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Advancing Design Thinking Towards a Better Understanding of Self and Others
A Theoretical Framework on How Buddhism
Can Offer Alternate Models for Design Thinking

Abstract
In advancing the design discipline, two key themes repeatedly emerge: design's move away from materialism and augmenting better problem-solving skills through self-awareness. The first anchors design in a process rather than a product, something that is native to the concept of design thinking. The second anchors the designer in ethics. Designers who have a strong sense of self-awareness, understanding their own roles, biases and influences and the larger contexts they inhabit, are overall better equipped to solve problems. If we continue to advance design away from materialism and towards self-awareness, what models can we follow in this change?

Keywords: design thinking, self-awareness, design, ethics, Buddhism, design theory

Introduction & Existing Scholarship
What is design thinking?
Design thinking has developed to mean two distinct yet related concepts. The first and most commonly understood definition describes it as a specific methodology used to solve problems. The second and lesser-known definition frames it as a set of design-native cognitions. Both are integral to our discipline.

The first aspect of design thinking is the methodology. The most widely regarded examples come from IDEO, the Design Council and Stanford's d.School. IDEO's method is distilled into three basic stages: *Hear, Create and Do,* from a human-centered approach (Maer and del Lima, 2015). In IDEO's "Field Guide to Human-Centered Design", these three fundamental activities are expressed as: *Inspiration, Ideation and Implementation* (2015, p. 11). First, designers must listen and absorb before generating ideas and then implementing them. The Design Council's process is referred to as the "Double Diamond" as it is shaped like two diamonds set next to each other. The Double Diamond's four-stage process is as follows: *Discover, Define, Develop and Deliver.* Designers first use research (discover) to help define the problem at hand, which informs any idea and creative development and execution of final deliverables (Design Council, n.d., n.p.). Stanford's d.School uses this basic approach: *Empathize, Define, Ideate, Prototype and Test* (d.School, 2010, p.1-10). The Stanford process begins with empathy before defining the problem and then continues with generating ideas and creating prototypes to test their validity. The IDEO and Stanford methodologies have over the years become increasingly similar, expanding to include "core abilities" or "mindsets".

The methodologies from IDEO, the Design Council and Stanford are successful and have been widely adopted for some crucial reasons. First, all implicitly show a cumulative and contingent process whereby each phase (and its success or failure) is built from the knowledge of prior phases. Second, each methodology uses a limited number of relevant stages. Design thinking, at its best, is a framework loose enough to allow for change, mess and non-linearity, but structured enough to evolve/progress from one stage to the next.

IDEO's method places emphasis on active listening. The strengths of a good researcher, nay a good designer, necessarily involve setting aside all preconceptions, assumptions and biases, to simply listen and be open to what someone else is saying or doing. There is a fair amount of ego that must be set aside in order to listen well (and there is a fair amount of ego in design). IDEO is also well known for putting forth early, incomplete ideas and refining them iteratively until a viable solution is reached. The Double Diamond incorporates key aspects of design in its shape. The problem half and the solution half of the process are given equal weight, and the shape shows both halves of the process as fluctuating between convergent and divergent cognitions. Divergence is essential for ideation, the more the better. However, convergence is best suited for synthesizing techniques like consolidating research, writing and witnessing patterns that emerge or problems that arise. In my own experience, I have found that most people are proficient in convergent techniques, but largely unskilled in divergent ones. Giving equal weight to both highlights how designers frequently change thinking processes to best suit the situation. Finally, the d.School and Double Diamond methodologies emphasize problem identification. This stage may be the single most important of the entire process. Properly identifying the problem is quite difficult. Examples of problems that are not properly defined exist in abundance in our world. We see them in band-aid solutions, solutions to problems that do not exist, solutions that create more problems and solutions that solve symptoms rather than actual problems (Adams, 2001, p. 7, 10-11, 24).

There are many benefits in using a design thinking methodology. First and foremost, its structure and process are very easy to communicate to non-designers. The methodologies produce a shared language between designers and others on what to expect and what the process looks like. They also offer a foundational understanding of what design is and how to do it. Additionally, these methodologies have been widely adopted in practice and academia and have been written about extensively. When a core concept like this has been vetted against all major facets of our discipline, its value is clear.

How does the brain process information? What cognitions are germane to creativity?

