

Structure: The Case of Engineering Design,” *Memory & Cognition* 35, no. 1 (2007): 29–38, DOI: <https://doi.org/10.3758/BF03195939>; Linden J. Ball and Bo T. Christensen, “Analogical Reasoning and Mental Simulation in Design: Two Strategies Linked to Uncertainty Resolution,” *Design Studies* 30, no. 2 (2009): 169–86, DOI: <https://doi.org/10.1016/j.destud.2008.12.005>.

- 13 Barsalou, “Perceptions of Perceptual Symbols,” 637–60.
- 14 Bo T. Christensen and Linden J. Ball, “Dimensions of Creative Evaluation: Distinct Design and Reasoning Strategies for Aesthetic, Functional and Originality Judgments,” *Design Studies* 45, no. A (2016): 116–36, DOI: <https://doi.org/10.1016/j.destud.2015.12.005>.
- 15 Christensen and Schunn, “The Relationship of Analogical Distance.”

## Design Thinkers Think Like Managers

Roberto Verganti, School of Management, Politecnico di Milano, Italy

[roberto.verganti@polimi.it](mailto:roberto.verganti@polimi.it)

<https://doi.org/10.1016/j.sheji.2017.10.006>

Well ... perhaps this title is too provocative. Nevertheless, the inspiring article by Karin Lindgaard and Heico Wesselius is an eye-opener. Reading its final lines, I was left with a warning sign. What if we are substantially wrong? What if the way we are bringing design thinking into business school classrooms and into organizations is jeopardizing design and management alike, rather than lifting them up?

The article takes a peculiar perspective. Looking at design thinking as a cognitive style, it offers a script for the evolution of theories of cognition, and then it connects them with design practice. The part that I like most is the first, which illustrates an overview of cognition theories. Thanks to development in the neurosciences, there is an increasing interest in cognition, and design is not immune to this interest. Lindgaard and Wesselius eventually focus on the role of emotions, and, from the broad body of knowledge of cognition theories, they borrow the concept of “sense of fit” or “felt-sense.”

“Rather than treating emotion as separate from rational or higher order thinking, this approach identifies emotion with unconscious processes that guide complex forms of behavior.... [F]eeling emerges – initially as the sense of how well an action might meet the demands presented by the situation. This is feeling a ‘sense of fit’ [...or also

...] our ‘felt sense’ of a situation. This felt sense is always present, even if we are not actively attending to it.... Cognition has two sides – this felt sense, and symbols. Symbols are explicit expressions, such as language or images. [The felt sense functions to *select* the symbols that *explicate* a meaning]. This is how we have a sense of what to say next, or how to proceed in any situation. Often we only know that something is missing or not right, and as we attend to *this feeling*, we consider alternatives. Our knowing when something is not right or not finished, even if we do not know why, is one of the most tangible ways of noticing our felt sense.”<sup>1</sup>

This is an intriguing concept that captures a fundamental way in which design practice occurs. It becomes visible as an intimate feeling for a design direction. Designers leverage the capability to give form to this feeling through visualization and prototypes – sketches, stories, maps, mockups. Then, they work with a “felt sense,” reflecting on the visualizations to see which of them may or may not be good. This is an iterative process, moving through new visualizations through appropriate symbols, and a new “sense of fit.”

The second part of the article tries to elaborate on this perspective. How does the concept of felt-sense apply to design practice? And here is where the reflection loses its depth compared with the rich elaboration of cognition theories in the first part of the article. The application of the concept of “felt-sense” to the nature of design is not elaborated as it would deserve. Lindgaard and Wesselius have an intuition, a very good one indeed, but they stop there.

Well, it does not matter much anyway, because they point in a promising direction. They leave space for a deeper dive. They can go deeper in the future, and others can contribute to this work.

