

Indecision in quest of design

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ABSTRACT

Designers all start with a solution (Darke, 1984), with what is known (Rittel, 1969, 1970). Hans Menghol, Svein Gusrud and Peter Opvik did so with the chair in the 1970s. Not content with the *knowledge* of the chair, however, they walked backward to the ignorance of the question that has always elicited the solution of chair and asked themselves the improbable question, “What is a chair?” Their answer was the Balans chair. “Until the introduction of the Norwegian Balans (balance) chair, the multi-billion dollar international chair industry had been surprisingly homogeneous. This chair is the most radical of the twentieth century and probably since the invention of the chair-throne itself (Cranz 1998). Design theorists have tried to understand in a measurable way what is not measurable: the way that designers think. Rather than attempt to analyze something that cannot be taken apart, I attempt to illuminate methods for generating new knowledge through ways of seeing connections that are not logical, and in fact are sometimes ironic. Among the possibilities discussed in this dialogue are the methodological power of language in the form of metaphor, the power of the imagination in mind experiments, the power of mythological story telling, and the power of immeasurable intangibles in the generation of the new knowledge needed to design.

1 INTRODUCTION

This dialogue begins with a question: how are design ideas generated, and what happens before the idea? More essentially, how do designers think such that ideas emerge at all? An imaginary inquiry began some twelve years ago with a host of possible answers surfacing over time.

We try to understand in a measurable way what is not measurable: the way that designers think. Design methodologists have been thinking about this for decades. But rather than attempt to analyze something that cannot be taken apart, I want to illuminate through conversation that ideas are formed through a way of seeing connections that are

not logical, and in fact are sometimes ironic. A brick in isolation says nothing about the curved form of an arch—in fact, it is its opposite. Further, the brick may be at its noblest state in the arch.

This paper is a dialogue between the known and the unknown, the measurable and the immeasurable. This conversation is like walking backwards down the stairs, from the solution to the question. It makes transparent the murky path of the imagination in quest of unknown solutions to common problems. John Stilgoe describes this path as ordinary exploration, which “begins in casual indirection, in the juiciest sort of indecision, in deliberate, then routine fits of absence of mind” (1999). This path is what continues to drive our conversation and our questions.

The complex nature of the designers’ process means that design is never done once and for all but is a continuous, circular, forward (sometimes backward) path. *Wicked* problems are so ill-behaved that solutions are symptoms of an infinite array of other problems and therefore never solved but, rather, re-solved—again and again. Progress is an invention of the 19th century that seems not to relate to the solving of design problems. This has led us to ponder the question of just how designers come to *know*.

2 NEW KNOWLEDGE

Design happens in the world of the imagination.
Horst W.J. Rittel

We continue to ask ourselves why *how designers know* is important; why is it significant to design or to design education? Moreover, why is it important within the contribution of design to the world? There is a fundamental answer to that question, and it is the mainstay of this work: we need heroic figures who remind us about the indispensable nature of the immeasurable.

The immeasurable is fundamentally about *new* knowledge. There is no knowledge that no one knows. All knowledge is known to someone, somewhere, sometime. But, design happens in the world beyond what is known, in the world of the imagination, in fantasy (Rittel 1969). That is where all *new* knowledge is generated.

Between the known and the unknown lies the immeasurable: “a brick wants to be an arch.” Figuratively speaking, the immeasurable is the space between the brick and the arch—not the mortar—and the mental leap made to connect the brick and the arch. The measurable is known and available to the senses (the brick itself); the immeasurable is both the *idea* that a brick wants to be an arch and the *path* taken to make that idea reality.

Horst Rittel suggests that design is a rational activity subject to measurement. We are suggesting that the generation of new knowledge for professional designers begins before any act of measurement is possible. The root of the matter lies in the inability of some designers to stay in the immeasurable long enough to generate new knowledge. The moment a professional designer puts a name to an idea it becomes measurable. *Brick* is

measurable. *Arch* is measurable. Both are nominal measures but measurable nonetheless. It is the unnamed leap between the brick and the arch that is immeasurable. If the name is not a new name, the idea is not a new idea but a mere revision of an old idea.

