

Cognitive Landscape of Values – Understanding the Information Contents of Mental Representations

J. Maksimainen

Abstract—The values of managers and employees in organizations are phenomena that have captured the interest of researchers at large. Despite this attention, there continues to be a lack of agreement on what values are and how they influence individuals, or how they are constituted in individuals' mind. In this article content-based approach is presented as alternative reference frame for exploring values. In content-based approach human thinking in different contexts is set at the focal point. Differences in valuations can be explained through the information contents of mental representations. In addition to the information contents, attention is devoted to those cognitive processes through which mental representations of values are constructed. Such informational contents are in decisive role for understanding human behavior. By applying content-based analysis to an examination of values as mental representations, it is possible to reach a deeper to the motivational foundation of behaviors, such as decision making in organizational procedures, through understanding the structure and meanings of specific values at play.

Keywords—Content-based Approach, Mental Content, Mental Representations, Organizational values, Values

I. INTRODUCTION

THE content-based view is presented in this article as an alternative approach to explore values. According to content-based approach, through differences in conceptual contents of representations of values it is possible to explain differences in human behavior. There are implications that in organizations, human management methods can enhance the formulation and internalization of organizational values within employees [1]. However, when viewed from a purely content-based point of reference, values expressed in interviews or in answering questionnaires frequently differ from the values actually practiced. Apparently there is lacks in value congruence within organizations between management and employees. Although a number of studies has addressed both perceptions of and actual value congruence in organizations, only premisory attempts have begun to logically distinguish between these two different constructs in the literature. In addition to reflecting actual value congruence, perceptions of values may reflect efforts to appear more consistent with the values of the organization, but may also be driven by inaccurate ideas regarding what values are, or what values are important. This suggests that we need a clearer theoretical understanding of the experiencing, interpretation, and cognitive construction of values perceived, in order to understand these determinants go beyond the amount of actual value congruence that exists.

J.M. is with University of Jyväskylä, Department of Computer Science and Information Systems, PL 35 40014 University of Jyväskylä, Finland (phone: 358-400-248129; e-mail: johanna.maksimainen@jyu.fi).

It should be anticipated some differences in the effects of these types of congruence because it is probable that they represent different, though related, constructs.

This article suggests that effective means for influencing value congruence within the actors in organizations rests in influencing their conceptions of their practices that are driven by values. To conclude, the purpose of the paper is to further the understanding of values in understanding organizational behavior. Through facilitating content-based points of view, it is possible to achieve a psychologically grounded understanding of the conceptual structure of values, as well as the variance actualized in behaviors. At best, this results in professionals living out an internally re-interpreted view of their practice. For example, when developing new technological innovations the importance of internalized values become emphasized specifically when new technologies are developed for vulnerable groups, such as children and young people.

In this article, first the brief introduction to different conceptions of values is presented. Then the content-based view to values is introduced as alternative reference frame to be applied in future value research. Finally, the possibilities and limitations of the approach are discussed.

II. VALUES

In relationship to professional ethics, values are rules by which the individual make decisions about right and wrong. Values help us perceive which values are more or less important, or which is useful when one have to choose one value over another. They can also be described as culturally shared conceptions of what is desirable, they play a central role in directing actions, and are considered according to their relative importance [2]. Among other extents of values, ethical values hold special characteristics. They should regulate the order and manifestation of other values. Although there is a lack of consensus about the constitution of values, most theorists agree that values are standards or criteria [2]-[5] for choosing goals or actions and are relatively stable over time [3],[6]-[8]. It is commonly proposed that values develop through the influences of culture, society, and personality.

Although not completely explicitly recognized, the theoretical distinction of whether values are merely preferences or have an aspect of what *should* be preferred, is unclear. The complexity concerns whether the *ought-should* element relates only on moral values [3], [5], [7] or to socially determined values as well [8]-[10]. Therefore, values do not straightforwardly reflect how one wants to behave, but rather reflect one's internalized interpretations about socially desirable ways to fulfill one's needs [3]-[4], [11]. The latter distinction indicates that values are influenced by culture. There is also a social dimension of values that becomes visible

in an individual's experience of guilt when he or she acts inconsistently with social expectations that he or she endorses [3]. According to these views, values can be defined as an individual's internalized interpretations of how he or she should behave.

