Academic
Design Management
Conference

21st DMI: Academic Design Management Conference
Next Wave
London, UK, 1-2 August, 2018

Shifting Design From a Vocation to a Way of Being: Educational Strategies for the Future

This paper outlines several outcomes and learnings of a five-year study looking at the implications of teaching biomedical engineering students a "design-way-of-being" instead of teaching them to be design thinkers. It reveals that a design process and thinking alone is not responsible for innovation but drives repeatability; it is the designer's way-of-being that creates the novelty of innovation. Second, the paper outlines how a design way of being changes stakeholders' perceptions, which is the most critical component to human progress and disruptive ideas. Also highlighted in this paper is a finding that a design way of being focused on empathy not only drives innovation, but actually creates more appropriate ethical solutions to human need. This paper's conclusion outlines how Design will need to evolve from a vocation to a way of being and from a profession of design to a pedagogy for thinker-makers.

***Keywords**: Design thinking; education; innovation*

Introduction

I am sharing this knowledge in the form of a position paper with the sole intent of being a provocateur creating discourse amongst it's readers. The core tenet driving the insights shared is the belief that a pedagogy of educating designers to be professionals (I see as a funnel model) is no longer appropriate for designs future and a new model of design education is needed to instill students with a design way-of-being (I see as an educational model of a pond) that adapts and creates new values for design. This line-in-the-sand is grounded by my career as a practicing designer and educator of 40 years and the deep experience that is associated with my life as a designer. This intuitive insight has instilled a base belief that design is not a science but a philosophy and not a practice but a way-of-being.

A factor that has consistently driven design practices over time has been the changing needs of customers and businesses. The evolution and availability of technology has facilitated many changes in how we design for these audiences and our ability to do so is now more efficient than ever. Further, today's students are far more accepting of technology and are, in fact, eager to use it to develop impactful innovations with far reaching benefits. It is because of these points that I have come to challenge the historical approach to design education and the traditional pedagogy of educating designers to be professionals that perform across industries (what I refer to as the "Funnel Model"). It is my belief, as a long-time designer and educator, that we must embrace a new model of design education which instills in students a "Design Way of Being" – an all-encompassing philosophy that adapts to changing consumer, technical and business factors and shifts design practices into multiple educational pedagogies (a "Pond Model"). This will, in turn, vastly expand the contribution design education has in consumer, business and societal innovations over time.

Traditionally, the model for design education and learning has resembled a funnel. In a "Funnel Model," a divergent set of students move through a program structured to mold them into the image of designer as defined by the school. In xxxx's model philosophical-approach to design education,

referred to as a "Pond Model," a diverse set of students jump into the program and self-direct their educational experience, interacting with the other students in a community setting. Students study an applied design curriculum along with a self-directed affinity. When they launch into the world they are then empowered with a philosophical foundation to take design in new directions.

The Funnel vs. The Pond

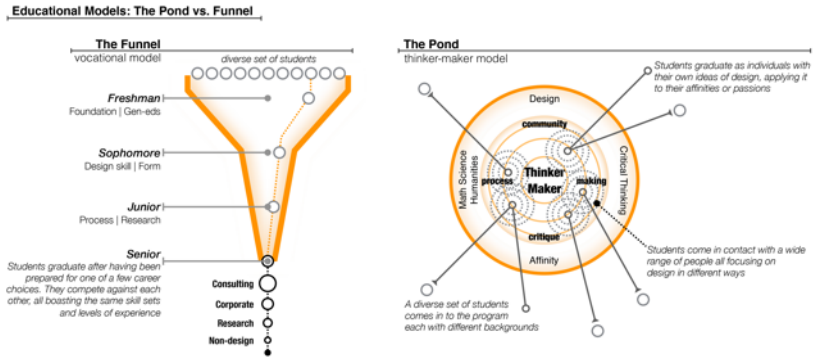

Figure 1 A comparision of educational models looking a traditional design model of a funnel vs. the new thinker maker modelof a pond.

