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Systems Thinking in Design: Service Design and self-Services



Abstract

The purpose of this paper is twofold. Firstly, it seeks to use a practical real-world example to demonstrate the power of a systems thinking perspective in design, and more specifically in the design of services. It makes use of the paradigm of e-accessibility, in the application domain of publicly available self-services. Secondly, the benefits of this perspective will be discussed, through some theoretical tenets of systems thinking, such as the use of emerging properties, the law of requisite variety and notions of second order cybernetics, in terms of the richness that they offer to the conceptualisation and praxis of design in general, and service design in particular. Finally, we speculate on the implications of systems thinking to question the nature of the interdisciplinarity and even transdisciplinarity of design.

Andrew McCollough,
DeAunne Denmark and
Donald Harker

Interliminal Design: Understanding cognitive heuristics to mitigate design distortion

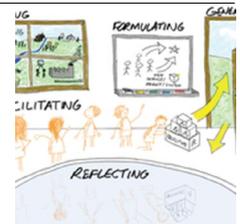


Abstract

Cognitive heuristics are mental shortcuts adapted over time to enable rapid interpretation of our complex environment. They are intrinsic to human cognition and resist modification. Heuristics applied outside the context to which they are best suited are termed cognitive bias, and are the cause of systematic errors in judgment and reasoning. As both a cognitive and intuitive discipline, design by individuals is vulnerable to context-inappropriate heuristic usage. Designing in groups can act positively to counterbalance these tendencies, but is subject to heuristic misuse and biases particular to social environments. Mismatch between desired and actual outcomes—termed here, design distortion—occurs when such usage goes unnoticed and unaddressed, and can affect multiple dimensions of a system. We propose a methodology, interliminal design, emerging from the Program in Collaborative Design at Pacific Northwest College of Art, to specifically address the influence of cognitive heuristics in design. This adaptive approach involves reflective, dialogic, inquiry-driven practices intended to increase awareness of heuristic usage, and identify aspects of the design process vulnerable to misuse on both individual and group levels. By facilitating the detection and mitigation of potentially costly errors in judgment and decision-making that create distortion, such metacognitive techniques can meaningfully improve design.

Dr. Alex J. Ryan

A Framework for Systemic Design

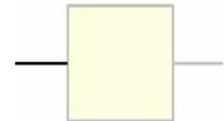


Abstract

As designers move upstream from traditional product and service design to engage with challenges characterised by complexity, uniqueness, value conflict, and ambiguity over objectives, they have increasingly integrated systems approaches into their practice. This synthesis of systems thinking with design thinking is forming a distinct new field of systemic design. This paper presents a framework for systemic design as a mindset, methodology, and set of methods that together enable teams to learn, innovate, and adapt to a complex and dynamic environment. We suggest that a systemic design mindset is inquiring, open, integrative, collaborative, and centred. We propose a systemic design methodology composed of six main activities: framing, formulating, generating, reflecting, inquiring, and facilitating. We view systemic design methods as a flexible and open-ended set of procedures for facilitating group collaboration that are both systemic and designerly.

John B. Cassel

The Methodological Unboundedness of Limited Discovery Processes



Abstract

Though designers must understand systems, designers work differently than scientists in studying systems. Design engagements do not discover whole systems, but take calculated risks between discovery and intervention. For this reason, design practices must cope with open systems, and unpacking the tacit guidelines behind these practices is instructive to systems methodology. This paper shows that design practice yields a methodology which applies across forms of design. Design practice teaches us to generate ideas and gather data longer, but stop when the return on design has diminished past its cost. Fortunately, we can reason about the unknown by understanding the character of the unbounded. We suppose that there might as well be an infinite number of factors, but we can reason about their concentration without knowing all of them. We demonstrate this concept on stakeholder systems, showing how design discovery informs systems methodology. Using this result, we can apply the methods of parametric design when the parameters are not yet known by establishing the concentration of every kind of factor, entailing a discovery rate of diminishing returns over discovery activities, allowing the analysis of discovery-based trade-offs. Here, we extend a framework for providing metrics to parametric design, allowing it to express the importance of discovery.