The second definition of design thinking is literal and introspective; it pertains to the various cognitions that are native to the design act. This second aspect has been offered by notables like Nigel Cross, whose scholarship is dedicated to uncovering the cognitions designers use in their practice. Cross' scholarship has developed over the years, culminating in an aptly titled book, *Design Thinking: Understanding How Designers Think and Work*. In it, he has gathered a cross-section of design projects and case studies from well-known and successful practitioners in order to gain a better understanding of the cognitions that are implicit across seemingly disparate activities. When looking at the practice of design, which spans all different sub-disciplines (from transportation to product to architecture to interface), what is it that we have in common? What shared cognitions lie at the core of what we do?

In his book (p. 136), Cross validates his theories through the scholarship of Vinod Goel and Jordan Grafman. Goel and Grafman compare the work product and process of a skilled architect with full cognitive capacity to those of a skilled architect who has suffered brain damage following a stroke (2000). It is through the inability to design that Goel and Grafman are able to identify design-centric cognitions. Lateral and progressive thinking, for example, are basic requirements of a design practice, yet they are impaired when there is damage to the prefrontal cortex. Goel and Grafman initially test and observe the man, noting that he was "exceptionally intelligent and articulate and displayed an excellent vocabulary," yet "despite his exceptional neuropsychological profile, he was involuntarily unemployed and unable to function as an architect." (2000, p. 418-419). "It is in ill-structured real-world situations that patient planning deficits are most likely to emerge" (2000, p. 416). Certain higher order cognitions are part and parcel of what we do; without them, we cannot design.

James Adams has a slightly different focus from the scholars above, but his work still very much pertains to design-based cognitions. His interest is in identifying cognitions that enhance or impede creativity. In his view, designers regularly have to balance the imaginary with the pragmatic, recombining and manipulating relationships to form new meaning (Adams, 2001, p. 51). Adams organizes his book by types of cognitive blocks, from emotional blocks to taboos, stereotypes and preferences for one type of "thinking language" over another (linguistic, visual or mathematic, for example) (p. 71-76). He also states how little attention we all pay to the workings of our mind.

Design thinking, both as a methodology and a set of cognitions, offers the discipline of design several marked advantages. First, through design thinking, we indirectly set boundaries around our field of knowledge, claiming simultaneously what design is as much as what it is not. This rational, yet subjective framework has informed our epistemology, even helping us to further understand and identify 'designerly ways of knowing' (Cross, 1982, p. 223). Designers excel at the strategic use of divergent and convergent thinking (Double Diamond); in planning and lateral thinking (Goel & Grafman, 2000) in synthesis (Kolko, 2015 p. 41; Cross, 1982, p. 223), pattern construction (Cross, 1982, p. 224), visualization (Cross, 1982, p. 226 and in flexibility of thinking styles and techniques (Adams, 2001). Designers also have specific cognitive skills for dealing with ill defined or "wicked" problems (Rittel & Webber, 1973; Kolko, 2012; Cross, 1982, p. 224, 225; Goel & Grafman, 2000). Of primary importance to this paper is the realization that design thinking—both the methodology and the cognitions strictly highlight the mental processes used by designers. Nowhere is there a requirement being made for material production.

Between the methodology and the cognitions, in use and in epistemology, it can be argued that design thinking has become *the* foundational concept of the entire discipline. In the classroom, at introductory levels, these concepts exist as a base upon which all other design skills rest. Yet rarely are they introduced at a foundational level, and rarely are they decoupled from materialism. Time and again, designers ignore the human component in all of this as well as the contexts (ecological, psychological, etc.) that frame our work and practice. Significant questions arise when we start to ask for whom and to what end we apply our efforts. This is where the theoretical base of design comes in, where ethics and context challenge current practice. Which projects we take on and why do matter. It takes a shift in perspective to ask: *how else can we use a methodology and a set of cognitions? What happens when we decouple the concepts from specific functions or expected outcomes?* This shift in perspective becomes even more necessary when we look at the larger contexts within which our work lives because materialism is becoming increasingly less appropriate or necessary for design, for our society and for our future.

Problematizing Design Thinking

There are a number of specific concerns regarding our understanding of design that have implications for the manner in which we view our practice and epistemology and structure our pedagogy. These concerns have been clarified, in large part, by the emergence of design thinking because design thinking separates the process that designers use from the things that we make.

Within design, there has always been a subtle tension between the thing that is made and the process used in its creation. Confusingly, they are both frequently referred to as "design" ("Hand me the *designs*", "how did you *design* that?"). Despite common understandings by people outside the field, what we make is not synonymous with what we do. This distinction has been made plainly clear through design thinking.