This new approach for design education coincides with my core belief that design is not a science but rather a philosophy. It is not a practice, career or skill but rather a "Way of Being" that guides how one performs. This tenet also presumes that teaching a "Design Way of Being" will not be exclusive to those defined as "designers" but can be successfully expanded into other educational subjects such as engineering, marketing, entrepreneurship, and medicine-- frankly any field where students are being educated to deal with complex systems or problem solving and create viable solutions. This new breed of students who can combine a profession with a "Design Way of Being" can be more appropriately referred to as Thinker Makers.

It is in this context that a new course for Biomedical Engineers was created and tested at xxxx University to see if a "Design Way of Being" philosophy could successfully be instilled in non-designers. With the insights

gained from this effort, an alternative to our traditional design education methodology has been implemented with great success within the Product Design Program at xxxx. And though this evolution in Design education philosophy may seem provocative, I believe it is one that is necessary to ensure that future design initiatives are timely, targeted and successful.

In the near future, Design must evolve from a vocation to a "Way of Being," and from a profession to a pedagogy for Thinker Makers. In this new view, design as a construct will continue to play an important role in human endeavors. However, it won't solely focus on design outcomes; it must also encourage Thinker Makers to evolve from using new, disruptive technology to create new ideas to the era of creating disruptive ideas wherever they are needed.

This "Way of Being" will act as the ethical arbiter of the imagination. Just as designers are the advocates for human-centric solutions, the Thinker Maker of the future will need to be the standard bearer of human-centric awareness in disruptive ideas. Melvin Kranzberg, noted History professor, stated in his first law of technology that, "Technology is neither good nor bad; nor is it neutral." (Technology and History: "Kranzberg's Laws"". Technology and Culture.)

This statement implies that humans play the critical role in deciding how to use technology—for good or bad. This deterministic role of human decision-making in the application of technology is a point that will be even more critical in the era of disruptive ideas.

"When I saw myself as an engineering student, I had two states of being a student self and a personal self, but after BMES435 I no longer separate the two. I now integrate design into all aspects of my life. It's empowering." - Ashley Ramirez

In 2014 the xxxx Product Design Program (PROD) launched an experimental course *BMES435 Design Thinking for BME*, in conjunction with the University's Bio-Mechanical Engineering Program (BME). The goal for the program was to teach design thinking to the BME student population. With 147 students participating over a five year period, the course morphed from being a design process class (exposing students to a design thinking

process with case studies and applied assignments) to a hybrid applied philosophy class (teaching the philosophy of design through a hybrid of lectures, discussions, and applied projects in a design studio based model). The first two years of the course were taught as a process class; the last three years were taught as a philosophy based design studio.

With the shift from educating according to standard practices of applied process to a counter-intuitive philosophy based studio experience, we witnessed a dramatic effect on the integration and application of design fundamentals. Specifically:

- Students intellectually integrated design methodologies into their engineering processes ultimately creating a personal hybrid approach to problem solving,
- Students could better articulate the role and value design had to BME,
- A measurable increase in novel course outcomes and comfort-level associated with framing problems was realized.

The effects of these changes were stunning. In each of the 5 classes, a final team project was given to design a novel solution to aid an underserved community anywhere in the world. Projects in the first two process based classes ranged from redesigning the syringe, creating a toy to comfort children with cancer, developing a device for injecting medicine without seeing the needle, to an app for remote diagnosis. In the last two philosophy based courses, projects ranged from a developing a device to reduce the death rate of castrations for the transvestite community in the slums of Mumbai, to developing a orogastric lavage for pumping the stomach & administering activated charcoal for first responders in remote villages in South America where overdoes are prevalent, to creating a set of DIY instructions for making a three dollar bassinet to decrease infant mortality in poverty stricken areas.

To assess the change in novelty and innovation potential between class projects, we developed a valuation matrix that considered three measurements for each design solution:

- the number of concepts created
- the number of forms each concept took

- the total number of attributes each team applied to concepts

Not only were the projects more novel in the philosophy-based course, but measured design outcomes also increased 350% from the first two process-oriented classes to the last two philosophy oriented classes.