All people (even non-professional designers) can design within the walls of the measurable—those things with names. This is the major problem with design students. If you give them a name (e.g., a can opener) they can immediately set out to re-configure the can opener in their experience. But, ask them to design a can opener without giving them the name “can opener,” and they are lost. For example, one student at Virginia Tech, Lia, decided early in a semester that for her thesis she would design shoes. She had already resolved her thesis. She had determined that the answer was in fact a shoe without ever understanding the question. She later realized however that her quest was really about transportability and seeing the foot as a site (Vernon 1998). How to get from the solution ‘shoe’ to the question that asks for ‘shoe’—that is the question and therein lies the conversation. Lia had to forget the name shoe and engage in another narrative.

3 NARRATIVE

Of particular interest is the methodological power of language, especially in literary form, for generating alternative solutions to design problems. The very nature of the English language, is its necessary use of metaphor—metaphor, simile and metonym—to convey and teach intellectual and visual imagery. While the power is great and the need imperative, there is danger in metaphor.

Related to the generative nature of metaphor is the possibility that metaphors eventually become interpreted as reality, often with deleterious consequences. "Metaphors have a way of becoming literal and if we lose sight of what is metaphorical about metaphor, we may restrict our thinking or simply deceive ourselves" (Kliebard 14). To further explain this process, C.M. Turbayne, author of *The Myth of Metaphor*, described three stages in the life of a metaphor. First is the assignment of a name (the first mistake in the generation of new knowledge is to give it a name—nominal measurement) given to a subject whereby the name belongs to another. Our first response is to deny the metaphor in favor of literalness. For example, consider Turbayne's metaphor, "the human body is a machine" (22-26). At first, one rejects the expression since the body is a living organism; whereas machines are merely inanimate combinations of parts working together. In the second stage, one accepts the metaphor and suspends disbelief to engage imaginatively in its newly illuminated dimensions. Since the metaphor is "new," one is not deceived, and thinking is not restricted by it. The final phase represents a dangerous stage when the metaphor is taken literally. The thing pretended has now become real: "What had before been models are now taken for the things modeled" (Turbayne 26). The metaphor is "dead," and “our willing sense of make-believe is converted into a literal prison” (Kliebard 14). Turbayne proposed that a reductionist process leads to

"victimization" by metaphor. Simply stated, rather than consciously using metaphors, we become unconsciously victimized by metaphor. "The long continued association of two ideas, especially if the association has theoretical and practical benefit, tends to result in our confusing them" (Turbayne 26). Returning to the earlier example of "the body as machine," by the third stage, machine has become a mechanism for human bodies which "now differ only in degree, not in kind" (Turbayne 26). Pesman, another author writing on metaphor, contended that it is a process which leads to the inexplicable bases of world view: "In essence, root metaphors with other metaphorical thought build upon them, have become dead, that is, lost their 'as if' quality" (243).

The above discussion suggests that metaphor is counter productive to the generation of new knowledge. But it does not have to be. If the narrative takes you backward down the staircase to the question—without simply naming the solution—then metaphor is very useful. The conversation needs to be in the space between the brick and the arch, but without a name and only a vision. If the metaphor remains in the world of the known, one has failed to take a walk on a moonbeam, yielding the proverbial chicken restaurant (Robert Venturi and Denise Scott Brown's Learning from Las Vegas: the piano store that is a piano and the hot dog stand that is a hot dog).

It has been reported that Einstein said that he took a walk on a moonbeam as a description of his mind experiments. For Einstein, theory comes from the imagination, before experiment or experience. Theory first, method last, and always doubt.

4 THE MEASURABLE

At best, only a limited value
In the knowledge derived from experience.
The knowledge imposes a pattern, and falsifies,
For the pattern is new in every moment
And every moment is a new and shocking
Valuation of all we have been.
T.S. Eliot

Designers cannot depend on experience to invent a new future. Scientific method is based partly on experience and demands measurement. Paul Feyerabend suggests very strongly that method should be abandoned in the process of scientific discovery—against method, anything in pursuit of discovery goes (1975). Karl Popper warned against experience as history by illuminating the many problems with historicism as a predictor of the future and as an element of discovery (1964).