Design thinking, in brief, is the mechanism that designers use to solve problems. What this mechanism offers our discipline is a clear language that places the emphasis of design on

process and cognitions, not on the object—it clarifies the role of the designer as distinct from the things that we make.

Fusing designers with the things that we make was unquestioned throughout the twentieth century. Now fully into the twenty-first century, however, we are being confronted on a global scale with the waste that comes from material production. We have limited natural resources, we have an exponentially increasing global population, and we have tremendous challenges facing us regarding equity, inclusion, access to clean water, loss of biodiversity, food, transportation and energy. Clearly, we have not done the best of jobs solving problems and, unfortunately, all too good of a job making things. We can no longer feign ignorance of the impact of our collective efforts.

I could not imagine a statement that more accurately problematizes our previous/existing approach to design (and the materialism of design thinking) than this one:

> One of my very first projects was to design a toothbrush, a kid's toothbrush… in the end it became a really successful product. But my boss, maybe half a year after we launched the brush, um, went on a vacation. The idea was to go to the most remote beach, and the way Paul tells the story is like, the next morning he steps out of the tent, and he wants to go to the pristine beach, you know, whales frolicking and all perfect. And what does he stumble over? It's our toothbrush. And it's there, and it's this brush, uh, it's covered in barnacles, the plastic is faded, the bristles are worn… This brush, within months of the product being launched, had been used up, had been discarded, found its way into the Pacific. So even though it's a little small object, creates a big piece of landfill that apparently goes just about everywhere.
>
> (Overthun, 2009)

Overthun himself works with one of the world's pioneering firms in design thinking. His statement is a necessary and honest betrayal: the damage that design can do when it ignores larger contexts and instead kowtows to ego and consumerist preconceptions/biases—the inappropriate emphasis on placing humans above everything else and on making social and ecological concerns subservient to, or in the service of, materialist ends.

Our work as designers is being called into question, and rightfully so. When the toothbrushes we have designed are washing up on remote beaches, or when large regions of the Pacific Ocean are covered in a skin of flotsam, we have to acknowledge our prior practice as having failed. The methodologies we use do not exist in a vacuum, and it is a mistake to think that we will find solutions through a methodology alone.

This criticism is not unique to me; it is a widespread concern in our field. Designers across the globe are simultaneously confronted with the irrelevance of daily professional tasks *and* the significance of our impact. It is a form of cognitive dissonance to have one's own daily experience clash so significantly with ethical concerns and serious issues on a local and global scale. The problem of design exists; we are all aware of it. Talk to a designer long enough, and the internal conflict wrestling with these exact concerns will emerge. I am not saying anything new here. What I aim to do that is different, however, is to clarify the overt separation of design thinking from material production and offer up a different model with which to align design thinking. There *are* other models out there, other paths that we can take.

Despite widespread efforts aimed at commodifying design and design output, especially in the US and UK, *and* efforts aimed at validating design through an economistic, often materialist lens (the Design Council, for example, has made significant efforts towards economically validating design in its 2015 report, "The Design Economy", while in the US, some design programs are migrating away from art towards business schools), this fundamental perspective on design is nothing more than a bias. *Do we make things, or do we solve problems?* Historically, the answer is that we have made things. In contemporary design, we have the opportunity to shift our field towards solving problems. Design thinking

gives us insight into how to do this. The position I am seeking to establish is a reframing of design, changing its primary function from materialist to cognitive. There are trends manifesting within design that transition our efforts away from a materialist/object-centered approach to a process-driven, cognitive one, which is sometimes intangible. The transition is not easy, but it is vital. Design thinking opens up a path to make this happen, but only if that process is anchored in the larger cultural and social contexts of our world and all who inhabit it.

Although seemingly a nuanced question of semantics, the entire trajectory of the discipline changes when we separate the things we make from the mentation we use. Decoupling these two things cracks wide open an opportunity to advance design to better, more ethical, more equitable uses.

Theoretical Framework – A Reframing of Design Thinking

> Why do people want to be happy with things? Material stuff. We're far too focused on the material stuff. And instead, those ancient religions, especially Buddhism, we've been focusing on the mind for years and years and years. That's the important part. And so these days, people don't understand what the mind actually is. (Brahm, 2017)

Material output plays a role in our world, but the assumption that material production is *the* solution to all the problems that we face is a false premise. If we examine our problems through the lens of human, social and ecological contexts, we have to suspend our assumptions on what the solution should be or look like and develop any and all ideas in order to be harmonious with these contexts. In many respects, this fundamental shift of the discipline is ethical: designers must be mindful of the consequences of our work on other people, society and the ecosystem; but rather than looking at a problem first and then assessing its broader consequences, we should first be framing our efforts within, and to be bound by, these contexts.

