
A Research Note on the Concept of the Multi-perspective, Systems-based (MPSB) Cognitive Filter for Management

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Abstract:

The concept of the Multi-perspective, Systems-based (MPSB) cognitive filter for management from the Multi-perspective, Systems-based (MPSB) Research is examined by means of concepts from the cognitive science and organizational learning in this paper. It reveals the complex nature of the concept of the MPSB cognitive filter for management and sheds light on how these cognitive filters should be employed in organizations. However, the employment of the organizational learning lenses in the investigation inherits theoretical difficulty from the very subject of organizational learning. All in all, the conceptual discussion in this paper contributes to the theoretical development of the MPSB cognitive filter (explicit knowledge portion) (or just called the MPSB cognitive filter (explicit).) and informs managerial intellectual learning.

Key words: the MPSB cognitive filter for management, the MPSB Research, cognitive structure, managerial intellectual learning, organizational learning

Introduction

This paper examines a key concept in the Multi-perspective,

Systems-based (MPSB) Research¹, known as the Multi-perspective, Systems-based (MPSB) cognitive filter for management. The concept is pivotal to managerial intellectual learning, management research, and management practices. It had been briefly examined in Ho (1995) and Ho (2014). The concept is discussed further in this paper.

The basic ideas underlying the MPSB cognitive filter for management

The MPSB cognitive filter for management is defined as a set of inter-related MPSB concepts, together with client-based systems diagrams, that is used by a manager (or a group of managers) to make sense of the various management approaches and management viewpoints that the manager encounters from time to time in the world of management practices (Ho, 2013a). The client-based systems diagrams include spray diagrams, mind map, rich picture, etc. (Open University, 2014) in this definition. One of the main MPSB concepts used in the cognitive filter is the MPSB Framework which is a knowledge structure as related to a management discipline, or a concept thereof, generated as a result of a literature review based on Critical Systems Thinking (Ho, 2013a). The MPSB cognitive filter for management is developed by a manager (or a group of managers) via continuous managerial intellectual learning (Ho, 2013b) and employment of the MPSB Research (Ho, 2014). One should note the terms used in the discussion, namely: “management”, “cognitive”, “structure”, and “knowledge”. They can be put together to make up a *management knowledge cognitive structure*, which is what the MPSB cognitive filter for management is all about. Naturally, it is useful to draw on the subject of cognitive science

¹ *The MPSB Research* is “a research programme that makes use of Critical Systems Thinking to review management disciplines with a view to developing knowledge structures of management disciplines as a path to make theoretical advancements in Systems Thinking” (Ho, 2013a).

(Wikipedia, 2014a) to develop a better grasp on this key MPSB concept. The employment of management knowledge cognitive structure is a foremost concern in the world of management practices for “managerial decisions and actions.. are....often driven by simplified representations based on implicit theories of the world” (Hadida and Paris, 2014). On the whole, an MPSB cognitive filter for management comprises both tacit and explicit management knowledge, though this paper mainly examines the explicit type of management knowledge, called the MPSB cognitive filter for management (explicit).

From cognitive structure to management knowledge cognitive structure

According to Leidenuniv.nl (2014), a cognitive structure is “an entity that represents the way in which properties of elements human cognition deals with are organized, with respect to each other, in terms of what is relevant for a task the individual performs.” Garner (2002) points out that there are different types of cognitive structures:

- “*the cognitive structure of memorization*”: it helps people to recall and use information.
- “*the cognitive structure of constancy*”: it helps people to integrate information for understanding.
- “*classification*”: it helps people to “compare information to identify relationships of parts”.
- “*temporal orientation*”: it helps people to “compare bits of data in relations to when... things happen”.
- “*spatial orientation*”: it helps people to “compare bits of data in relations to ...where things happen”.
- “*metaphorical thinking*”: it helps people to “think outside the box by comparing bits of information that appear dissimilar but helps... to create insights and original thinking”.

