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Design Thinking - a dual system approach

Abstract:

Design thinking becomes very important for solving non trivial societal challenges. Design in general and in particular product design consists of two major activities: (a) thinking (i.e., conceptual design, specifications, etc.), and (b) making (i.e., building form models and/or prototypes, etc.).

The meaningful mental concepts are normally described in (a) as *knowledge*, and in (b) as *skills*. To understand design thinking it is crucial to get both systems together and to understand their interplay: (1) *thinking* mainly represented by language, and (2) *action* mainly based on embodied motor skills.

The 'language' in which designers communicate is partially based on natural or even sometime specific technical languages but also on exchanging ideas through nonverbal behaviour and expressive actions (e.g. sketching, building scale models, etc.).

Kahneman distinguishes system-1 and system-2. System-1 is an automatic, fast and mainly unconscious way of 'thinking' and primarily related to actions. It is autonomous and efficient, requiring little energy or attention, but is prone to biases and systematic errors. While system-2 is an effortful, slow and controlled way of 'thinking' and primarily related to reflections. It requires energy and can't work without explicit attention but it has the ability to filter the unwanted impulses of system-1.

To teach and improve design thinking it is crucial to have a sufficient good understanding of both systems and their associated mental representations.

References:

Kahneman D. 2003. *Maps of bounded rationality: a perspective on intuitive judgment and choice*. In *Les Prix Nobel: The Nobel Prizes 2002*, ed. T. Frangmyr, pp. 449–89. Stockholm: Nobel Foundation.