In short, the type of design I am interested in pursuing incorporates skilled cognitions; it is contextually aware of balancing human, social and ecological concerns; and it is evaluated by an ethical standard. The criteria that I set forth is not the dominant model of design. It is however, the dominant model of Buddhist teachings. By studying Buddhist teachings, I find more equitable and sustainable ideas for the future of design.

First, it bears saying that Buddhism is frequently misunderstood here in the west. Buddhist teachings are rigorous practices that are foremost aimed at helping people align themselves with rational, observable realities. To non-Buddhists, the teachings are conveyed as secular ethics. It does not matter if one is Buddhist or not to find value in the scholarship, and the teachings expect us to challenge them and test for validity before adoption. I will attribute direct quotes below to their authors, however, the majority of my argument is a synthesis of scholarship from studying the works of Tenzin Gyatso His Holiness the 14th Dalai Lama, Yongey Mingyur Rinpoche, the Bukkyō Dendō Kyōkai, Thich Nhat Hanh and, in significant proportion, Ajahn Brahm. Despite their different lineages and vantage points, these masters access the same core teachings.

There are parallels between Buddhist teachings and design thinking that at first blush seem surprising, but upon further reflection validate advancements in our field. I can easily draw parallels between empathy (design's vernacular) and compassion, or "loving-kindness" (Buddhist vernacular), and between a design thinking methodology (a procedural, cumulative process we use to solve problems, which specifically highlights the crucial roles of problem identification and listening in affecting positive change) and the Four Noble Truths (a similarly procedural, cumulative process for reducing suffering, with the crucial stages of identifying the specific causes of suffering and awareness in affecting positive change) I could

also make a case for how the methodology of design thinking is more closely aligned to the Four Noble Truths than that of the scientific method, simply because the Four Noble Truths are grounded in the subjective, unique concerns of each person and his or her own experiential contexts. Most importantly, however, both design thinking and Buddhist teachings are fundamentally about cognition. However, where Buddhists excel in developing the 'wise mind' designers typically do not. It is through the skillful mind that design thinking can stand to benefit most from Buddhist teachings.

The Buddhist concept of a wise mind, or a skillful mind, is rooted in deep listening, a kind of listening that is different from what westerners are used to. Yes, Buddhists listen to the wisdom of nature, but Buddhists also practice listening to our own minds, how they work, how they process information, project bias and color our world in terms of individual perception. Buddhists fundamentally believe that in gaining proficiency in how our minds work, we can be more aware of these mental mechanisms, smarter about the decisions we make, more aware of the impacts and live more harmoniously with the world.

Design can learn from Buddhists how relative all mentations are and how significantly our perceptions skew and distort our views of reality. "If ten people look at a cloud, there will be ten different perceptions of it" (Hanh, 1999, p. 53). If designers were more skilled in their own mental processes and perceptions, we would then be better able to acknowledge and suspend our biases and judgments in our practice (and be much more likely to identify when these things are being presented by others). James Adams alludes to our collective lack of skill in developing mentation in the introduction to his book *Conceptual Blockbusting* (2001). The first chapter goes into detail about how little understanding we have of our own thinking processes. Just like a professional golfer trains to develop his expertise, professional problem-solvers should develop skillful matters of the mind (Adams, 2001, p. 1-3). Design scholarship and practice remain significantly deficient in this area. How profoundly our individual perspectives shape our decisions, judgment and practice needs to be better understood, especially in a field that so heavily influences the lives of others. Ajahn Brahm, a highly well-regarded, western-born monk (trained in the Thai Forest Tradition of Theravada Buddhism), reinforces a skillful mind in just about every lecture he gives. For Brahm (2012), a skillful mind involves awareness, feedback and stillness. It logically follows that a person who is skillful in his or her own mind, who has insight into his or her own perceptions, and how those perceptions influence experience, is a person equally skilled in how these mechanisms function in others. I know many designers who are completely ineffective at changing their own lives, inept at their own mental formations and unsuccessful at solving their own problems. The measure of a good problem-solver should objectively be based on his or her ability to solve his or her own problems before solving those of others.

