Skills Matter (Navigating Whitewater)

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Design Unbound
8

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Preface

What you have in your hands is a small booklet that makes the case for skills mattering more than ever in what we have characterized as a white water world. A kayaker does not get into the rushing water of the river without skills and good tools.

"Skills Matter" talks about skills that will be familiar to the reader, but it also talks about skills that are specifically necessary for working on complex and radically multi-disciplinary socially embedded problems. Things like: entanglement as a skill; empathy as a skill, not just an intention or intrinsic capacity; and it talks about the skill of being able to move into unknown and untried waters at a moment's notice.

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"Skills Matter" is chapter eight in a larger work *Design Unbound. Designing for Emergence in a White Water World* (MIT Press, 2018). *Design Unbound* presents a new tool set for having agency in what we call a white water world—one that is rapidly changing, hyperconnected and radically contingent. The tools presented are not the tools of a coder or a carpenter but tools that are directly associated with a new kind of practice that is the offspring of complexity science and architecture. Complexity science gives us a new lens through which to view the world as one that is entangled and emerging. It gives us new concepts and tools. Architecture has always been about designing contexts in which things happen.

The first five tools in our tool set have been taken from the studio-based practice of architecture. A studio is normally thought of as a space in which architects, artists, photographers, or dancers, work. In other words, it is a place where

the arts make things, integrating their knowledge, tools, and skills in an environment of experimentation, speculation, and imagination. But the tools of studio practice can also be used to do work where the work one does is not in the domain of the arts, but instead wrestles with complex multi-disciplinary, multi-dimensional problems, creating *a new kind of practice* for agency and impact in a white water world.

Design Unbound is a system of nineteen chapters that present a set of ten tools and three metatools for this new practice of design—for working in today's complex systems environments and on today's complex systems problems. These tools begin in architecture and then expand by drawing from a vast array of domains: from architecture, science and technology, philosophy, cinema, music, literature and poetry, the military, even. *Design Unbound* aims to blend a polymathic reservoir of thought seamlessly with real life examples of successful design and action, but we do not expect all readers to be polymaths. So, from architects to people involved re-conceiving higher education to the public policy or defense and intelligence communities, each audience will find different tools most relevant, and different chapters will resonate with different reading audiences.

The chapters are loosely organized in five themes; each theme begins with a chapter that wrestles with the underlying 'why' of the theme and then includes a set of tools. "Skills Matter" is the last chapter of our first theme—We Start in Architecture. Although called a tool, "Skills Matter" is less a tool than a position that values and demands learning around skills, tools, and methods—learning done in action and in contexts as one needs; learning that crosses boundaries as needed. It does not prioritize skills over knowledge, but it does take a stand against knowledge alone as being enough.

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For a while, we thought of *Design Unbound* a little like a manual, and we were using that analogy until a friend of ours called it a 'system of books.' We were having trouble describing succinctly what it was—more than a book and yet not a series in the sense of being 'serial' where coherence depends upon the way short installments or successive pieces of something follow one on another in a linear fashion. Instead, *Design Unbound*'s coherence is dependent on the way the different chapters interact with each other to create an aggregate whole. As a system of nineteen chapters, we think of them like a deck of nineteen cards that can be shuffled and grouped differently. While different chapters will interest different people, providing different entry points to the larger work, all of the chapters together create a rich integrated tool set of ten knowledge-, skill- or method-based tools for acting through design and three metatools that do work of a higher order—at the level of the ecology of the problem.

Skills Matter (tool #5/chapter 8)

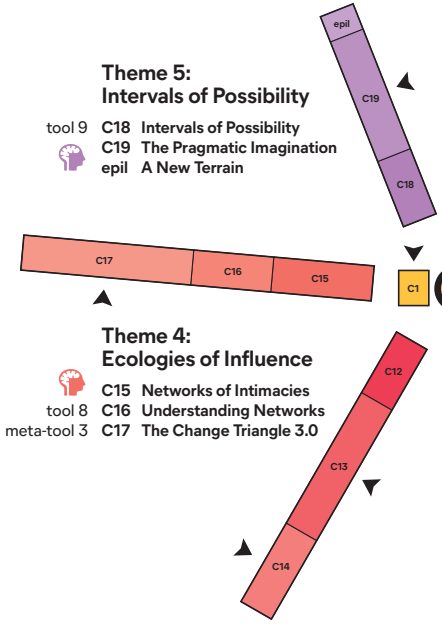
bundles with the other four tools adapted from the studio practice of architecture:

Rapid Iteration in a Problem Solving Space (tool #1/chapter 4)
The Expanded Brief (tool #2/chapter 5)
Critique (tool #3/chapter 6)
Orchestrating Ambiguity (tool #4/chapter 7)

within the theme: *We Start in Architecture*

Map of Chapters

▶ = entry points



Launching Platform

C1 Abreu and the Venezuelan Youth Orchestras
C2 Design Unbound

Theme 1: We Start in Architecture

C3 Starting in Architectural Design
tool 1 C4 Rapid Iteration in a Problem Solving Space
tool 2 C5 The Expanded Brief
tool 3 C6 The Role of Critique
tool 4 C7 Orchestrating Ambiguity
tool 5 C8 Skills Matter

Theme 5: Intervals of Possibility

tool 9 C18 Intervals of Possibility
C19 The Pragmatic Imagination
epil A New Terrain

Theme 4: Ecologies of Influence

C15 Networks of Intimacies
tool 8 C16 Understanding Networks
meta-tool 3 C17 The Change Triangle 3.0

Theme 2: Designing for Emergence

C9 Working in and on the World
tool 6 C10 Understanding Emergence
meta-tool 1 C11 Designing for Emergence

Theme 3: Ecologies of Action

C12 An Ontological Shift
tool 7 C13 World Building
meta-tool 2 C14 Systems of Action

Skills Matter (Navigating Whitewater)

When I (ApJ) took my first architectural design studio as an undergraduate student at Cornell University, I could not have been more poorly prepared. Coming from astrophysics, I had no previous exposure to architects or architecture. The language was foreign to me and the design mentality seemed inaccessible, as my professor would subject my tentative first steps to too many questions at once.

I persevered, and one day he took a deep breath, pushed his chair back, thought about it for a long minute and then explained how design was similar to changing a tire on a car. Rather than tightening one bolt completely, then another completely, you tighten the first bolt a little, move on to the next and partially tighten that one, and then the next, until finally all are tight and the tire is secured, balanced, and ready to go. It worked. I understood the nonlinearity of his questioning, and the value of simultaneous actions as a way of getting at the problem, and for moving the design process forward. As simple, and even clumsy as it was, the tire changing/bolt tightening analogy worked. It worked then, at that point in time.

Today, with the sheer number and scale of forces in play, the pace of change, and the connectedness that creates radically contingent relationships between things, a different analogy has emerged. The white water kayaker does not have the luxury of time or contemplation, but moves through an environment of highly dynamic flows, deeply embedded in an environment where conditions and constraints change quickly and continually. Diverse forces generate different, often unexpected, conditions. New information enters the system from all directions, seen and unforeseen.

Woman kayaker in rapids, Voss, Norway.

The kayaker must be able to rely on skills, tools, and knowledge that are deeply embedded in a way of doing. These skills need to be accessed with tremendous speed and elasticity. They become deeply honed instincts, developed from knowledge gained through experience that can be tacitly accessed at a moment's notice. Confidence to take risks and move into untested situations only comes with mastery of the necessary skills. Action is dependent on those skills being embedded as instincts.

In my twenties, I (ApJ) approached life, and design, like a small cargo ship—defining an objective, loading more and more knowledge as cargo, firing up the engines and heading off under full steam, without heeding winds, tides, other steamships, or unforeseen events. (Think Titanic.)