Increased in novelty production

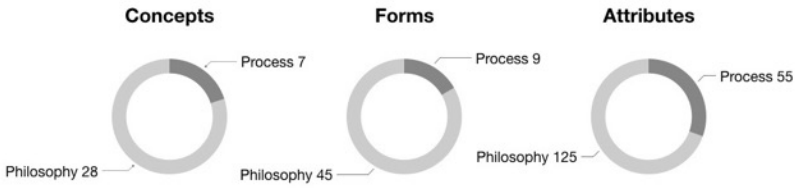

Figure 2 Graph showing the change in production and increse in innovation potencial between the outcomes of the fors two classes using a design thinking proces vs. two classes using a design philosophy process .

Our assessment illustrates that the process-only class gave students a design thinking experience but did not help the students integrate new knowledge into their already existing "Way of Being." As such, students viewed design thinking as a technique that provided little value to their engineering day-to-day reality, and with no consistent opportunity or encouragement to integrate it into their engineering pedagogy, would likely never use it again. Likewise, without understanding the philosophy behind the design thinking process students, stayed within their comfort zone of solution creation and did not deviate too far from solutions they would have created anyhow with only a slight improvement in user centeredness. This provided an additional insight that a design process focused on design thinking is, in reality, used by designers for repeatability of outcomes. It is not an innovation process unto itself.

We concluded that it is the designer or design team that creates innovation though their philosophy and "Way of Being" that will transcend expected outcomes by changing the perception of what is possible—and thus, becoming more disruptive. More succinctly, design thinking-- while able to provide teams with a new lens with which to examine problems, still

requires the user to make and embrace an ontological leap to change reality. Adding a philosophical component to the design experience enabled students to integrate design value to their existing education pedagogy creating a hybrid approach that could be used and repeated without encouragement or facilitation. In short, we discovered that once a student experiences this new framework for thinking, it becomes second nature to them—and fundamentally changes their perception of problem solving and creates a pathway to a new "Way of Being."

A practical way to look at this "ah-ha moment" is: if given a choice between using a pedagogy for teaching or a design thinking process with non-designers, the approach with a philosophical component should increase the potential for innovation over the approach without one. This shifts the education of a design process from a series of steps or tasks to a more intellectual "Way of Being" and doing, providing students an experience to ignite a will and enthusiasm to create and solve. This is the first trigger to becoming a Thinker Maker.

Activating the will to create

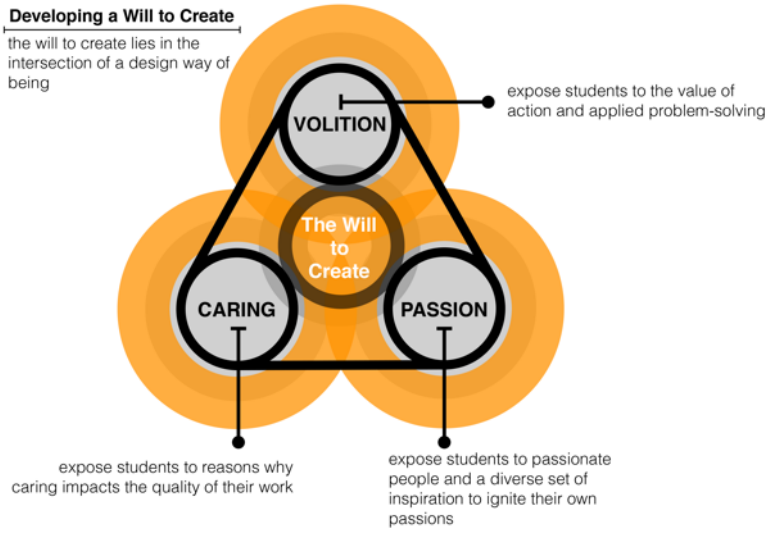

Figure 3 Diagram showing the factors to activating a students will to create .