These different types of cognitive structures apply equally to management knowledge cognitive structures, which are, after all, cognitive structures on the specific application domain of management practices. These management knowledge cognitive structures inevitably influence management practices, and vice versa. Some of the “elements” of management knowledge cognitive structures are management concepts and variables that are related to form propositions², which, in turn, make up management “theories” (Bailey, 1994). In addition, Bailey explains that “...Theorizing can be defined as the process of providing explanations and prediction of social phenomena, generally by relating the subject of interest....to some other phenomena.... Often, but not always, our theories can be stated in causal terms.....”. In the words of Hadida and Paris (2014): “Managers develop cognitive mental models that enable and structure their understanding of their organization and competitive environment. Such cognitive representations condition managerial decisions and actions”. [It is recognized that there are different types of knowledge, e.g. tacit knowledge, explicit knowledge, descriptive knowledge, procedural knowledge, knowledge by acquaintance, a priori knowledge, etc. (Wikipedia, 2014b) that also inform management practices.] In terms of the MPSB Research, theorizing is a kind of managerial intellectual effort to enhance the MPSB cognitive filter for management via literature review of management disciplines and managerial working experience. It can be made explicit in the form of an MPSB Framework (or a set of the MPSB Frameworks) that works with client-based systems diagrams (Open University, 2014) to make up the MPSB cognitive filter. Such a cognitive filter for management also includes political, cultural, aesthetic and ethical viewpoints held by people in a specific organization, other than statements on cause-effect explanation and prediction, all inter-related

² A *proposition* can be: (i) a hypothesis, (ii) an empirical generalization, (iii) an axiom, (iv) a postulate, or a theorem (Bailey, 1994).

with each other forming organized cognitive structures.

An overview of the MPSB cognitive filter for management (explicit)

The relationship between managerial intellectual learning, the MPSB Frameworks and client-based systems diagrams is depicted in Figure 1: An overview of the MPSB cognitive filter for management.

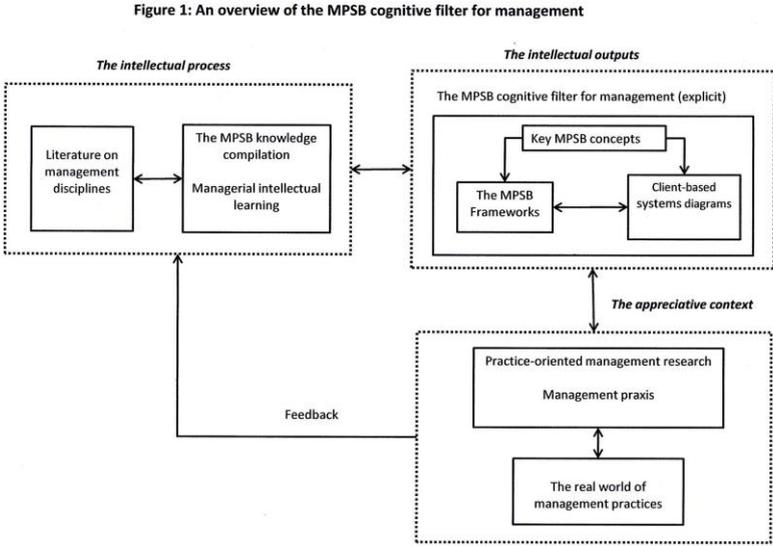


Figure 1 indicates that the process of constructing the MPSB Frameworks involves literature review of management disciplines based on the MPSB knowledge compilation³ and managerial intellectual learning (Ho, 2013b), which, in turn, is grounded on Critical Systems Thinking. In a specific

³ The *MPSB knowledge compilation* is an intellectual exercise that employs an MPSB knowledge compiler; and an *MPSB knowledge compiler* is “a set of technique based on Critical Systems Thinking used to examine a management discipline at either an individual concept level or the whole discipline level, resulting in the construction or enhancement of MPSB

organizational setting, the MPSB Frameworks need to work with other systems diagrams, e.g. spray diagram, mind map, rich picture, systems map, influence diagram, multiple cause diagram, sign diagram (Open University, 2014) and key MPSB concepts as incorporated in these diagrams (Ho, 2013a) to make up the MPSB cognitive filter for management as the *intellectual outputs* (re: Figure 1). To be explicit:

1. **The MPSB cognitive filter for management (explicit)** = the MPSB Frameworks + client-based systems diagrams + key MPSB concepts (as incorporated in the frameworks and diagrams)
2. **Client-based systems diagrams** (Open University, 2014; database management research, 2009) include:
 - a. *spray diagrams*: for representing “the structure of an argument” and “relationship between ideas” (Open University, 2014).
 - b. *mind maps*: for capturing ideas from personal brainstorming (Open University, 2014).
 - c. *rich pictures*: for depicting problem situations, highlighting stakeholders and their concerns.
 - d. *systems maps*: for describing a system with its components and its environment so as to “structure a situation” (Open University, 2014).
 - e. *influence diagrams*: for describing the “main structural features of a situation” and how they are related (Open University, 2014).
 - f. *multiple cause diagrams*: for describing a set of interacting cause-effect relationships involving events in a problem situation.
 - g. *sign diagrams*: for describing relationships between variables with positive/ negative feedback loops in a problem situation.
3. **Key MPSB concepts** = (1) the MPSB Research, (2) MPSB

frameworks that make the management disciplines coherent and understandable from the Critical Systems perspective” (Ho, 2013a).

Frameworks, (3) Perspective, (4) a perspective switch, (5) a migration of perspective, (6) Perspective anchoring, (7) An MPSB rich picture building exercise, (8) an MPSB knowledge compiler, (9) the in-built tension of pluralism, (10) the MPSB cognitive filter for management, (11) Enlightening management education, (12) the MPSB knowledge supply chain⁴

The client-based systems diagrams are informed by the MPSB Frameworks and the context-specific knowledge of management in a specific organization. Ho and Jackson (1987) is illustrative on diagram usage in this way though this early work did not explicitly use the terminology of the MPSB Research. Additionally, Open University (2014) poses a set of specific questions for choosing appropriate client-based systems diagrams to employ in practice. [The Open University website simply refers to these client-based diagrams as “diagramming”. Other diagrams not referred to in Open University (2014) can also be considered in the construction of the MPSB cognitive filter.] The following questions are selected from Open University (2014) for illustration:

- *Question 1:* “Which of the following diagram types would be useful in the early stages of an enquiry, before you had established your system of interest?”
- *Question 2:* “Which diagram type might you use to establish a boundary for your system of interest?”
- *Question 3:* “Which diagram type is likely to be best for note-taking, when reading a set of documents?”
- *Question 4:* “Which diagram type is used for setting out the structure of an argument?”

The Open University questions (questions 1 to 4 above) indicate

⁴ *The MPSB knowledge supply chain* is a newly introduced MPSB concept, see Ho (2014).

why these systems diagrams can be employed in a client-based way, i.e. focusing on capturing the concerns of the stakeholders in a client system and using the language employed in the client system, rather than academic jargons. More specifically, the MPSB Frameworks are academic-based, generalized and relatively stable theoretical frameworks⁵ with mainly academic jargons and wide applicability in different organizational settings (but less relevant to a particular organization and its concerns), while client-based systems diagrams capture more situated, idiosyncratic and transitory management knowledge for a particular organization with mainly language used by the managers there. Terminologies used by professional bodies of various management disciplines can appear in both the MPSB Frameworks and the client-based systems diagrams as most academics and practicing managers are capable of comprehending the professional jargons from various management disciplines. Taken as a whole, the MPSB Frameworks provide the academic literature-informed intellectual context for interpreting and reviewing client-based systems diagrams as well as stimulate theoretical development on the management topic considered, e.g. work-life balance, downsizing, absenteeism, business-process re-engineering, etc. Very often, it is also useful to construct frameworks and diagrams that are hybrids of these two forms of frameworks/diagrams. Nonetheless, there are people who do not like to draw diagrams, thus less interested in the diagramming techniques involved in the notion of the MPSB cognitive filter (explicit). Table 1 provides a summary of the frameworks and diagrams just introduced.

⁵ A *theoretical framework*, in this paper, is taken to be an organized collection of concepts, theories and models based on literature review.