In my early thirties, I hit turbulent water. Things were not going as planned and I was in distress. Serendipitously, I met a professional sailor who gifted me with a better image. She said that a sailboat would be a very useful analogy with which to approach my life. An epiphany, this felt like a more natural analogy! A sailboat navigates its course by sighting a destination, determining a basic trajectory, setting sail, and tacking with the wind and currents to keep on course. Through skillful tacking, one plays the winds and currents to get where one thinks one wants to go. It is a more responsive way of moving through one's environment. In terms of design, the winds and currents were analogous to the parameters of the problem, including the questions, responses, and discoveries made along the way; reframing and expanding the brief through work and critique. This analogy allowed for unexpected deviations, whether minor or major. Even when blown off course, one could always return to an approximation of the destination.

But today, I think of the white water kayaker. We no longer sail along the surface of our environment, responding with some sense of orientation, control, and critical foresight. We are deeply embedded in a fast moving and complex terrain of knowledge and skill building, information, events, and disruptions. Disorientation is often part of this environment and can be productive when it catalyzes revisions in prevailing assumptions and practices, or generates deeply creative insights.

The white water kayaker requires a new state of being, one that can live/sense/assess the environment while simultaneously acting in and on it. The kayaker needs to be deeply aware of the specific textures and articulations of the water around. And she needs to read these accurately

in order to sense what is beneath the surface. She needs to understand the connection between the water and the things it engages with, in what is a very complex and dynamic set of interchanges. Living the environment—sensing the environment—in order to come to know it.

At the same time, she accomplishes this by acting in the water, and rather aggressively at times. The stroke of the paddle in the water provides information about the velocity and turbulence of flow as the water resists the cut of the paddle. This resistance transfers to the kayaker's muscles, sending a wealth of information simultaneously. Only by acting in the environment does one come to know the environment so as to better act within and on it. It is a conversation between the kayaker and the flow of information passing all around her.

This deep reciprocal correspondence between sensing to act, and acting to sense, means that skills matter. The kayaker would never get in the white water without certain skills. Skills, knowledge, and capacity build through taking on advancing challenges in unknown waters and complex situated feedback loops.

The kayaker needs a new and different set of skills from those of the sailboat captain or the steamship crew. To be effective in any complex system or context, the designer needs to know and sense the context deeply; to understand what is in front of her and to listen deeply to discover what is implied, elusive, and hidden below the surface.

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In a design environment of deep inquiry that manages understanding for action, and action for understanding, knowledge creation is a process of rapid-paced flows and exchanges, as opposed to the simple deployment of stored knowledge. Success depends upon moving along diverse trajectories simultaneously. And skills matter.

One cannot participate in the flows of creative spaces without a whole set of skills that facilitate work as exploration. Design skills include mental skills and skills associated with making. Work is a form of communication of thought with oneself and others. Making provisional things that test out different hunches without thinking too much, supports mental processes that are emergent. This leads to work that can then be evaluated through analysis and critique, leading to more work in which emergence and evaluation commingle.

Mental Skills and Skills Associated with the Hand

Mental skills include analysis and reasoning, posing and researching questions, critical skills, language-based skills—writing and speaking—and all the covert cognitive skills that have been built on experience, and which we associate with instinct and intuition.

These mental skills, coupled with experience, provide the basis for understanding. With certain skills—analysis, for example—one dissects an event to focus deeply on a particular aspect or perspective. This intensifies the information available. But ultimately, understanding demands that we use these skills simultaneously. Information and knowledge are not the same as understanding. Understanding is built through viewing something from multiple perspectives. It is not built by isolating events and information, but by finding correspondences between them and looking at them in contexts.

Things that fit naturally together yield obvious correspondences. But it is often the strange and illusive correspondences between remote ideas or images that yield more value because these relationships are open and shifting. They provide fertile ground for interpretation and creative thought that can lead to deeper understanding because these correspondences are more inclusive. But often the most productive correspondences occur between things that are at odds with one another because alliances form between them, connecting that which is at odds.

It is the *imagination* that facilitates these kinds of correspondences. Too often associated with pure artistry, willfulness, or inspiration, the imagination is a powerful mental tool that is nurtured as the mind translates experiences in uniquely

personal ways, and then constructs connections through the simultaneity and entanglement of images.

