A Framework Theorizing Design of Human Technologies

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ABSTRACT

Design is increasingly becoming a part of the university curriculum and research agenda. A theory about the process and practice of design might be important to establish design as a main subject at universities. We believe it is in the interest of many design communities – also the DASTS community – to engage in theorizing design, on the basis of our understanding of design and design practices. This theory could be positioned as an alternative to other attempts to theorize design, for example the influential efforts of the Information Systems (IS) community [1]. We urge the DASTS community to engage in collective theory building, and we present a framework (Figure 1) intended to stimulate discussion across different perspectives, knowledges, and ontologies [2], and to shed light on design as it is practiced in different contexts.

At Roskilde University, we have since 2008 strived to establish a new main subject area – Designing Human Technologies [3] – alongside the three longstanding main subject areas: Natural Science, the Humanities, and Social Science. We approach design as "*a process of investigating, understanding, reflecting upon, establishing, developing, and supporting mutual learning between multiple participants in collective 'reflection-in-action'*" [4, p. 2], and acknowledge that "everyone designs who devises courses of action aimed at turning existing situations into preferred ones" [5, p. 111].

A key activity has been engaging in collectively discussing and reflecting upon our different design project experiences. This has led to two recent anthologies in which a total of 46 researchers reflect on 33 different design projects. In spite of diverse backgrounds, our reflections have uncovered a shared understanding of the design process depicted in a general process model that emphasizes the emergent properties of design [6] and in a collection of 18 situated methods for design [7]. The framework (Figure 1) is based on our experiences so far and intended to evolve gradually over the coming years.

Change		Participation	
• Planned		• Different knowledges	
• Emergent		• Mutual learning	
• Opportunity-based		• Joint goal negotiation	
• Sustainable		• Infrastructuring	
Situatedness		**Scope**	
• Situated knowledges		• Personal	
• Situated learning		• Collaborative	
• Situated action		• Organizational	
• Situating contexts		• Societal	

Figure 1: A framework intended for supporting collective reflections theorizing the design of human technologies.

REFERENCES

[1] Hevner, A.R., March, S.T., Park, J. and Ram, S. Design science in information systems research. *MIS Quarterly*, 2004, 28(1): 75-105.

[2] *The AIME project: An Inquiry into Modes of Existence.* http://www.modesofexistence.org

[3] *Designing Human Technologies: A design-oriented strategic research initiative supporting Roskilde University's Humanities and Technology programme.* http://dht.ruc.dk

[4] Simonsen, J. and Robertson, T. (eds) *Routledge international handbook of participatory design*, Routledge, London, UK. 2012.

[5] Simon, H.A. *The sciences of the artificial.* Third edition. MIT Press, Boston, MA, USA. 1996.

[6] Simonsen, J., Bærenholdt, J.O., Büscher, M. and Scheuer, J.D. (eds) *Design research: Synergies from interdisciplinary perspectives*, Routledge, London, UK. 2010.

[7] Simonsen, J., Svabo, C., Strandvad, S.M., Samson, K., Hertzum, M. and Hansen, O.E. (eds) *Situated design methods*, MIT Press, Boston, USA. 2014.