A skillful mind is predicated on the notion of mindfulness. Mindfulness is a rigorous form of introspection, observation and curiosity into the underlying causes and motives behind our thoughts and actions, identifying certain events and circumstances we are either repelled by, attracted to, or ignorant of and how they frame our world-view. Being cognizant of how one's perception colors one's response is part of this awareness. As individuals advance in self-understanding, heightened awareness of others occurs in tandem. Buddhists know that working on the self is the harder, more meaningful task because it also simultaneously unlocks an understanding of others. This attitude is in stark contrast to design acts and western thought, where little effort is placed on developing one's own wise mind, and much more effort is placed on happenings in the external world.

With design thinking, we have established a model for design that suspends all assumptions on what a solution should look like, requiring first to observe, learn, listen and research. Every widely regarded example of the methodology places significant emphasis on first observing, learning and listening. I would add the Buddhist notions of stopping and

resting because stopping and resting must occur before anything else can happen. This moment of pause and reflection is necessary for clear thinking. A calm, rested mind is where good and new ideas come from. "We have to learn the art of stopping" says Thich Nhat Hanh. "If we cannot stop, we cannot have insight" (Hanh, 1999, p. 24). Here in the west, we are culturalized into ignoring and overriding periods of rest and reflection, sacrificing them for speed, development and "progress". Ronald Wright, for instance, discusses how our insatiable progress has gone so far as to result in "progress traps" (Wright, 2005; Roy & Crooks, 2011). We push forward with ill-conceived ideas and then become frustrated when they result in further problems. We also don't understand why better ideas spontaneously occur at unwanted or unexpected times (Adams, 2001, p. 50). In the east, how solutions and ideas emerge is better understood. Solutions come from rest, not from action. The mind performs better when it is calm and clear. Good ideas emerge at seemingly unexpected times, like when exercising or in the bathtub, specifically because these are moments of rest and release.

Very few notable designers speak directly to the importance of rest and time in problem-solving. Adams goes into detail about "incubation periods" as moments of pause away from a problem or project, knowing that these breaks should be embedded in our process. He goes on to state "it is also important to be able to relax in the midst of problem-solving" (Adams, 2001, p. 50). Jon Kolko, in, *Wicked Problems: Problems Worth Solving*, also argues for the realistic and lengthy time it takes to develop new ideas, rebuking "constant but meaningless change" (Kolko, 2012 p. 12-15). Kolko challenges our compulsion to "relentlessly keep making stuff" (p. 15). There is an urgent need to decouple design processes from economic and materialist/consumption demands. True problem-solving takes time and requires a clear mind. The design field at large would benefit immensely from slowing down. In doing so, we would give ourselves more opportunities to really reflect on what it is we are doing and why.

Moments of pause and reflection, along with a healthy sense of self-awareness, are crucial to design because of how much of our own perception and bias frames what we do as designers. We listen to and empathize with our audience, but we very rarely consider how our own beliefs and ideas carry influence. In design, we pay very little attention to the conceptions that we as designers bring to the problem and process. Our own blocks and perceptions imbue every decision we make and can frequently obscure non-traditional avenues.

Through the ideas of Ajahn Brahm, James Adams and even Nigel Cross, we understand that skillfulness of mind has a significant impact on our problem-solving strategies. A skillful mind can see a widely divergent and even unorthodox array of possibilities. A skillful mind can even recognize when the absence of a solution, or even disengagement, is the best alternative (Adams 2001, p. 9; Brahm, 2011, p. 4). Being faced with unprecedented social and ecological issues implies an urgency to conceive of new and fresh ideas, and there are equal benefits in not creating more problems through fallacious efforts. Being more conscientious of which problems we solve and why is simply an integral part of the overall problem-solving process. Moreover, if we listen to the wisdom of Buddhist teachings, we must also open up to the goodness that already exists. Waiting for a perfect situation or circumstance denies us the ability to see what is good, right here, right now. Ultimately, as Ajahn Brahm gently reminds us, we will never solve all of our problems; attempting to do so is a fool's errand (2011, p. 7).

Infinite capability is a Buddhist ideal with which designers align well. Infinite capability "consists of an unlimited power to raise ourselves and other beings from any condition of suffering" (Mingyur, 2009 p. 88). It is the ability we have to affect change. If there is one truism about designers, it is our desire to affect change, often with the aims of improving the lives of others. Examples abound, from early modernism to Buckminster Fuller

and to design thinking classes that work on governmental policy change in Finland. Our willingness to submerge ourselves in problem-solving is one of the most endearing attributes of our field. We only need to ensure that our efforts are conscientious.