The imagination is fueled by images that we recall and put together. These images are translations of information, both precise and abstract. They can be the direct representations of things seen, or translations of things heard and sensed, or a variety of novel combinations of entities and parts of entities as images. In the translation process, connections are made, producing partially or fully synthesized correspondences that lead to understanding that surpasses just knowing. These translations are unique to each individual because they are informed by the continuum of past experience and subjective perspectives that we are born with and/or learn.

Skills are things that can be learned either directly or through practice—through engaging in something over and over again. Imagination cannot be learned. It is an ability, whether natural or acquired, to recall and put together images. This activity of making, sorting, and creating new images is scaffolded by the wealth of other mental activities that *can* be defined as skills.

Skills associated with the hand are associated with making things, both material and digital. Skills associated with making are also associated with specific tools. Different tools allow for the different types of exploration. But the more one works with diverse tools and diverse techniques—two-dimensionally, three-dimensionally, in diagram or sketch form, rough or polished—and the more tacitly one selects from among the tools and techniques available, the more open and exploratory the design process.

Mind and hand skills serve three distinct purposes. Firstly, they assist analysis and reasoning; one can make a drawing or a model that analyzes a situation or a precedent, or diagrams relationships.

Secondly, they explore issues, questions, material, and form, both intentionally and without articulated purpose. We make some things to explore the repercussions of specific alternatives in a semidisciplined, methodical way. But there are other forms of making where exploration is without censure. One makes to see what emerges, and then to construct connections and value as those things are subjected to critical questions.

Finally, in service of both intentionality and itinerant exploration, mind and hand skills communicate. They turn exploration into focused intention such that the intention is communicated, whether it is an internal communication to oneself or public communication to a group. Drawing a diagram can clarify an idea for oneself and it can present a complex idea to others. Diagramming together can move an idea/concept/product forward as a conversation of multiple minds and hands—the more skilled the participants, the more agile the conversation.

Making sketches and sketch models, provisionally and quickly, is also a form of communication, but one in which the mind communicates directly to the hand through an interplay of making and seeing that bypasses analytical, rational, and critical thinking. The hand is not a cognitive tool, but it is a tool of intelligence. One makes without thinking too much and then "sees" what one has made. The sketch or model is an agent of communication, which relays what is in the background of the mind to the forefront of the process. The more skilled one is

at making and at "seeing'—at self-critique—and the more one makes, the more fruitful and fun the adventure of design.

Skills and knowledge are acquired in the practice of design through a reversed process in which you seek out what you need as you engage with a problem. Because skills are acquired in relationship to a specific process and within the context of a project, they build on themselves. And one trusts them because they have proven their worth in battle. They are thoroughly assimilated and they scaffold each other in an ongoing practice of learning that is entrepreneurial in nature.

Because design is deeply synthetic, working off of recursive activity, one is always building on these moments, as opposed to moving through material. Knowledge is built in relationship to other knowledge that has been assimilated; it is never understood in isolation.

The Skill of Entanglement

But the most unique and important skill this kind of design environment catalyzes is *the skill of entanglement*. This is the capacity to think and act—to make things associated with different trajectories of thought—simultaneously or in rapid-fire succession. In doing so, one allows these different trajectories of work to influence each other—to entangle. Like the tire changing/bolt tightening analogy, it is also the capacity to maintain several trajectories of thought open simultaneously, except now, the strands of thought are numerous; they come from many different directions, and they change as you work with them. The skill of entanglement, then, is the capacity to expand the brief through work one is doing, and then productively hold multiple paths of inquiry open so that they influence each other in productive entanglement.

In his essay, "Some Notes on Brain, Imagination and Creativity," Antonio Damasio talks about several requirements for creativity, and some of the neural systems and functions involved. Although he is focusing on the mental abilities only, it is a very rich image of what we mean when we talk about the skill of entanglement.

> The first requirement here is the *strong generation of representational diversity.* What I mean by this is the ability to generate—to bring to your conscious mind—a variety of novel combinations of entities and parts of entities as images.... Another requirement is for *working memory with a large capacity.* Working memory is what permits us not only to retrieve and generate representations internally, but also to hold such representations actively "on line" and to operate on them—that is, rearrange them in space, recombine them and so on.... Creativity probably requires the capacity to hold many different data sets "on line" and the ability to manipulate items and

> parts of items in those representations such that novel combinations can be formed.[1]

The skill of entanglement relies on the dexterity of other skills, but it also requires an emotional disposition of awe, wonder, confidence, and curiosity. It requires a true suspension of disbelief so that one holds the different trajectories open, in anticipation that they will come together along the way.