The key message is this. If we leverage on cognition theories, we can do better in capturing two essential elements in the ontology of design practice. First, skilled designers use the deepest level of cognition, the felt-sense, to drive their exploration of innovation. This felt-sense reflects a rich yet implicit understanding of a situation. Second, skilled designers move easily from the felt-sense to a symbolic representation that reflects the explicit manifestation of a situation. They have the ability to tap the most sophisticated dimensions of our understanding, to make the felt-sense explicit and vice versa. They create a short-circuit between implicit or tacit knowledge, where most new understanding occurs first, and articulated knowledge. Circulation between these two

levels of knowledge is the basis of learning and innovation in individuals and in communities.<sup>2</sup>

Lindgaard and Wesselius bring a theoretically grounded understanding to the unique capabilities of designers in a world of abundant myths about the powers of designers. We have heard that designers are catalysts, integrators, system thinkers, and leaders, or – as Lindgaard and Wesselius write in this article – that designers are particularly capable of empathy with the user. Most of these myths have neither empirical or theoretical foundations, and they are far from the way that designers are educated. Instead, Lindgaard and Wesselius focus on two cognitive abilities that are deeply rooted in the way that designers are educated – or at least in how they used to be educated:

Designers (1) are not afraid to use their guts – felt-sense – to drive exploration, and (2) designers have the skills to give form to guts – felt-sense – their own, and those of others.

Managers do not have these skills. Business schools are founded on analytical and system thinking. Managers-to-be are repeatedly told not to trust their guts. And they have very poor skills for symbolically representing tacit or implicit concepts.

Here lies the supposed importance of design thinking for management. The role of design is to help managers develop what they are missing, compensating for the gap in their skill set.

And here is where Lindgaard and Wesselius throw a heavy stone into the shallow pond of how design thinking comes to management.

Because the way that design thinking is most frequently framed rarely leverages on the cognitive skills of felt-sense and the aesthetics of symbolic meaning. It is often quite the opposite.

To make design thinking palatable to citizens of the business world, most advocates of what is labeled “design thinking” have articulated design as a set of clearly articulated processes and methods, packing it into 5-step processes, double diamonds, brainstorming, quick ethnography, empathy maps, customer journeys, blueprints, and the like.

This enables them to bring design closer to the language of business schools and the managerial palate. But by doing this, most promoters of design thinking eradicate the cognitive core of how designers think. Missionaries of design thinking for business have done everything they could to tell managers what managers wanted to hear: that design is not a matter of guts, intuition, or felt-sense, but a matter of process. For example, the word “process” is repeated dozens of time in the famous IDEO shopping

cart video. The apostles of design thinking for managers have done everything they could to say that symbols are irrelevant: you can build whatever goofy prototype you want to build; the aesthetic dimensions of the prototype do not matter.

To make design thinking digestible for managers, design thinking had to undergo a lobotomy that rendered it guts-free, aesthetics-free. And this lobotomy succeeded in exciting managers. They loved it, so analytic, so procedural, and so controllable... Guess why?

The stone that Lindgaard and Wesselius throw into the pond makes a crashing noise and a big wave. “The Emperor wears nothing!”

Management has not moved closer to design. Design moved closer to management.

The cognitive perspective of this article shows that the lobotomy may endanger the discipline of design twice.

First, are managers scared of the ambiguous, emotional, intuitive side of design? Are they scared of the guts? The answer provided by most promoters of Design Thinking has been: let’s expunge the felt-sense from design. The consequence of this answer is that designers themselves have become procedural. They are losing the trust in their most powerful cognitive capability.

Second, do managers lack the skills required for sophisticated play with the meaning of symbols, images, and prototypes? The answer provided by most promoters of Design Thinking has been: let’s expunge the aesthetic as a relevant dimension for innovation. Let’s say that any prototype is fine regardless of its symbolic meaning. Perhaps in front of a prototype you will feel that something is wrong, but don’t worry: that’s normal. Prototypes in design thinking have no aesthetic and symbolic meanings. The consequence of this answer is that designers themselves are losing the appreciation and deep skills for sophisticated aesthetical representation and reflection.

Lindgaard and Wesselius send a warning. By undergoing this double lobotomy, we may disavow the most advanced cognitive capabilities of designers.

The irony is that management itself, in the search to move beyond its limitations, is trying to emancipate itself from analytic thinking. Management is moving closer and closer to the power of bodily and emotional cognition. There is an increased attention, in management – and especially in leadership – to new findings in neurosciences. Behavioral economics have central attention in business schools. Emotional intelligence is taking a big chunk of leadership courses. Business schools are less scared of the guts than in the past, and more sensitive to advances

in the cognitive sciences about the power of intuition.