Buddhist teachings also emphasize loving-kindness (*metta*). Metta originates from the direct teachings of the Buddha, handed down through oral transmission, until written in Pali (you can read a translation of the Metta-sutta in Walpola Rahula's "What the Buddha Taught" p. 97) , Metta is as important as mindfulness. Mindfulness without loving-kindness, or loving-kindness without mindfulness, is deficient by half. Ajahn Brahm sees these concepts as so interrelated that he's developed the portmanteau of "kindfulness" (Brahm, 2016). In the west, our concept of loving-kindness is a combination of empathy, friendliness, care and compassion. As mentioned above, empathy is a hallmark of design thinking, we must empathize with the people for whom we design, who our work affects. I would similarly argue that design without empathy is deficient by half. Our empathic kindness should extend beyond one particular group or audience to include society and ecology. In design, we seem to value human concerns above all else ("human-centered design" is an example), but in reality, our efforts at over-production, consumption and waste-making are self-destructive and human-harming.

Jeremy Rifkin's scholarship posits that however tribal human beings are, with each social advancement, we broaden our definition of the tribe. From family, to community, to race, each tribal association brings greater connectedness. Rifkin asks if we can expand our empathy even further, to "our fellow creatures… and to the biosphere as our common community. If it's possible to imagine that, then we may be able to save our species and save our planet." There is a paradigm shift occurring whereby scholars around the world are coming to similar conclusions, that innate human behaviors are not those of narcissism and self-interest, but of empathy, affection and belonging (Rifkin, 2010). Acknowledging the larger interconnected system, of which we are all part, is referred to in design as "systems thinking" and in Buddhism as "interdependence". Buddhist teachings validate interconnectedness; Buddhists recognize how interwoven everything on this planet is. "As in nature, as in our life. We're not apart from nature, we're part of nature" (Brahm, 2017).

The final concept within Buddhism that I will call attention to is the ever-present ethic of doing no harm. In Buddhism, doing no harm has two orientations: to oneself and to others. Our efforts are destructive if they benefit us at the expense of others and vice versa. A balance must always be struck between ourselves and the external world whereby, in any and all cases, to the best of our abilities, we *do no harm.*

Doing no harm has significant implications for our field. When designers balance the desires of clients, audience, society, the environment and themselves, it is common to preference one over the other. Clients are often the funders of design projects, and the tendency to prioritize their concerns can emerge. When we act on behalf of an audience, we must also question whether our actions are harmonious with society and the environment. Preferencing one group over another is an indicator of a lack of creative thinking. There truly are solutions to problems that are beautiful and that work in accord with all vested interests; we simply have to be willing to develop them. When we make decisions on which projects we will engage in, a healthy acknowledgment of personal drives and worldly consequences is paramount. Satisfying our own desires at the expense of our families or communities is the equivalent of "eating our children's flesh" (Hahh, 1999, p. 32). "If while we eat, we destroy living beings or the environment, we are eating the flesh of our own sons and daughters" (p. 32). When we destroy the natural landscape and ecosystem, we are taking away from future generations. In essence, we are borrowing from one area to service another. Conversely,

> For contemporary engaged Buddhists—the Dalai Lama especially—a sense of responsibility rooted in compassion lies at the very heart of an ecological ethic: 'The world grows smaller and smaller, more and more interdependent…today more than ever before life must be characterized by a sense of universal responsibility, not only…human to human but also human to other forms of life. (Swearer, n.d., n.p.; quoting Nash, 1987)

Pledging to do no harm as a designer keeps ethical concerns at the forefront and ensures that our efforts are in accord with others.

What Buddhism offers design are twofold: a validation of some of our efforts; and new directions for pursuing the things that we need to course-correct. Buddhism and design thinking both follow a procedural and cumulative (problem-solving) process that involves first recognizing the problem, identifying the reasons the problem came to be and then seeking strategies for better future directions. Buddhism and design thinking are both centrally focused on matters of the mind and how mastery of the mind results in profoundly increased quality of life. Both also call for a heightened emphasis on empathy/compassion/loving-kindness. Succinctly stated, the challenge issued by Buddhist teachings is to be more cognizant of the workings of the world, and rather than trying to thwart or impede them, we learn to adapt and align ourselves. Design tasks should do the same.