This skill of entanglement enables the emergence of correspondences between seemingly disparate experiences, pieces of knowledge, or fields of operation. Therefore it is an invaluable skill for the creative work we associate with the imagination, and not merely incremental innovation.

The skill of entanglement is what we can call a juggling skill. But juggling for its own sake has very little value in design without the capacity to aim it at a particular design purpose. Its value in design is directly related to how one uses it to orchestrate epiphanies when information generated through the process (of juggling) coalesces into a very clear and holistic understanding of the problem, and what to do with it.

The interrelationship between these skills—mental skills of reasoning, analysis, probing; hand/body skills of action and work; and the capacity to do these quickly and simultaneously—is what leads to the ability to deeply assess contexts, their undercurrents, as well as their surface currents. This could not be more important today in a context that is rapidly and profoundly changing.

Empathy as a Skill

But to deeply assess contexts, to truly read undercurrents as well as surface activity, to not miss emerging correspondences between seemingly disparate things, we need to talk about *empathy as a skill*. Empathy is about being emotionally and cognitively embedded in a situation. It is about feeling, thinking, and perceiving things from an internal frame of reference rather than from an external or objective one. More than just understanding something, empathy means we identify with it. It is usually associated with the ability to identify with another person. But it can also scale to mean a group of others. We extend this further to contexts. Empathizing with contexts is about feeling, thinking, and perceiving things as if embedded in the context rather than from an external or objective position.[2]

And if we understand contexts as ecologies, then it is about feeling, thinking, and perceiving things as if one is one of the components in that context; participating in a complex environment of interdependent relationships and exchanges. Engaging with a context from an internal frame of reference, one can come to understand its undercurrents and its internal dynamics, and begin to identify with these from an empathetic position. This is very different from traditional analysis, assessment, and response.

Empathy can be natural to some people. But it is also a skill that one can intentionally develop or nurture.[3] From neuroscience, to philosophy, to social theory, to business management, there is a wealth of scientific and philosophical work on empathy that forms a rich terrain of theories and studies, discoveries and debates. In the interest of outlining empathy as a skill, and not merely innate capacity, we draw from the consensus that empathy can have different characteristics and scales. These map into two major types: emotional empathy,

in which one emotionally experiences the state of another; and cognitive empathy, which is the ability to recognize and understand the state of another *without* having a vicarious or emotional response.

Emotional empathy is then subdivided into two components: *empathetic concern*, which is the ability to recognize and feel another's emotional state, and as a result, show appropriate concern; and the actual sharing of another's emotional state through *emotional contagion.*[4] *Cognitive empathy* is subdivided into *perspective taking,* which is about taking the perspective of another by imagining oneself in their place; and *fantasy*, which is the tendency to identify with fictional characters and events. While historically, studies have focused on either emotional or cognitive empathy, recent work has insisted that "the cognitive and (emotional) components of empathy comprise an interdependent system in which each influences the other."[5]

So we can see empathy as having four natures to it—empathetic concern, emotional contagion, perspective taking, and fantasy. We are less interested in the fantasy aspect, so let's leave that out. We can then see these other three as not only different capacities, but as different scales of engagement with the empathetic object or, as we are suggesting, with a context.

The first of these is empathetic concern, which really is **the practicing of empathy**. Recognizing and sensing another's emotional state so that one can show the appropriate response is more about producing an empathetic action than assimilating the emotions of another. One can practice empathy, even practice it sincerely, without deeply understanding

the underlying feelings, thoughts, and value-based perspectives of the other.

The second is **perspective taking**, in which one takes the other person's perspective, one imagines themselves *as* the other person, thereby moving toward deeper understanding of the underlying feelings, thoughts, and value-based perspectives of the other.

