

Chapter 129

The Quality Attribution in Data, Information and Knowledge

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Category: Processes of Knowledge Management

INTRODUCTION

The literature on quality of data, information and knowledge has a tendency to focus on the measurement aspects of such constructs. This implies some emphasis on scale construction. Unfortunately, conceptual clarity is in too many cases not apparent. This chapter advocates for the application of Social Cognitive Theory as a robust theoretical framework in order to understand the quality attributions of data, information and knowledge constructs. The definitions of data, information and knowledge are presented in a hierarchical

structure having the data definition as a first order construct, the information definition as a second order construct built upon the data construct, and the knowledge construct as a third order construct built upon the information construct.

Furthermore, the definitions of these constructs require considering the unit of analysis individual versus organization. Data has a common definition for both units of analysis. However information and knowledge have different definitions depending on the unit of analysis. Finally, this chapter addresses the quality attribution in the five considered constructs. In line with the current dominant paradigm, quality it is not an absolute assessment as it depends on the considered context and situation.

DOI: 10.4018/978-1-59904-931-1.ch129

BACKGROUND

Social cognitive theory (Bandura, 1986) (Bandura, A. 1986), SCT in short, provides a robust and comprehensive theoretical framework for understanding from both the individual and organizational perspectives, the data, information and knowledge constructs and the associations among them. SCT argues that human functioning is the result of a triadic determinism of external, cognitive and behavioral factors and that self-efficacy becomes instrumental to the goals that individuals pursue and to the control individuals are able to exercise over their environments (see Figure 1). It does not mean that all the bidirectional associations occur simultaneously nor do they have the same strength (Wood & Bandura, 1989) (Wood, R. 1989). Let's see SCT "in action" with the constructs of our interest in this chapter.

The unit of analysis in SCT is the individual. According to SCT knowledge and information are cognitive constructs. The label 'cognitive' implies that mental processes (e.g. perception, enactment, learning, reasoning) are involved in the acquisition, organization and use of information and knowledge. Individual's information search behavior is the exhibited rational actions seeking for information (e.g. Kuhlthau, 1999) along the way the decisions are made like linking successive searches and stopping the search) (e.g. Dervin & Nilan, 1986). Studies have analyzed information search behavior in terms of patterns (e.g. scanning mode, heuristics).

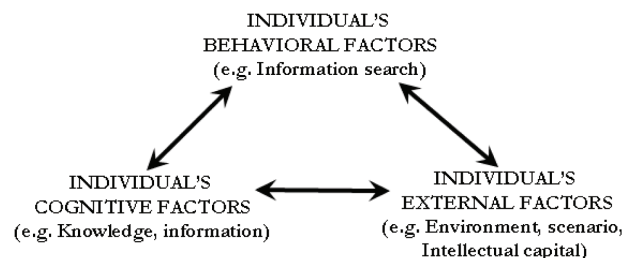
Individual's external factors include influential factors like data, environment, scenario and organizational knowledge. Taking as a reference Burke's ontology of core scenic factors (Burke, 1969) the following scenario factors are of interest:

- **Context:** This term covers either a process or set of processes in the organization's functional area (e.g. CRM processes in the marketing function), the industry to which the organization belongs to (e.g. financial), the firm resources considered (e.g. technology, data, individuals) or a combination of the above constructs.
- **Situation:** This term refers to a considered state of relevant business affairs among a domain of possible states. As an illustration, "product launch" and "market test" are examples of different situations in a product life cycle domain.

At a minimum, the scenario is the aggregation of a context and a situation. Additional scenario factors that could be considered are organizational culture and structure. In relation to the environment, the literature on ontology of environmental factors (e.g. Porter, 1980) suggests well known factors like suppliers power, barriers to entry, customers' power, threats of substitutes and competitors.

Let's explain the link {cognitive factors, external factors} → behavioural factors in Figure 1. If we select individual's knowledge, data and

Figure 1. Social cognitive theory



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