Implications

The implication I hope will emerge by aligning design thinking with Buddhist teachings is to offer our discipline an alternate, non-materialist model to learn from. I believe that there are many other models we could follow, and I hope to see them emerge and help advance our discipline.

By looking at alternative models, we can question and critique our working practice as well as see new directions and possibilities. Through Buddhist teachings alone, the concepts I have included above offer a fresh perspective on our discipline. In listed form, they can loosely be categorized as: mindfulness, process-orientation and contextualization:

Mindfulness:
- Awareness and development of our own cognitive strengths, processes, weaknesses, biases, perceptions, etc.
- Awareness of the cognitive strengths, processes, weaknesses, biases, perceptions, etc. of others
- Asking whether there are aspects of our practice we take as "givens" that may in fact be traps or impediments
- The measure of a problem-solver by how well he or she solves his or her own problems before attempting to solve those of others
- Acknowledging and valuing what is good and working well

Process-Orientation:
- Differentiating between which problems should be solved, and why, and which problems should be abandoned
- Ensuring that our process is ethical: not creating problems that do not exist, solving problems in a way that is beneficial to ourselves, one another, culture and nature simultaneously
- Allowing for rest, time, reflection and kindness as part of the design process

Contextualization:
- Not falsely attempting to bracket off interpersonal, cultural and ecological contexts, but rather placing priority on these contexts in our problem-solving
- Ensuring that our efforts do no harm
- Fully acknowledging subjectivity and experience as practical realities of our perception and our practice

As mentioned above, nowhere in our field is materialist production required, and in fact, it is a largely unquestioned bias that designers assume in practice—a bias that has led our culture to unprecedented waste and depletion of natural resources. The implications for our current consumptive model of design are clear. Being practiced problem-solvers, it has long been time to turn our attention towards our own discipline and steer it in directions that are more congruent with our social and ecological boundaries. The challenge, I believe, is not due to a lack of imagination, but one of implementation. I would be hard pressed to find a designer who did not want to affect positive change in the world around him or her. It is another matter, however, to know how in a very functional, pragmatic way.

Testing/Validation

As a design practitioner and educator, I have the enviable position of being able to vet my ideas through practice, theory and pedagogy. I regularly implement the above concepts in the classroom, at the foundational level, with students who have had very little introduction to design. At Portland State, in ongoing classes dedicated to design thinking, we position these concepts as foundational learning. My design thinking classes are open to all students in the university, and being a public, urban campus, we have a robust and diverse student population. I have had international students from China, Brazil and Mexico, and I have had students who were born and raised in Oregon. My students also come from a wide array of identities, ideologies, interests and backgrounds. I have had veterans and war protesters, liberals and conservatives. I have students who are cisgendered, transitioning and transgendered, with interests and majors in everything from criminology, to Japanese, to art and design.

My students have had little to no formal training in design, something very common at this level of education. As such, I believe that in undergraduate education, the ideas I propose here are ideally placed. At the foundational level, students do not have preconceptions about what design is or should be. At the same time, they are also our future practitioners and educators. Furthermore, most of my students are aware of various cultural and ecological contexts, concerned about the problems confronting their generation and want their efforts to have a beneficial and meaningful impact on the world.

I introduce design thinking concepts immediately, and over the course of the term, we practice the Double Diamond methodology twice. The opening project is on wicked problems and acknowledging complexity. The students are tasked with mapping a wicked problem in its entirety. This exercise acts as a mirror on their own biases, beliefs and experiences. We go through multiple drafts because their tendency (perhaps an innate human tendency) is to "satisfice" (be satisfied with the first pass or an answer that appears to be "good enough" even though it sacrifices in some way), a notable concept of Herbert Simon (1996, p. 26,). In mapping out a problem in its entirety, perceptions become a central discussion point. For example, a number of students want to map out racism. In the process of identifying all the various influences and participants in racial dynamics, we will organically end up discussing the difference between interpersonal and institutional racism. We will also inevitably wind up discussing how the drawing of the map implicitly includes who the students think is

responsible for the problem being what it is. It is also notable that each student will map out the problem differently. Even if twenty of them choose the same problem to visualize, each map will be unique to the person who sketched it. Perception and bias are discussed. Questions also emerge, like: is racism then only the problem of a racial minority, or is it a problem for everyone? — what they include or choose to not to include becomes highly reflective and important. Overall, the learning objectives center on complexity, empathy, personal experience, perception and seeing a problem in its larger context.