<p><i>The MPSB Frameworks (Column 1)</i></p>	<p><i>Hybrid diagrams that synthesize ideas from the MPSB Frameworks and client-based systems diagrams (Column 2)</i></p>	<p><i>Client-based systems diagrams (Column 3)</i></p>
<p><u>Characteristics</u></p> <p>Informed by literature review on management disciplines</p> <p>Use languages from academic and professional writings</p> <p>Represent generalized management knowledge</p> <p>Mainly academic-based, with more academic value than practical value</p> <p>Provide academic insights to inform management practices</p> <p>Incorporate key MPSB concepts</p>	<p><u>Characteristics</u></p> <p>With characteristics from both the MPSB Frameworks (Column 1) and client-based systems diagrams (Column 3)</p> <p>Provide an explicit attempt to synthesize ideas from the academic world and the world of management practices in the form of frameworks and diagrams</p> <p>Incorporate key MPSB concepts</p>	<p><u>Characteristics</u></p> <p>Informed by the situated management knowledge of a specific organization</p> <p>Use the everyday language from the client system and management professionals' writings</p> <p>Represent idiosyncratic, situated and transitory management knowledge</p> <p>Mainly practice-based with more practical/ actionable value than academic value</p> <p>Provide practical insights to inform management research</p> <p>Incorporate key MPSB concepts</p>
<p><u>Main developer</u></p> <p>Scholars/ scholar-practitioners</p>	<p><u>Main developer</u></p> <p>Scholar-practitioners/ management consultants</p>	<p><u>Main developer</u></p> <p>Scholar-practitioners/ management consultants/managers, with active participation by stakeholders from the client system</p>

Table 1: Frameworks and diagrams that make up the MPSB cognitive filter for management (explicit)

The MPSB cognitive filter for management (explicit) makes up the explicit portion of the mental models of management (Senge, 1990) in an organization. What is more, both the MPSB Frameworks and the client-based systems diagrams exemplify

explicit cognitive structures as defined by Leidenuniv.nl (2014). The MPSB cognitive filter for management captures management's knowledge, informed by an MPSB literature review, which guides management praxis and/or practice-oriented management research in the real world of management practices (Ho, 2014). Together, they constitute the *appreciative context*, as noted in Figure 1. Such management knowledge is intended to be, in the words of Lipshitz *et al.* (2007), "valid to the extent that it withstands critical evaluation" based on the MPSB Research as well as other Management Research Methods. Nevertheless, it is recognized that (i) notions in research methods such as validity (Thomas, 2006) and truth (Wikipedia, 2014c) do not have one definition and are debatable themselves, and (ii) certain statements, e.g. ethical and aesthetic ones, cannot be verified by research methods. Koolhass (1982), citing Keen (1973), describes two modes of cognitive style, namely, (i) systematic thinkers and (ii) intuitive thinkers, which, like the learning style (Wikipedia, 2014d), affect managers' preferred choice of diagrams (i.e. the MPSB Frameworks and other systems diagrams) to use and their preferred approaches, e.g. the sequence of steps and extent of collaboration with others, to use the diagrams. Similarly, the cognitive profile of managers (i.e. "the cognitive schemes of several individual" (Ericson, 2001).) in an organization also has effect as the modes of cognitive style of an individual manager do. In short, the modes of cognitive style and cognitive profile of managers can influence the *intellectual process* as identified in Figure 1. (Further research works need to be done to study this topic.) The MPSB cognitive filter for management can be individual-based or group-based among a team of managers in an organization, probably with a consultant well-versed in the MPSB Research providing consulting support to the managers. At an individual level, enhancing the MPSB cognitive filter implies increasing a manager's personal cognitive resource (Greenblatt, 2002).

Realistically, the MPSB cognitive filter is mainly used by intellectual thinkers⁶ receptive to systems thinking (see Jackson, 2000) and inter-disciplinarity⁷ in management education. In all, the MPSB cognitive filter embodies actionable management knowledge with both academic and practical values.