Once internalized, a value system functions in several ways, affecting an individual's perceptual processes in the manner that external stimuli are perceived in ways that are in consistency with that individual's value structure [11]-[12]. Values also serve legitimizing operations, providing justifications for an individual's behavior [11], [13], and directly affecting behavior, encouraging individuals to act in accordance with their values [4], [11]. In this sense, values have significant role in affecting individuals' behavior. Besides other constructs that are essential in understanding human behavior, values affect general modes of behavior across situations and over time [14]. The psychological mechanisms responsible for values' effects on behavior depend partly on whether the behavior is public or private. Since values designate socially desirable modes of conduct, the threat of social sanctions such as shame induce individuals to conform to dominant social values in their public actions [3]. Individuals' internalized values function as personal standards of conduct.

A. Organizational and Work Values

Values occupy a prominent place in both scientific and public discourse at several levels. For instance, values have a significant effect on individuals' affective and behavioral responses [4], [9], on intended increases in unethical business practices [15], and on employees' problems in organizations [13]. At the organizational level, values are usually described as principles that are responsible for successful management [16]. Generally, values are viewed as a salient component of organizational culture [10], [17]. Despite of the popularity of values as object of research, however, there is not a clear consensus on the nature of values. They have been conceived as motivations, goals, attitudes, personality types, interests, needs, and mental entities. The absence of agreement [3], [11], [18] has lead to difficulties in interpreting the results of studies, and steers the need for greater agreement on how values are defined, conceptualized, and measured, especially in organizational research [19]-[20].

As in individuals' lives, values are a major element of an organization's culture [17]. Organizations do not possess values that are separate from the values of that organization's members. Therefore, when examining organizational values, the key issue is to avoid measuring just espoused values [21] that are not really integrated into the behavioral practices of the organizations' members. However, the role of values within an organization is similar to their function in society as a whole. According to Schein's [10] description, they function as *external adaptation* and *internal integration*; just as values specify the behaviors appropriate for satisfying individuals, an organization's culture specifies the behaviors that are necessary for the organization to survive (external adaptation). Since shared values enhance interactions between individuals, the organization's culture encourages interactions between individuals (internal integration). Nonetheless, value

congruence between the members of an organization does not necessarily enhance performance of certain tasks. For example, in tasks that require decision-making, judgment and creativity, homogeneity among the group created by similar values may even inhibit performance [22].

The conceptions of work values vary, as do the ways in which they should be classified. There is no commonly accepted definition of work values [23]-[24], in the sense that definition would include conceptualizations that are relevant to the construct and that would distinguish work values from other constructs. Nevertheless, compared to personal values, work values can be thought to hold stronger social consensus. In contrast to personal values, which are grounded on or chosen mainly due to personal experience, social consensus values are more often absorbed due to the influence of others [25]. In the literature concerning work values, discussion is largely focused on the social construction of values [7], [10], [26]-[29]. Shared understanding is the key in determining what is valued. Work values have also been studied as derived from needs [30] or as preferences [31]. The interest in work values has increased on both practical and conceptual levels [32]. Altogether, research of work values has been driven by the concern about employees' motivation [33], and also because concern over the ethical values has been distinctive [27], [34]. Because of the lack of consensus regarding definitions and conceptualizations of work values, the research seems fragmented.

B. Aspects of Values

Values can be very complicated objects as concepts. For example, the interpretations of concepts such as *sustainability* or *corporate social responsibility*, or ethical value concepts such as *freedom* and *equity*, include several different aspects. When studying them, one can find partial solutions to his or her questions, such as what symbolic, practical, or ethical meanings concepts are associated with. In the examination of values, the aspects in which values are applied and actualized through human actions should be discussed. TABLE 1 illustrates practical examples of these aspects and related questions that need to be solved in the process of actualization of values in the context of organizational procedures.

TABLE I
ASPECTS OF VALUES (MODIFIED FROM [35])

Aspect	Examples of related questions
Philosophical	How are the decisions justified? How to avoid misconducts? How are related laws and regulations grounded?
Practical	What benefit does a particular solution produce? Is the particular solution functional? Does the production process result in unwanted consequences?
Human	What values direct decisions? What is considered important? Do products serve the real needs? Can misuse of a particular product be avoided?