The risk – and the irony – is that removing felt-sense and aesthetics from design involves more than making design thinkers think like managers. It will make them think like managers of the past.

- 1 Karin Lindgaard and Heico Wesselius, “Once More with Feeling: Design Thinking and Embodied Cognition,” *She Ji: The Journal of Design, Economics, and Innovation* 3, no. 2 (2017): 83–92, DOI: <https://doi.org/10.1016/j.sheji.2017.05.004>.
- 2 See, for example: Ikujiro Nonaka and Hirotaka Takeuchi, *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation* (New York: Oxford University Press, 1995).

## Define Design Thinking

Lawrence W. Barsalou, Institute of Neuroscience and Psychology, School of Psychology, University of Glasgow, UK

[Lawrence.Barsalou@glasgow.ac.uk](mailto:Lawrence.Barsalou@glasgow.ac.uk)

<https://doi.org/10.1016/j.sheji.2017.10.007>

Not working in the domain of design, I had no previous understanding of design thinking before reading Karin Lindgaard and Heico Wesselius’ article, “Once More with Feeling: Design Thinking and Embodied Cognition.”<sup>1</sup> Interestingly, and perhaps tellingly, Lindgaard and Wesselius do not appear to offer a definition. After studying accounts on Wikipedia and other top Google hits, I concluded that design thinking is more mystical than Tibetan Buddhism. Sometimes, design thinking is defined negatively, as not being problem-oriented thinking nor scientific reasoning. When defined positively, design thinking is described as solution-oriented, action-oriented, and needs based, and is associated with creative action, designer sensibility, technological feasibility, alternative solutions, emotional satisfaction, and constructive future results. While trying to formulate a coherent account, I wondered what alternative accounts of the design process exist, or whether design thinking is simply whatever designers do.

From this exercise, I could see why Lindgaard and Wesselius noted early on that the construct is often not well understood by the public or by those who practice it. Furthermore, if the construct is based largely on “anecdotal evidence” and covers domains as broad as “a cognitive style,” “a general theory of design,” and “an organizational resource,”<sup>2</sup> I can

further see why it might be struggling to gain acceptance and recognition. Perhaps my overly rigid scientific orientation is showing, but what appears to be a relatively vague construct might benefit from definition and refinement.

Alternatively, maybe I should lighten up and adopt a more intuitive and mystical perspective. Perhaps vagueness and intuitiveness constitute fundamental strengths of design thinking – what it offers would be lost with greater precision. If so, then “define design thinking” could be a Zen koan for achieving design enlightenment.

In their article, Lindgaard and Wesselius document the long-standing and continuing influence of cognitive science, not only on design thinking, but on design in general. Reading between the lines, the design community appears to have turned to cognitive science for two general reasons. First, cognitive science offers scientific explanations for understanding the design process in terms of cognitive and affective mechanisms (description). Second, cognitive science offers evidence-based principles for teaching and implementing optimal design practices (prescription).

Throughout their article, Lindgaard and Wesselius document the contributions of specific cognitive science traditions, beginning with European Gestalt Psychology and the subsequent Cognitive Revolution. From the perspective of Gestalt Psychology, cognition and perception are organized in holistic patterns of experience that include perception and action as parts. Drawing inspiration from Arnheim’s classic Gestalt work on visual thinking,<sup>3</sup> design theorists have proposed that design originates in broad experiential patterns, which integrate perception, action, and other elements of conscious experience, including affect. Alternatively, from the perspective of the cognitive revolution, the design process has been viewed as the representation, manipulation, and execution of abstract symbolic structures, such as those in logic, language, and computer programming.<sup>4</sup> Whereas the Gestalt approach suggests that design originates in holistic sensory-motor-affective experience, the classic cognitive approach suggests that design originates in symbol manipulation and linguistic processes.

Of primary interest to Lindgaard and Wesselius are recent developments in cognitive science associated with conceptual metaphor, embodied cognition, and emotion. Similar to Gestalt psychology and classic cognition, these approaches potentially offer insights into how the design process works, along with new principles for optimizing design practice and learning. Much like Arnheim’s Gestalt-oriented