Chapter II

Causal Mapping: A Discussion and Demonstration

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Abstract

Causal mapping is a technique that can be used to represent cognition because it captures the structure of the causal assertions of an individual or group. As causal mapping becomes more prominent in the IS field, it is important that we understand the method, its strengths and limitations and its place within the spectrum of available research methods. Many researchers have made assumptions (both explicit and implicit) regarding causal mapping, without explicating the steps involved. This chapter details the causal mapping (CM) process and decisions that must be addressed so that researchers and practitioners can utilize this method to understand IS issues from a cognitive perspective, as well as provoke interest in expanding the boundaries of the CM method within the IS field.

Introduction

The growing interest in the cognitive foundations of behavior within the information systems (IS) field has led to a focus on representing and analyzing the cognitions of individuals and groups. Cognitive representations are created by eliciting the relevant
cognitions of the participants and casting their cognitions into appropriate structural representations. Over the years there have been numerous methods of representing cognition that have been used, such as: argument mapping (Fletcher & Huff, 1990), context analysis (e.g., Birnbaum-More & Weiss, 1990), repertory grid (e.g., Tan & Hunter, 2002), and the Self-Q technique (e.g., Bougon, Weick & Binkhorst, 1977) to name a few. Causal mapping is an additional technique that can be used to represent cognition. Causal mapping captures the structure of the *causal* assertions of an individual or group. Many believe that causal mapping holds great promise in addressing phenomena from a cognitive perspective, which is an under-utilized lens in the IS field. As we move causal mapping into the IS field, it is important that we understand the method, its strengths and limitations and place it within the spectrum of research methods. Many researchers have made assumptions (both explicit and implicit) regarding causal mapping, without explicating the steps involved. Thus buried in many of the studies found in the literature are the steps used to develop the cognitive representations of participants.

This chapter seeks to explicate the causal mapping (CM) process so that researchers and practitioners can utilize this method to address IS issues within organizations using a cognitive lens. The objectives of the chapter are two-fold:

- To demonstrate in detail how CM can be used to understand IS issues from a cognitive perspective
- To provoke interest in expanding the boundaries of the CM method within the IS field as we present advances and issues related to CM

In the remainder of the chapter, I provide the motivation behind causal mapping research and detail the causal mapping approach for both capturing individual maps and deriving collective causal maps. Next, I detail the representation and analysis of the maps, and discuss some key issues to address when reporting the results. I conclude the chapter with a summary of the key decision points researchers will face when conducting causal mapping research.

**Selecting a Causal Mapping Approach**

**What are Causal Maps?**

As Axelrod (1976) tells us, a *cognitive map* is a way of representing a person’s assertions regarding a domain. A cognitive map is designed to capture the structure of the *causal* assertions of a person with respect to a particular domain. Over the years the concept of a cognitive map has been refined and is used here as a general class of representations of thoughts or beliefs. These maps can represent individual assertions, or those elicited from a group (Huff, 1990; Montazemi & Conrath, 1986).
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