Socio-Cultural	<p>How can product serve society in an ethically sustainable manner?</p> <p>Does the product correspond to the demand?</p> <p>How are the values of different cultures taken into account in developing products?</p> <p>What are the consequences of product in the long run?</p>
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These philosophical, practical, human, and socio-cultural aspects of values represent the spheres and are examples of questions how values relate to practices in the context of business organizations. The *philosophical* aspect refers to meta-level of values, where judgments of what is desirable, or morally good, i.e., good in itself, are made. The second aspect is *practical*, referring to instrumental values with some technical abilities. The *human* aspect indicates the actor and constructivist comprehension of the individual as a locus of knowledge construction. The human aspect is defined by an individual's personal preferences, competencies, and so on. The last aspect is *socio-cultural*, referring to those relationships in which values actualize. Philosophical, practical, and socio-cultural aspects of values can have their meanings only through individual information processing. As noted, interpretations are construed linearly piece by piece; First one element, then the second, and finally the interpretations that were given to singular elements are combined into a coherent whole. In this meaning, construction is important in the context of value interpretation. The aspects of values presented above illustrate the types of general-level questions that need to be answered, when interpretations are construed in specific situations. Values are not just abstract entities. Instead, they take form in decisions that are made and the behavior that results from such decision making. Generally from a psychological viewpoint, values play a significant role in becoming conscious of the reality. Therefore, they are essential position in design, as well as in other areas of life. Values are important factors in explaining human actions, since they create extensive systems. By understanding these systems, it may be possible to predict some behavior patterns somewhat reliably.

Values actualize from mental representations to particular behaviors. The aspects presented (Table I) introduces actors in organizations to broaden the horizons of responsibility, starting from their individual level to the socio-cultural dimension. Philosophically, the model is supported by Koehn's philosophy; a relationship based on promise-making and trust is the only defensible ground for professional ethics [36]. By stressing the relationships of responsibility towards others as the essence of ethics, Levina's philosophy [37] is in line with the model. In the organizational context, specifically when considered from the perspective of the whole branch of particular industry, ethics must be seen as an attitude, centred on the 'other'. However, the core of scientific interest in this study concentrates on the individual level in the contents of mental representations of values. Yet, it is important to recognize the existence of those parallel realities in which individuals are involved.

III. CONTENT-BASED APPROACH TO VALUES

Professional practices and related thinking processes concern various tasks that may be related to organization (business strategies, efficiency, production facilities), products (development, process variables, product specifications, internal standards, norms and instructions), or design (personal professional scientific and technological knowledge, beliefs) [38]. All these areas require decision-making and therefore values should be taken into consideration while one is making decisions, since they function in constituting the motivational foundation for such decisions. Values can be seen as part of thought processes and a sub-function in problem-solving activity. For example, in examining human-technology interaction (HTI) design, the focus has traditionally been on the technological contents of design, meaning the application of certain technologies and practices [39]-[43]. Similarly, within cognitive science, another approach to the subject has developed [44]-[49] that is characterized by use of psychological concepts. In HTI design thinking, values can be comprised as a certain type of mental contents of thinking [50]-[52].

For examining mental contents, a content-based approach offers an appropriate reference framework for research. The approach was developed by Saariluoma [41], [50]-[53], and it aims to explain human behavior in terms of the information contents of mental representations and processes that are needed to construct these representations. In an individual's thinking processes, cognitive resources are always filled with conceptual material. These contents of thought differ in different situations, and can also interact with emotions. When the focus of research is on the information contents of mental representations, the objective is to explain why mental representations have a particular set of content elements that are linked to an entirety, and why some equally possible sets of elements are not included in a particular representation [53]. Mental representations are usually constructed with two kinds of information contents, perceivable information and non-perceivable information [54], which explains the differences between interpretations of the subject of mental representation. To comprehend the phenomenon, attention should be paid to individuals' psychological processes. A content-based approach to human thinking is based on foundational analysis [51]. In foundational analysis the objective is to clarify the theoretical and conceptual foundation of specific disciplines. Investigation focuses on the explicit and tacit assumptions that are built in to the argument for the research tradition. The goal of foundational analysis is to improve the quality of argumentation by eliminating conceptual confusions, flawed beliefs, illusory assumptions, and presumptions in the knowledge structure. Saariluoma has construed the significance of conceptual analysis in his book *Chess Players' Thinking* as follows:

Scientific concepts are building blocks of our theories. Concepts are the entities which distinguish intuitive knowledge from scientific knowledge and which organize scientific experience. They define what is

essential and what is inessential in a particular context and provide the propositional knowledge with content. The concepts refer to something and enable people to separate their references out from all other available objects or actions, thus forming the very basis of human thinking. Concepts give the thoughts their contents, and by using spoken or written language people transmit these thoughts to each other [53, pp. 8].

