Chapter V
An Intelligent Information Management Tool for Complex Distributed Human Collaboration

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ABSTRACT

Managing information collaboratively in an open and unbounded environment without an information management application influenced and challenged the users actions and cognitive abilities, hence collaborative information management behaviour (CIMB). This issue motivated us to investigate distributed synchronous CIMB to deduce criteria for the design of an intelligent information management application that supports interconnectivity and human collaboration in such an environment. The authors developed a model to understand CIMB based on qualitative and quantitative findings, which emerged from four video recordings. These findings revealed that CIMB manifests itself in five behavioural stages: Initiation, Identification, Formulation, Structuring and Decision Making. Thus, an application for open information management should support human-to-computer and human-to-human interaction, should facilitate the behavioural stages users went during an information selection task and should sustain cognitive abilities. This chapter proposes the design for such an application, which supports user's actions and cognitive abilities required to manage information collaboratively in an open and unbounded environment.

INTRODUCTION

Information management behaviour (IMB) describes activities a person carries out when identifying his or her own needs for information, searching for information and using or transferring information (Wilson, 1999). Wilson's definition clearly points at individual information management behaviour, with which many researchers are concerned (Wilson, 1981, 1999; Kuhltau, 1991; Butcher & Rowley, 1998). These actions can be understood as sources for the design of an information management application useful in an open and unbounded environment (Yli-Hietanen & Niiranen, 2008). In order to study actions related to information management and further applying these findings for the design of an application a model has to be developed that considers collaborative information management behaviour and aspects of interconnectivity. Existing models of information management behaviour in information science research focus on the actual initiation of individual information seeking and information retrieving behaviour (Butcher & Rowley, 1998; Kuhltau, 1991; Wilson, 1981, 1999) although research has also revealed that people in organizations conduct most of their work as a collective (Foster, 2006; Reddy & Jansen, 2008). Thus, the need for a model that considers collaborative information management behaviour (CIMB) and interconnectivity of users is clearly warranted, which has been addressed recently by Hansen & Jaervelin (2004), Hyldegård & Ingwersen (2007), and Reddy & Jansen (2008). These studies focused on collaborative information management behaviour of co-located groups or asynchronous teams.

In regard to the growing interest of companies to save travel costs and time, human collaboration in an open and unbounded environment is becoming more important. Subsequently, understanding the complexity of human collaboration in a distributed synchronous environment and developing applications that support interconnectivity and collaboration is all the more relevant (Yli-Hietanen & Nirranen, 2008). Therefore, the investigation of distributed synchronous groups managing information collaboratively in an open and unbounded environment, specifically over a shared digital workspace and video has not yet been addressed by researchers of information science.

In order to address this need we conducted a small-group experiment with four two-person remote teams performing an information selection task without an application to manage the information. To increase the task complexity users had to play different roles, the parties of authority and protagonist. At this point we define collaborative information management behaviour in the context of our experiment from a sociological point of view as any perception, cognition, and action (Hogg and Vaughan, 2005) that is carried out by a user over a shared digital workspace and video that causes a reaction and influences the other users' perception, cognition and action at the same time. Managing information without an application and interacting over a shared digital workspace with video was found to affect users actions and reactions carried out to manage information collaboratively, so did the existence of the two roles, as users had different information needs and interests.

Based on these insights the objectives of this chapter are

- To determine the actions and reactions users carried out over a shared digital workspace and video to manage information collaboratively.
- To identify the collaborative information management behaviour these actions and reactions encompass and their applicability for the design of an information management application which supports interconnectivity and collaboration.