Chapter 7
Imagination in Creative Design: Towards Conceptual Clarification and Integration around the Key Notion of Insight Moments

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ABSTRACT
This paper unpacks the notion of imagination presented in the I5-system of knowledge creation along several theoretical contributions and process models from “knowledge science”, creativity research and design studies. It aims at conceptual clarification and integration around the key notion of “insight moments” across various levels of abstraction from system perspectives through foci on groups and individuals to mental activity. This work is meant to serve as a conceptual foundation for micro-analyses of in-vivo data of creative design processes based on protocols of participatory ethnographic research and interview accounts from first, second and third person perspectives.

INTRODUCTION
Understanding and supporting knowledge creation and creative processes in their contributions to innovation by developing new ideas, products and services as well as to organisational and institutional change is of vital importance in the “next society” (Drucker, 2002) that is already in the making (EU Commission, 2008, 2009). Besides fuelling the successes of “normal science” and a steady flow of new products and services with incremental improvements, the questions of where “paradigm shifts” (Kuhn, 2007) and profound innovations come from and how breakthrough-ideas emerge remain fascinating (Kim & Mauborgne, 2005). Elucidating the role of human imagination in processes and systems of knowledge creation geared toward generating such types of innovations seems in that context to be a timely and well-chosen focus for a special issue.

DOI: 10.4018/978-1-4666-3998-0.ch007
MOTIVATION AND KEY-QUESTIONS

Overarching questions in such an endeavour are: Where do profoundly new ideas come from? (Johnson, 2010) What are processes and heuristics to generate knowledge i.e. how do we learn in order to bring forth and develop such ideas? (Mahrenholz, 2011) What are the properties of Enabling Spaces (Wiltschnig & Peschl, 2008) and Creative Environments (Wierzbicki & Nakamori, 2007b) that support such processes? Multidimensional models and “systemic” understandings along the lines of “creative space” try to tackle the complexity of knowledge creation at rather high levels of abstraction (Wierzbicki & Nakamori, 2006). This allows them to accommodate many terms and phenomena and provide mappings to direct knowledge management and engineering activities to develop new IT tools. They are inspired by the Japanese concept of “Ba” (i.e. “place/space”) introduced to east-western philosophical discourse by Nishida (1999) and applied in the context of organisational knowledge creation along the distinctions physical, virtual, social and intentional space (Nonaka & Nishiguchi, 2001; Nonaka & Takeuchi, 1995).

This paper aims to unpack the notion of “Imagination” from the I5-system, that is comprised in addition of the nodes Intervention, Involvement, Intelligence and Integration (Nakamori & Wierzbicki, 2010), in terms of mental simulation, idea generation and experiences of insight moments. It reviews and draws together literature around those key terms from “knowledge science” (Wierzbicki & Nakamori, 2007a), creativity research in cognitive science (Sawyer, 2006; Weisberg, 2006) and design studies (Cross, 2007; Cross, Christiaans, & Dorst, 1996). The main interest lies in the phenomenon of “insight moments” experienced as the sudden emergence of breakthrough ideas or as “creative events” where key-concepts are discovered through framing new problem-solution pairs (Dorst & Cross, 2001). Based on the explicit mentioning of insights in the discussed model of creative space, they can be considered as outcomes of “imagination” at its best, but need to be scrutinised concerning their distinctiveness compared to “normal ideas” and the mental processes (like mental simulation) related to them.

In the creativity literature “insights” are quite strongly debated because of their broadly and sometimes ill-defined status. A recent review article questions the potentially out-dated construct (Howard, Culley, & Dekoninck, 2008), while 85% of respondents report insight experiences in an interview study of Australian expert designers and architects (Murty & Purcell, 2006). More detailed questions arise in this respect: What is the theoretical status of insight moments in various approaches? And to what extent are the existing conceptualisations able to explain the available empirical data? The motivation behind this paper is to link perspectives, tie together layers of observation and work towards conceptual clarification as well as integration. This implies drawing on existing literature, methodology and data and at the same time requires being imaginative as researchers ourselves by pushing for new integrative theoretical and methodological approaches.

APPRAOCH AND CONTEXT

This paper considers cognition as embodied, situated and in relations i.e. distributed between people and things (Hutchins, 1996; Robbins & Aydede, 2008). Drawing on Nonaka and Takeuchi’s mapping (1995) of their research stance, these considerations are located ontologically in the realms of persons and groups embedded in organisations. Epistemologically they embrace and somehow want to move beyond the rhetorically used “false dichotomy” between explicit and tacit knowledge (Polanyi, 1958, 1967). In terms of the general research setting the paper aims to follow Weisberg’s suggestion to use extensive case
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