A content-based approach closely connects empirical investigation and conceptual analysis. By means of conceptual analysis and through experimental work, the explanatory power of concepts can be tested. In addition to chess playing, a content-based approach has been recently applied to research concerning, for example, design and engineering [38], [50], [53], [55]-[57]. Content-based approach differs from Carroll's [58] content-oriented approach: Within the first, objective methodology is used and the principles of modern psychology are followed. A content-based approach also differs from the content-oriented approach suggested by Newell and Simon [59] and Allport [60]. Content-oriented research aims to model mental contents, while a content-based approach aims to explain human behavior on the basis of the information contents of mental representations [41], which constitutes the explanatory ground for exploration. In addition, a content-based approach utilizes a third-person perspective to thinking processes, studying these processes empirically instead of relying on introspective experiences. Within the exploration of human mentality, a content-based approach also differs from a capacity-based approach [53], which is typically used in a context of researching memory and attention in studies of the limits of the human information processing system [61]-[64]. In Saariluoma's view, capacity cannot make a difference between thought contents [51]. For example, in the case of human values, the differences in various interpretations of such values that individuals associate with particular words like 'peace' or 'justice' cannot be explained on the basis of capacities for memory or attention. To understand the differences of interpretations, the contents of thought must be analyzed.

A. Mental Processes

In content-based approach, a distinction is made between mental representations and processes operating on these representations. Mental representation applies to information that is available to use, while process refers to dynamic use of information [65]. In a content-based approach, the most important processes are *apperception*, *restructuring*, *reflection*, and *construction* [42]. Apperception constitutes individuals' immediate mental representations, restructuring refers to the shift from one particular mental representation to another, reflection directs the comparison and selection between alternative mental representations, and construction integrates groups of sub-representations into a consistent whole. It should be noted that these thinking processes do not

need to be subsequent. When human values are the focus of research, apperception, restructuring, reflection, and construction can be seen as sub-processes, i.e., cognitive processes through which mental representations are constructed and the different interpretations of values can be reached. In the study of values as mental representations, it is also important to note the fundamental functions of the memory system, because evidently it is a crucial element in thinking. It is both a precondition to thinking and the basis for mental representations [53], [62], [66]-[68]. Although content-specific sub-processes of thinking—apperception, restructuring, reflection, and construction—receive more attention in a content-based approach than do the processes of memory, these processes are closely linked with the memory system.

Values can be seen both in individual conceptions, colored by an individual's history, or as a construction of culture-historical knowledge. To some extent, these two types of memories are compounded. When professional values are studied, it is reasonable to assume that experts use field-relevant knowledge as part of their interpretations, while less experienced individuals lean more on personal memories and may utilize more easily generalized, historically determined knowledge in their interpretations.

In the case of values, for example, concepts such as 'peace', 'justice' or 'equality' are familiar to most people. If they were asked to verbally describe these concepts, it is probable that the attributes and meanings attached to value concepts will differ, and there might even be great differences between the individuals' descriptions. Cognitive recall is a more challenging task than recognition; in recognition, individuals focus only on some informative and discriminate elements of an object, but in recall, several important elements of the object must be recalled [53]. Also the terms *schema*, *prototype*, and *category* [69] must be mentioned in the context of this study. Schemes provide a context wherein human experiences are structured and comprehended by representing the general structure of an object, idea, or relationship between concepts. Schema is therefore a part of an individual's framework for representing knowledge. In the context of values, there may be schemes like ethical values, cultural values, work values, and personal values. When particular values, for example 'equality' or 'efficacy', are conceptualized, some of these schemes are activated. Instead, prototypes are general abstractions of the object against which schemas are evaluated [70]. Schemes, prototypes, and categories are abstract knowledge structures in the human mind. Within content-based approach attention is directed to the information contents of these knowledge structures.

B. Interpretation

The information contents of mental representations comprise the explanatory ground of examination in content-based psychology [41]. In a content-based approach, clarifications of the functions of content-specific modes of thinking, such as apperception, restructuring, reflection, and construction, in different contexts of problem-solving activities

are at the core of attention. When a particular issue is considered as *value*, it requires the individual's interpretation of that issue. Therefore, human values can be considered one type of problem-solving activities. In interpretations, which are closely related to the problem of experience, the mental contents related to a particular value are constituted through perception, apperception, restructuring, reflection, and construction, as well as through the concepts of memory and attention.

Because of the abstract and strongly conceptual nature of values, an individual's interpretation of values differs essentially, for example, their interpretation processes of issues with visually perceivable stimulus, like pictures. In the case of pictures, perceivable and non-perceivable content elements assimilate in an individual's mental representation in constructing sensible relationships between elements in the visual stimulus. Therefore, content elements of values are constituted strongly by non-perceivable contents. When the problem of experiencing values is examined within a reference frame of content-based research, attention should be directed to different types of non-perceivable conceptual content elements in an individual's mental representations. For example, the distinctions can be made between ethical, practical, and social conceptual contents of values. Through these kinds of distinctions, and through paying attention to the interactions of different types of content elements, it is possible to achieve a better comprehension of how the individual processes of interpretation tend to proceed, by understanding more specifically how cognitive processes, especially apperception operates in the context of experiencing values.