The *appreciative context* (re: Figure 1), which includes the real-world of management practices, exerts influences on the MPSB knowledge compilation and managerial intellectual learning process. More often than not, the appreciative context can be described as knowledge-intensive and informed⁸, with potent information systems support. Moreover, in an organization, different managers at different times can be obsessed with temporarily dissimilar MPSB cognitive filters. This is underscored by the sensemaking view of organization as: “constituted by systems of meanings and social processes of making sense, during which meanings are assigned to things and events...” and “shared meanings begin to coincide as the members of a group begin to favour one subjective interpretation over others in the course of regular social interaction” (Ericson, 2001) as well as the ‘processes for organization meanings’ model of Checkland and Holwell (1998).

From the perspective of Management Research, the vital role of conceptual frameworks, which, in the writer’s view, include the MPSB Frameworks, in management research has been highlighted by Checkland and Holwell (2007: 8). These two writers identify a number of elements in a research,

⁶ An *intellectual thinker* is “one who encapsulates all of the knowledge one has into the bigger picture, by seeking to understanding why one exists with in-depth research into the meaning of life” (Zach, 2011); is interested in and is capable of deep intellectual thoughts.

⁷ *Interdisciplinarity* is described as “the disciplines working together to contribute to a fuller picture” Maiteny and Ison (2000).

⁸ For Zuboff (1988): “The informed workplace.... Is an arena through which information circulates, information to which intellectual effort is applied.... The informed organization is a learning institution, and one of its principal purposes is the expansion of knowledge..”

namely: (i) framework of ideas, (ii) methodology, (iii) area of concern, and (iv) learning. In their view, a framework of ideas (e.g. an MPSB Framework in our case) is embodied in a methodology; and the application of a methodology in an area of concern can yield learning about the methodology and the framework of ideas. Besides, Ho (1995) discusses how the MPSB cognitive filter for management fits into the MPSB Research. Thus, the value of the MPSB Frameworks in management research is relatively clear in the academic literature.

On the employment of the MPSB cognitive filter based on organizational learning thinking

One problem with the existing discussion of the MPSB cognitive filter for management in the MPSB Research has heretofore been its unsophistication and insensitivity to the fact that managers do not construct and make use of management knowledge cognitive filters in isolation; on the contrary, they inevitably develop management knowledge cognitive filters with other people in organizations. Furthermore, the process of developing management knowledge cognitive filters is affected by personal, methodological and the internal/ external environment influences facing the managers. [There are lots of references on methodologies (and accompanying techniques) informing how to construct systems diagrams, for example.] Regrettably, certain influences, e.g. organizational defensive routines⁹ (Argyris, 1990), can hinder the construction of insightful cognitive filters, consequently impeding individual and organizational learning. Our discussion with Figure 1 and Table 1 above remains vague on these influences in this respect. Therefore, it is helpful to adopt an organizational

⁹ *Organizational defensive routines* “are actions or policies that prevent individuals or segments of the organization from experiencing embarrassment or threat..... Organizational defensive routines are antilearning...” (Argyris, 1990, p. 25).

learning perspective to examine the employment of the MPSB cognitive filters in general as well as in specific organizational settings.

As a subject in organizational theory, organizational learning studies theories about how “an organization learns and adapts” (Wikipedia, 2014e). To start with, Crossan *et al.* (1999)’s framework of organizational learning, i.e. the 4I framework, supports the view that “Understanding guides action, but action also informs understanding”; it identifies 4 related processes, namely, intuiting, interpreting, integrating, and institutionalizing, which occurs at 3 levels: individual, group, and organization. In particular, there are four key assumptions underlying the organizational learning framework of Crossan *et al.* (1999):

Assumption 1: “Organizational learning involves a tension between assimilating new learning (exploration) and using what has been learned (exploitation)”.

Assumption 2: “Organizational learning is multi-level: individual, group, and organization”.

Assumption 3: “The three levels of organizational learning are linked by social and psychological processes: intuiting, interpreting, integrating and institutionalizing”.

Assumption 4: “Cognition affects action (and vice versa)”.