As a side note, I believe the Thinker Maker of the future will have a deep foundation in applied design thinking, creative problem solving and sense making. This foundation instills a "Way of Being" and doing that ignites students' will to create. Keep in mind, Thinker Makers do not necessarily see themselves as designers, and don't consider the outcome of their actions to be design. They combine design with math, science, engineering, culinary arts, humanities, politics and entrepreneurship among many other endeavors. During their education, attention is shifted away from applying design as an outcome-driven vocation and more specialty towards an affinity-driven pursuit. (An affinity in this context is a focus of interest or ability outside of or along with the pursuit of being a designer.) The added affinity is used to guide design into new and uncharted applications. Bluntly speaking, imagine an era of ubiquitous making, when everyone has access to tools to create, produce, distribute and fund solutions, no matter how ridiculous–everyone will be a designer. In xxxx's product design program, we have shift to an affinity-based design education versus a concentration or specialist-based education creating Thinker Makers who are empowered to trade on their own value and in new markets.

(TBD, Insert graphic here, under development still)

The BME experience has reinforced that when we are successful in integrating a design philosophy into their learning experience, it changes the student mindset dramatically. As I often describe it to students, "I will know the moment you become a designer: it's when everything you do, say, write, think and create looks like it was done by a designer." Meaning, once design becomes a "Way of Being" for someone, it cannot be separated from their life. A "Way of Being" influences how one perceives and processes the world. It defines the way a designer gathers experience, processes that experience and makes meaning through creation of new realities. As exciting as this newfound realization was after the BME experience, two critical questions were left unanswered:

1. How do I define a "Design Way of Being" and how can it be instilled through philosophy-based design education?
2. At what stage of a student's development is it optimal for integration into a new "Way of Being?"

To define a "Design Way of Being" is more complicated than it appears, for a "Way of Being" is not defined by definition but by idiom. "Being" is defined as the state or fact of existing; or existence. This leaves a lot of room to for interpretation. For clarity, a "Way of Being" could also be seen as a person's "nature" or as a state of "isness:" the quality or state of elemental or factual existence. Urbandictionary.com describes "isness" as, "the ability to live in a world of "what is", presence or living in the now." In German, this would be translated as, "dasein," a word which German philosopher Martin Heidegger translated to "being there" or a state of being in the world. Unfortunately, none of these insights tell us how a state of "being" organizes itself in to actions or if new states of being can be learned (such as being a designer, doctor or engineer). Is it possible to educate or create the condition for a student to adopt a new state of being and to create new actions and outcomes based on an integration of a new state of being? The best insight to provide proof that education can instill a "Way of Being" that manifests itself into action is to examine human perception and the physiological workings of neuroscience.

Werner Erhard, Michael Jensen, and Kari Granger, state in the book Creating Leaders: An Ontological/Phenomenological Model, provide the following insight into action and a "Way of Being:"

The proposition that a person's "Way of Being" (mental and emotional state, bodily sensations, and thoughts and thought processes) does not cause a person's actions, but rather that a person's actions are in-a-dance-with (a correlate of) the way in which what they are dealing with occurs for them (their perception of it), may at first seem counter-intuitive. It seems counter-intuitive because a person's actions have traditionally been explained as being caused by some combination of the person's mental / emotional state (including memory), personality traits, body sensations, and their thoughts and thought processes (or as we have termed it, their "Way of Being").

However, neuroscience has established that neural patterns of perception (phenomenologically speaking, the way something occurs to a person) and the neural patterns that give rise to a person's "Way of Being" and acting are virtually always, as neuroscientists term it, "networked" together in the brain. Specifically, the neural patterns that give rise to a

person's "Way of Being" are networked together with neural patterns of perception (including stored neural perception patterns – memory); and likewise the neural patterns that give rise to action are also networked with those neural patterns of perception. (THE HANDBOOK FOR TEACHING LEADERSHIP, Chapter 16, (May 10, 2013)

If we apply their statement to instilling new "Ways of Being," we can rely on how a human's actions are not tied to a fixed or instinctual internal process or state, but how they are networked and tied to neural patterns of perception. This permits us to conclude that humans can, through applied learning and philosophical examination, reprogram both the neural patterns and the network by which actions and perceptions are made in the human mind. The key is to create learning opportunities that force both a change in perception and an understanding of one's ability to take action. It is my contention that a philosophically-oriented design education is well suited to cause both changes and also create empowerment through the internal adulation students experience when new networked connections are spontaneously made. In most cases this is accomplished by a design education's ability to expose student to struggle. The act of struggle forces students to abandon set patterns of behavior based on past experiences and create new experiences through developing meaning from the unknown. Students in class are guided into problem solving scenarios where they must act on assumptions, make meaning through sketching and modeling, expose and test their assumptions with others, react to and refine the shortcomings of their assumptions and repeat until a valid and appropriate solution can be defended. This process of struggle also aids in a budding designer's ability to use abductive logic as well as the development of trust in one's intuition.

