literature, crafts. I was talking to Mary, the current art teacher there and she was saying that they wanted to restructure Hope high school to make it more arts focused.

Mike: I want to tell a little bit about what high school was like when I was a student there and what my experience was like with a mixture of kids, all kinds of kids from all kinds of backgrounds, for instance we had Armenian Survivors. And if I went out with a girl from this class or that class, they all had a grandmother with an accent and I was sort of a political democratic. I wanted everybody to like me. So that's why I would go out with different girls. My wife makes fun of that. Michael (Mike's wife) makes fun of me because she says I went out with everybody once, my favorite one was a girl named Jacqueline. You invited her aunt to come with us because she came from a very Catholic background. We have to have a chaperone.

Seva: …times have changed.

Mike: Heh! Yeah, and then there was families who had come from Marseille because after the Armenian genocide families moved to Marseille, which was a important city. So I remember the sociology of my graduation year at high school. You know, there were a lot of kids who came from houses that had no cars, there was no car and you're lucky if your father had a job at all.

And so, you know, everybody you would meet would have a different story. And I remember there was one kid, I probably told you about this. There was one kid who used to wait to walk me home outside the school. He was brain damaged and he was very well turned out very well dressed. He wasn't all there. Kids would make fun of it.

So I said, walk with me to my door so that he would feel that he had a companion. And I don't know what happened to him. I don't even remember his name but I remember feeling not burdened by his waiting for me but kind of touched by the fact that even a skinny person, like me, actually can give strength to someone.

Seva: You know, it's funny because so often I think about people and their agendas. It's almost pure to hang out with somebody like that when they gain so much from just being around you. And it's like with you, it's such a nice synergy, but sometimes people are just completely not like that and they're total jerks, it feels like they're just trying to get something out of you. It's pure moments like that I cherish.

Mike: I love what you emphasized the last time we had coffee, the word design, you said your parents inspired you to go to design school? And have you discovered what design means?

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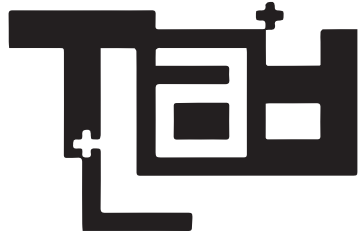
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Design(ing) and Design Thinking are valuable frameworks that should be used to drive agency. This thesis explores what design and design thinking are, and builds a case for incorporating design into art education.