In the words of the MPSB Research, the MPSB cognitive filter for management, made explicit from intuiting, supports the other three processes of interpreting, integrating, and institutionalizing, mainly at the individual and group levels. Also, the MPSB cognitive filters can be employed in exploratory as well as exploitation learning but their employment need to be sensitive to the tension between these two types of learning efforts (re: Assumption 1 of Crossan *et al.*, 1999). Thus, Crossan *et al.*’s 4I framework offers an organizational perspective to comprehend and employ the MPSB cognitive filters for

management. Such an organizational perspective is unclear in Figure 1. Likewise, James (2003) offers a comprehensive learning organization design theory, called the L-form, which comprises the components of leadership, culture, strategies, systems, structure, and knowledge workers. (This does not suggest that James (2003)'s design theory is totally compatible with that of Crossan *et al.* (1999).) Finally, Panagiotidis and Edwards (2001), taking a Critical Systems perspective, encourage an organization's stakeholders to reflect on their actions and purposes in relation to the organization's purposes as well as other existing stakeholders so as to achieve deep organizational learning. Specifically, they argue that deep organizational learning can be done by "reflecting both on the sources of motivation and/or deception that are contained in their purpose, and also on the sources of collective motivation and/or deception that are contained in the business system's purpose" (Panagiotidis and Edwards, 2001). The point is, by drawing on theories from organizational learning, how the MPSB cognitive filters for management are able to and should contribute to effective organizational learning are further clarified. Additionally, the organizational learning perspective reminds us that the MPSB cognitive filters for management (including the MPSB Frameworks and client-based systems diagrams) should be subject to continuous revision in a never-ending deep organizational learning process so as to strengthen the viability of an organization. This kind of learning mechanism is related to the *feedback* link in Figure 1. Nevertheless, by making use of the theories of organizational learning to enrich the concept of the MPSB cognitive filter for management, we at the same time inherit theoretical difficulty from the subject of organizational learning to the study of the MPSB cognitive filter. The main theoretical difficulty of organizational learning has been explained by Lipshitz *et al.* (2007) as follows: "Mystification plays a very important role in this reframing of the organizational learning as a spiritual

quest. Like science, a spiritual quest is a search for knowing, but it differs from science because knowledge is revealed while remaining hidden... Mystification poses a threat to the long-term health of inquiry. It adds to the concept's allure while at the same time impeding theoretical integration and obscuring the links between theory and practice...". Besides, concepts in organizational learning have been charged by some skeptics as "rhetorical devices used by those in power to trap employees into a utopian vision so that they can be more effectively exploited" (Lipshitz *et al.*, 2007, p. 11). In this regard, some of the conceptual issues of organizational learning have been reviewed from an MPSB perspective by Ho (1997) and addressed by Panagiotidis and Edwards (2001), both from a Critical Systems perspective – but these theoretical concerns of organizational learning remain.

Concluding remarks

The original idea of the MPSB cognitive filter for management was based on a simple idea of making use of the key MPSB concepts to inform management practices (Ho, 1995). To this writer, to be an intellectually usable product to managers, the MPSB cognitive filter has to work with client-based systems diagrams. This paper also raises the need for more empirical research on how various personal and environmental factors affect the construction and employment of the MPSB cognitive filters. Beyond that, an examination of the subjects of cognitive science and organizational learning reveals the complex nature and employment considerations of the MPSB cognitive filter. Enriching the MPSB cognitive filter notion with the organizational learning lens improves the knowledge delivery and consumption phases' functioning of the MPSB knowledge supply chain as well as increases the actionable management knowledge value of the MPSB Research (Ho, 2014). At the same time, such an intellectual endeavor introduces theoretical

difficulty that is inherited from the organizational learning lenses and raises the need for more empirical research on how the organizational learning theories can improve the employment of the MPSB cognitive filters. At the end of the day, these additional theoretical concerns should not be interpreted as a bad news. Quite the reverse, raising novel research questions ought to be considered as an academic contribution to the MPSB Research. Lastly, more research works need to be carried out on the MPSB cognitive filter for management (tacit), as it is much neglected in this paper.

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