

# Artefacts, Cognition and Collective Behavior: Towards a Framework for Finding the Holy Grail

Tarja Susi

School of Humanities and Informatics

University of Skövde, Sweden

[tarja.susi@his.se](mailto:tarja.susi@his.se)

## Abstract

Cognitive science has traditionally been based on the idea of internal computation, and cognitive processes have been considered confined to the individual's brain while the environment has by and large been reduced to inputs and outputs. More recent situated, embodied, and distributed theories move the boundaries of cognition "outwards", emphasising the importance of social and material environmental resources. Research has given us knowledge for instance on cognitive artefacts and their role in cognition, and in collective activities. Despite a growing emphasis on external resources, and a great many studies including artefacts, we still have a poor understanding of the ways people utilise and adapt artefacts in daily activities to support their cognitive abilities. It has been pointed out that the most important task we are facing is to better understand non-biological cognitive scaffolding, and the ways they augment our cognitive capabilities (Clark, 2002). This paper proposes a framework concerning artefacts and human activities, based on the combination of three concepts related to environmental resources: triggers and placeholders (Dix et al., 2004), and entry points (Kirsh, 2001). A *trigger* is something that prompts an activity, something that tells you that you need to *do* something. A *placeholder* is something that tells you where in the process you are, *what* you need to do. *Entry points* refer to structures or cues that represents an invitation to enter an information space, that is, they *invite* people to do something. Together these concepts comprise agent and environment, activities and temporal aspects, and provide a starting point for a more principled understanding of the role of artefacts in human activities. The framework is illustrated by a case study conducted in a collective work setting where artefacts take a central role in the coordination of ongoing work processes.