(Insert graphic of the validation process here, under development)

What then is a "Design Way of Being?" There are many attributes that are associated to the character, personality and stereotypes of designers: everything from wearing all black and round eye glasses to being flamboyant divas to work with… for me it is a simple distillation of several key traits that activate a person's willingness to create and are essential to a "Design Way of Being." They include being curious, tinkering, empathic, volition, caring, comfort with chaos and ambiguity and the enjoyment of making. With this in mind, a design education must include curiosity-based exploration, playful

experimentation, critical thinking, abductive logic, sense making, and novel problem solving, all while incorporating the development of one's individual affinity. This new educational approach has been so successful for xxxx that design is no longer an independent subject but is integrated into all academic and vocational pursuits, and at all educational levels. This new breed of student, ignited with the will to create, is not called "designer", but is known as the intellectual maker, or "Thinker Maker". In short, design as we know it has dissolved, replaced by the practice of "design doing" along with the development of a self-actualized affinity. Upon entering the world, students have taken the soul of design into new and unchartered fields; they no longer see themselves as designers, but as engineers, politicians, nurses, parents, scientists, who can create and implement tangible change.

"Getting a design education is like catching a virus. When the student becomes a willing host the virus goes off and the student is never the same again." – Michael xxxx

With regard to the second question of when is the optimal stage in a student's development to begin instilling a "Design Way of Being," we start with Maslow's pyramid/hierarchy of need. In both the BME course and in our Sophomore Studio, we use the pyramid to discuss the role and focus of the designer's intent to create appropriate solutions. It very quickly becomes obvious that a designer's focus is to address human needs and improve the human condition. The pyramid not only provides a way for students to visualize a relationship between user and their need to maintain self-actualization but also, and more importantly, a way for a design student to evaluate where they are in their own self-actualization and state of being.

Our BME and Sophomore Studio experience proved that the optimal stage for students to transition to a "Design Way of Being" is when the student becomes comfortable with knowing who they are and that their value as a designer lies in embracing the uniqueness of being a fallible human. Central to this transition is understanding that being self-actualized has nothing to do with perfection but, rather, the acceptance of imperfection. This is not to imply that once a person self-actualizes he/she stops growing or stops seeking to become a better person. On the contrary, self-actualization is the shedding of things that hold you back from continued growth, betterment and enlightenment. Where self-actualization is the portal to a "Design Way of Being," lack of confidence, fear and doubt

are the roadblocks to entering that portal. Our goal as educators is to help students build confidence and embrace the complexities and challenges they will face as Thinker Makers. This final attribute reminds us that a "Design Way of Being" is always intentionally active and not reactive.

As we return our focus to education and contemplate its role in the future of design, we must consider the actual definition of "design." A decade ago, designers were educated on the premise that design was both a verb and a noun: design as in "the activity" and design as in "the thing." This distinction is now blurred. Design as a "Way of Being" is now as ubiquitous as information gathering. It's with this belief that I advocate that design educators take control of our collective design future and train designers and non-designers alike with a core of philosophical "Design Doing." xxxx started its Product Design program with a clean sheet of paper, and has shifted the paradigm of design education from practitioner to influencer. Here, the core of "Design Doing" is instilled as a foundation, not a specialty. Students now centered in "Design Doing" can focus on broadening their impact by adding an affinity of their choosing. This mashup between design and affinity is powerful; students steeped in traditional design skills are eager to disrupt markets that never experienced design. Our students are mixing design with culinary arts, material science, film and biomedical engineering just to name a few. And, given the success we have already experienced with this new approach at xxxx University, I expect this list and the contributions our students will make will grow in years to come.

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