Evidently, values play a prominent role in directing human actions as abstract concepts with different conceptual contents. Therefore, from the viewpoint of a content-based approach, the key interest is in categorizing concepts that individuals use in their interpretations, as well as in the interpretation processes. To achieve more comprehensive understanding of such interpretation processes, in future studies close attention should be paid to concepts that are used in the process of interpretation.

IV. CONCLUSIONS

The word *values* can sometimes be misconstrued with having only to do with vague type things like feelings. However, the idea of values, when it comes to organizational culture and management, relates much more to practical matters. There is a significant correlation between correct value alignment and success. Research shows, for example, a strong link between financial performance and the alignment of an organization's operating values to the employees' personal values [71]. Who you are and what you stand for is becoming just as important as the quality of products you provide. Traditionally, intangibles such as values have been difficult to measure and, therefore, have not been included as part of the management's key performance indicators. Values are commonly cited as influencing everything from organizational ethics [72] and leadership [73] to selection [74] and control processes [75]. For a construct of this apparent

importance, more resources should be directed toward a fuller comprehension of its relevant processes and functions.

One issue remaining to be resolved in organizational value research relates to the appropriate method of measuring the construct of values. Researchers differ on whether normative or ipsative instruments are theoretically and statistically appropriate. The choice of measurement approach should depend on the theoretical nature of the process being investigated. As some effects of values have been established in the literature, it seems appropriate to focus more attention on testing elements of process approaches to values, instead of focusing solely on what outcomes are affected. In this respect, it may be useful to utilize a content-based approach in examination of individual values through specific cognitive processes. The approach requires clear ideas of what values are and what measurement instruments are most appropriate. However researchers proceed, such choices should be made explicitly and as they relate to theory. In addition, research and theory that addresses the intra-individual aspects of values-based decision making, including cognition regarding the self, and emotional responses to such decisions, is clearly called for at this point.

When applied to examination of human values, the notions of apperception, restructuring, reflection, and construction, which are promoted within a content-based approach, emphasizes the understanding of individuals as active producers of meanings. Through the previous concepts, the problems of conflicting interpretations or conceptions of values, for example, within the work community, can be approached. From this viewpoint, content-based approach works as a mean in meta-theoretical discussions in cross-disciplinary value studies. For example, there are possibilities for interactions between content-based approach and professional ethics. In philosophical ethics, there is plenty of literature about the issues of ethical problem-solving, wherein values are naturally involved, such as conflicts of values, or rights, or professional responsibilities. In the future, these themes related to content-based examination of values should be studied in more detailed ways. How philosophical and empirical approaches to issues of experiencing values can be imported into contact with each other in way that the results benefit both fields should also be investigated further.

One important task in future research is to deepen the theoretical frame of content-based analysis by both experimental examinations and conceptual analysis, and specifically in the context of value studies in order to develop relevant measure methods that are in accordance with a content-based approach. In studies of mental contents of individuals interpreting their values, the data collected in experimental situations are crucial, since such data reveal the instantaneous process of thinking. Naturally, experimental situations may limit the freedom of construction of participants' interpretations. Another limitation is that the conceptual contents of values construct and reconstruct during a long time period, which constitutes a major difficulty for building an experimental situation with high validity. Despite certain limitations, more comprehensive understanding of experiencing values is possible by creating different

experimental settings and combining the results of various data types. Qualitative data can reveal those individual differences that may appear in human experience of values, whereas quantitative analysis can provide a general view of the typical features of the data. The significance of a content-based approach to examination of values derives from the notion of understanding mental processes that direct the perception of values. The approach is meta-scientific and generally, works to outline the thinking process and its specification. However, there is need to have different explanatory frameworks, if it is intended to base organizational procedures, actions and decisions on empirical facts, rather than intuitions.

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Johanna Maksimainen, Ph.D., works currently as researcher in the Department of Computer Science and Information Systems, University of Jyväskylä. Her main areas of research interests are values in HTI design, ethical issues related to technology, cognitive processes in experiencing, aesthetic experiences and mental representations. During her attachment in JY, she has worked as researcher in various projects and as senior assistant in cognitive science. Other scientific activities include acting as associate editors in several ICT-related journals.