The hallmark of design thinking as I teach it is to ask students to wrestle with the difficulty of solving a problem in their own lives. They choose for themselves the problem to work on, with the only criteria being: it must be doable in the time allowed, and they have to pick a problem that they feel comfortable sharing with one another. This single project elicits confrontation with some real crucial concepts relating to design and problem-solving: self-observation, reticence/reluctance to solve a problem (and why) and their ability to navigate a process that organically unfolds rather than a predetermined outcome (also known as contingent design or research-driven design). None of my students have ever spent time dedicated to an effort like this; they have never tracked their own actions and behaviors. They have also overwhelmingly been trained to know a solution in advance, and this new method can be somewhat destabilizing. The project also immediately highlights students' current cognitive development—an ability (or inability) to work through problems—how they frame a problem, their relationship with it, how they go about solving it and their own biases. All these aspects become opportunities for significant personal growth and enhanced self-awareness. Like the mapping exercise, students can all choose the same problem and quickly discover how unique they are in what works and what does not.

In being confronted with how difficult it is to solve a problem in their own lives, they also have a more accurate and respectful understanding of then approaching those of others. My students flourish when they are taught skills with which to solve their own problems, and frequently, they either immediately want to tackle another one (as is the case with the current group), or they use the skills in the class to solve problems that they were initially unwilling to share with others (but then privately tell me they have done it). The problems we have worked on span a spectrum from functional, like budget and transportation issues, to interpersonal in nature, like "I don't get along with my manager/roommate."

When we transition to an ethnographic project, the skills that they have acquired in solving their own problems become immediately relevant and useful when working with others: do not create a problem where none exists; listen deeply; be mindful of who is steering the process and why; and be respectful of how hard it is to solve problems in general without the cognitive tools to do so.

The concepts articulated in previous sections of this paper are embedded in the course content. First and foremost, the use of a methodology and the identification of design-native cognitions serve as strong foundations to the practice—foundations that transition away from the goal of the artifact or object to a foundation based on thinking as it pertains to human development. Thus, all projects are oriented towards self-awareness/mindfulness and students' cognitive development. Second, we grow kindness for oneself and others through active listening and empathy. Third, we discuss the importance of research, observation and pausing before any attempt at solving. Fourth, we do not create problems where none exist. Fifth, where there are problems, we use a skillful mind to look at the problem from many possible viewpoints. Finally, our solutions must be in accord with ourselves and the external world.

I have placed this challenge in front of over one hundred students to date at PSU alone. For many of these students, this is the only art and design class they will take or have ever taken. What they walk away with are hopefully tools that serve them as life skills. Their

feedback has frequently indicated so. Many of my students have never had a classroom project dedicated to their own lives, let alone self-awareness, or even self-observation (for more detail on these projects, including outcomes, please see James, 2015).

Conclusion

For the vast majority of designers, their rigorous path begins at the foundational level of undergraduate education. In academia, as educators, we act as gatekeepers to the world of professional design. Moreover, through our instruction, the shape and trajectory of student development are solidified. If we want to change the course of the discipline towards more ethical, equitable and sustainable ends, we must begin here.

In my particular experience, starting with design thinking at the earliest formative level of designer development, or as an introduction to the discipline, allows individuals to walk away with a methodology and a set of cognitive abilities that serve them in any capacity in life. The difference between existing design thinking scholarship and the adjustments I am proposing is one of seeing design not as material output, but as an act of the skillful mind, recognizing that we live in and are bound by the larger global system of natural resources and human needs. Problems, designers, culture and nature are interdependent and exist in this broader landscape simultaneously.

A person educated in design processes and related cognitions should likely be more informed, more ethical and more responsive in his or her practice as he or she is more critically aware. In some respects, similar thought can be found in the scholarship of Nigel Cross. His expectation for design education is that it is in the service of the educated person, an intrinsic value (1982, p. 223, 225). Although this seems a truism, it is not. Our educational paradigms still give preference to materialism over self-development, or rather, develop the self in the service of materialism.

When we acknowledge that our own cognitions shape how we interact with the world, it is natural to then see how these same mechanisms operate in others. Buddhists fundamentally believe that in gaining proficiency in how our minds work, we can be smarter about the decisions we make. There is much we can learn from teachings that have been developed over the last two and a half millennia.

Designers bear a tremendous amount of influence. There are alternative functions and models for design that are more valid artistically, culturally and developmentally than materialist output. Design can act in interventionist roles, even revolutionary ones. However, in order for this to happen, we have to first abandon the assumption of what design is and how it is used.

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