Experience, in fact, is more often detrimental to invention than not. Experience results in saying that some things cannot be done. Experience is a very poor guarantor for designers who want to invent a new future. This is the failure of programming and post-occupancy evaluation. These people think you can predict the future in design from the past. Were it true that design is a tame problem environment they would be correct.

Programming comes from *would-be* designers who simply want to do the past over and over again—defining the problem first using the solution in the definition. We tell our students that they cannot describe and define their Chevrolet as a Chevrolet. That is a tautology—the solution is in the definition. With wicked problems if anything in the problem environment changes, even time, a whole new problem arises. Experience is nice to have but is very unreliable in making a new future.

In a typical problem environment, the designer often faces several evaluative judgments. These judgments are not easily arrived at. The technological society that surrounds the designer prefers objective judgments. But objectivity in design is not possible (Rittel). An off-hand judgment—one that is pronounced without deliberation—is as trustworthy as a deliberated judgment unless the designer is not sure that the off-hand judgment contains all the necessary ingredients for a satisfactory judgment. In the end all judgments in design are subjective and deliberation often makes the judgment more difficult (Vernon and Witt 1990).

5 THE IMMEASURABLE

Immeasurable (intangibles if we accept that the Design Methods and Theories notion of intangible is a model for immeasurable) can be defined as “incapable of being perceived by the sense of touch, as incorporeal or immaterial things...” (Longman 1991). In a typical design problem environment, the designer faces several evaluative judgments. The judgements are not easily achieved. Being self-referential by nature the designer seeks explanations that suits his/her perception of reality. Therefore, judgments are clouded by the designer’s subjectivity. The intangibles in design can be categorized according to three layers of personality. The conscious intangibles are psychological responses influenced by cognitive processes. The preconscious intangibles are responses that occur in the realm between the conscious and the unconscious layer. The unconscious intangibles are responses outside the influence of the personality and occur in the unconscious layer of the personality. The personality models of Freud (1922) and Lewin (1935) can be used to illustrate this explanation of the intangible. In these models the researchers were attempting to make the intangible measurable. They succeeded but at a great loss. When the intangible is measured it is no longer intangible. What was unnamed is now named. Measurement kills the immeasurable. The immeasurable must be in the conversation between the unconscious and the preconscious that generates new knowledge at the conscious level.

In order to better examine the notion of the intangibles, design methodologist Sebastian Lera uses the example of a window by saying the following: provide good view, allow sufficient light, allow adequate ventilation, have a pleasing visual appearance, not result in excessive heat gain and not exceed a certain cost (Lera 19). The only issue that is potentially measurable on a difference or ratio scale is cost. All the

other measures are either nominal (window) or ordinal (pleasing, adequate, sufficient). Of course, pleasing is the most interesting to designers, it is the most intangible and the most immeasurable. Nominal and ordinal measures are the most argumentative.

Perhaps we begin in the *immeasurable* as designers by telling ourselves a story, creating a mythology (in the conversation without words between the unconscious and preconscious layers of the personality), which then builds a visual, spatial language for us, and we then pass that on as a *visual narrative*.

Throughout the literature in Design Theory and Methods runs the theme that designers can only design from knowledge that they know—if there is any knowledge that no one knows, no one knows what it is. The intent of this statement is to reinforce the notion that “knowledge” is not data but rather something that is generated by sentient human beings, feeling, sensing, contemplating, taking risks, walking on moonbeams.

Knowledge = what you know

If there is data in a book, it is not knowledge until you read, decipher and digest it—something happens to change what you know. Therefore, information is a change in knowledge: sometimes positive, sometimes negative, or sometimes empty. Each designer has knowledge where the truth-value is yet unknown. Truth-value refers to the reliability, the trustworthiness, of the newly generated knowledge. Defining a design problem lies in the solving of it, and in the solving of a design problem lies yet other symptoms or unforeseen problems (Rittel and Webber 1970; Lawson 1997).