And in the third, **emotional contagion**, one shares the emotions, thoughts, and value-based perspectives of the other.

These three build on each other. Practicing empathy in a certain situation or context provokes reactions that can lead to deeper engagement, which in turn, can provoke the desire and capacity to imagine oneself in the other's place and to take their perspective. This creates deeper understanding that can lead to sharing the emotions, thoughts, and value-based perspectives of another.

In order to deeply assess contexts, all of these must be operational. If we approach empathy as a skill, one can imagine building it through these increasing scales of engagement: practicing empathy, perspective taking, and then assimilating. This is not to suggest that it is a linear sequence. Different people begin with different capacities for empathy. But as "an interdependent system in which each influences the other," developing skills so that all three natures are fully functional, integrated, and tacitly accessible is important.

In today's broadly connected, radically contingent, white water world, the skill of empathy—the ability to engage context, either embedded in it, or *as if* embedded in it—and to understand context from an internal frame of reference is

critical for efficacy. The more distant the context from one's own, the more critical it is that one discover and design ways to feel, think, and perceive things from an internal frame of reference.

The Shift from Working Off of What You Know to Not Knowing What You Are Doing

Design is more than working toward a stated purpose with a stated intention. This is only the beginning of a practice of design that is after greater resonance with the present context, and greater impact in and on the context we are evolving.

One starts by looking at the problem, and opening the process of inquiry by asking really good questions around things one knows about the problem. This leads to questions that arise from adjacent material, and even to questions from material outside the boundary of the problem. In the beginning, one often works from experience and skills one has already developed and can easily access. The more experienced the designer, the more quick and agile the start.

Confidence reigns, pencils fly, material finds form, and digital models spring up and rotate in space. One is doing the divergent/convergent inquiry thing, but out of what one already knows; out of a pushing forward with intention. But then there is a specific moment when the problem moves from this "push" to a "pull" mode, where one starts doing things *not* because one controls the process, but because the project demands it.

This point of inflection from working off of what you know, to not (quite) knowing what you are doing, is a very powerful moment. It is a cognitive leap. The first time it happens to a young student of design can be one of the most significant moments of their career. Some may not notice it. Many will not recognize it. But it is the moment when one learns to trust design's creative space and embrace the ambiguity, the unintended and serendipitous, the many what-ifs.

There is a shift from "I know what I am doing," where one has more responses than questions, and the questions generated

belong to a certain focused train of thought, to lots of what-ifs that reveal the problem anew, with an entirely different process of inquiry. Questions are left unanswered in the short term, allowing responses and clarity to emerge. The earlier this moment occurs, the more open the project, and the greater the possibility for discovery; for finding empathy with the problem, with the situation in which the problem is embedded, and with the creative process itself. Increasing empathy and more productive assimilation of different factors supports greater agency and greater resonance.

Curiosity in the design process—linking thoughts about things as they are with imagining things as they might be—lets one ignore inconsistencies and unknowns while moving ahead. Germinating questions ground this design curiosity within the reality of the situation.

Comfort with working while not quite knowing what you are doing, and working with ambiguity and the unknown, requires a certain faith in the power of the creative process to eventually converge into one thing. It allows one to hold multiple ideas and images in a suspended state until correspondences between them are discovered and organized around the emergence of an idea that then acts as a center of gravity. From this moment on, one can move forward with clearer intentions.

How are students led to make that leap from designing in the comfort zone of intention, to the discomfort of ambiguity and serendipity, which we suggest is where creativity might begin? How do they move from a space of *intention* to a space of *attention* where one attends to what emerges?

In a design studio, one can coax, cajole, even trick students into acting without conscious thought; pose questions, provide procedural mechanisms, and create heuristic devices. But the suspension of disbelief required to act in this space of imagination can only be accomplished through the wonder of the student or designer.

When designers make something we have not made before … something that we did not intend completely, and which leads to new ideas and new unintended things, we wonder how that new thing got there. We wonder at the fact that we made it at all. Or often, we see that someone else has made an amazing thing and we ask how they achieved what they did. This leads to critical analysis. But without a disposition of wonder, there is no drive for inquiry other than as a mechanistic process. Without this deeply empathetic source of inquiry, we can only make incremental steps of productive difference, not open up whole new worlds.