When a designer’s knowledge has changed, it is not immediately known whether the change is a positive change (informed), a negative change (*mis*-informed) or the designer has been left without a replacement (*dis*-informed). It is in the process of defining and simultaneously solving the problem that the truth-value is understood. Of course, doubt should be respected in design as it is in science. Therefore one should never take for granted that a validated truth-value in one problem environment is transferable to another.

Fisher (1987) and Bormann (128-138) have suggested that our reality is socially constructed. Both authors have used the term Homo Narrans ((wo)man narrating) to define human beings. Rittel suggests similar aspects in design when discussing the design process when he speaks of a designer arguing toward a solution with himself and with other parties involved in the process. Argumentation and participation are fundamental axioms in second generation systems. Thorstein Veblen argues for a social conceptualization for design—concept being the knowledge of meaning in theory (Thomson 3-15). Thomson summarizes this position when she argues that because we are social animals we cannot perceive objects devoid of their social meanings; is this semiotics or product semantics? She adds that our sense of beauty and value is mediated by these accretions. This theory of communication is referred to as the *narrative paradigm*. The *narrative paradigm* is a theory of communication proposed by Walter

Fisher. He argues that human beings are by their very nature storytelling beings and that we come to know the world through the stories that we hear and incorporate into our world-view (64). The five core assumptions of the paradigm are:

- Humans are essentially storytellers.
- Humans make decisions based on good reasons that vary through situations, genres, media, and time.
- Matters of history, biography, culture and character rule the production and practice of good reasons.
- Rationality is determined by the nature of persons as narrative beings—their inherent awareness of narrative probability, what constitutes a coherent story, and their constant habit of testing narrative fidelity, whether or not the stories they experience ring true with the stories they know to be true in their lives.
- The world as we know it is a set of stories that we choose from in a process of continual re-creation of our realities.

In relating this theory to design, designers develop a visual narrative that they can use in the process of design. Saying that designers have a visual narrative means that they see a product, drawing, building or a plan, and they evaluate it based on their own personal sense of reality. This sense of reality is derived from past experience through the power of metaphor in the telling (and seeing) stories.

6 CONCLUSION

The best stories told are those that not only find their way
through the products of one's work but also through the paths.
The paths revealed speak to the extraordinary heroic indirection of the individuals:
Louis Kahn, Albert Einstein, Barbara McClintock, Ella Fitzgerald,
Edwin Hubble, John Von Neumann, Alan Turing, Jonas Salk, Preston Tucker,
Jean Piaget, George Lucas, Eleanor Roosevelt, Nelson Mandela,
Maria Montessori, Rachel Carson, JRR Tolkien,
Victoria Woodhull, Charles and Ray Eames

These people, among others, walked on moonbeams at least once. The point is that they stayed in the immeasurable of their minds long enough to make significant leaps, thus changing the world. They make the backward leap from the solution to the question and the world changes. That is what differentiates the professional designer from the artist and the scientist. Art holds a mirror to the world and makes a stand for individual expression. Science wants to understand the world. But artists, scientists, musicians, authors, philosophers, theologians all become designers when they seek to *change* the world, to make it a better place in which to live, to work and to play. Some do it in the world of the imagination, in mind experiments, in the immeasurable.

Designers all start with a solution just as Hans Menghol, Svein Gusrud and Peter Opvik did with the chair in the 1970s. Not content with the *knowledge* of the chair, they walked backward to the ignorance of the question that has always elicited the solution of chair and asked themselves, “What is a chair?” Their answer was the Balans chair. “Until the introduction of the Norwegian Balans (balance) chair, the multi-billion dollar international chair industry had been surprisingly homogeneous. This chair is the most radical of the twentieth century and probably since the invention of the chair-throne itself (Cranz 1998). Others have done this: Louis Kahn in his well known conversations with the brick; Robert Probst at Hermann Miller in the questioning of the desk that resulted in the development of modular office furniture; Charles and Ray Eames and the house of pieces that was not a house at all.

If we believe what Rittel says about what design is, then artist, scientist, musician, author, philosopher, theologian, mathematician all become designers when they step out of their boxes and alter the world. We think that they change the world most by leaving behind the traveled path of the immeasurable for us to marvel and follow.

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