Authenticity and Integrity

The white water kayaker moves through the rapids, and runs in conversation with the flow around her. Deeply embedded in the context, she understands it through feeling it. Unlike other conversations, these conversations *feel* for the flow of information passing all around.

But what keeps the white water kayaker afloat? What helps her find the right setup for a run, and what helps her roll aright when she flips over? It is the way she uses her body's center of gravity—her core axis of operation—her axis of balance. It is this axis of balance that gives confidence to take on the white water and increase levels of risk taking.

In this metaphor, this axis of balance and confidence is analogous to authenticity and integrity. Authenticity, coming from the Greek "authoritative self," is simply the capacity to know oneself; one's core strengths, weaknesses, values, and motivations, and to work *from* them and *for* them.[6] Integrity is how one's authentic self intersects with the world. Integrity, as an "unimpaired or uncorrupted condition—an original perfect or sound state,"[7] is about how one negotiates the dynamics and contingencies of the world in a way that works to sustain the authentic self, while also acting in a way that is consistently authentic. Often when we say a person has integrity, we mean that we know where they stand—we know their values—and we can count on them to act through those values.

In a radically contingent white water world where one cannot know all the parameters for making a decision or taking an action, where one can not foresee the entangled or unintended consequences ahead, and when one has to act in the moment without having time to think through decisions and actions, authenticity and integrity create a center of gravity from which to act, reflect, and learn.

Endnotes

1 Antonio Damasio, "Some Notes on Brain, Imagination and Creativity," in *The Origins of Creativity*, ed. Karl H. Pfenninger and Valerie R. Shubik (New York: Oxford University Press, 2001), 65.

2 As a designer, the challenge is how to get "as if embedded" in a context that is not ones own if one cannot spend a long period of time there, or if the foreignness of the context means that one starts from a place further away, so that it is difficult to begin to imagine oneself in the shoes of another in that context. Part of the design challenge is to go beyond *simple* ethnographies and interviews to design a much closer process of engagement.

3 We use the word "skill" with "empathy" specifically to value empathy as more than just an effective emotional response for navigating social relationships and processes. Developmental psychology talks about different stages of emotional development that include empathy. Life experiences contribute significantly to its development, lack of development, or even its deterioration. In talking about empathy as something that can be achieved through practice and good mentorship, like all skills, we realize we are simplifying and shortcutting sophisticated work in the true sciences related to this area. We ask forgiveness from scientists in this area for our simplification of all terms and concepts.

4 E. Hatfield, J. L. Cacioppo, R. L. Rapson, "Emotional Contagion," *Current Directions in Psychological Sciences* 2 (1993): 96–99.

5 Mark H. Davis, "A Multidimensional Approach to the Individual Differences in Empathy," JSAS *Catalog of Selected Documents in Psychology* 10 (1980), 3.

6 This use of authenticity references Jack DeGioia's working concept of authenticity, which builds off of J.G. Herder and Charles Taylor, *The Ethics of Authenticity* (Cambridge, MA: Harvard University Press, 1992), 28. He first discussed this in his PhD, DeGioia, John Joseph, "The Moral Theories of Charles Taylor and Alasdair MacIntyre and the Objective Moral Order," dissertation thesis, Georgetown University, 1995.

7 From the *Oxford English Dictionary*, *integrity* is defined as:

the condition of having no part or element taken away or wanting; undivided or unbroken state; material wholeness, completeness, entirety. Something undivided; an integral whole.

the condition of not being marred or violated; unimpaired or uncorrupted condition; original perfect state; soundness.

in a moral sense: an unimpaired moral state; freedom from moral corruption; innocence, sinlessness. Or soundness of moral principle; the character of uncorrupted virtue, esp. in relation to truth and fair dealing; uprightness, honesty, sincerity.

"integrity, n." OED Online, December 2015, Oxford University Press, http://www.oed.com/view/Entry/97366?redirectedFrom=integrity, accessed February 06, 2016.

We do not use it in its moral sense here.

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