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Developing the Concept of Individual IT-Culture: The Spinning Top Metaphor

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ABSTRACT

Culture, a popular though complex concept, has been recognized to influence implementation and usages of Information Technologies. Many empirical studies, using a cultural framework, have been carried out in Information Systems research. Most of them focus on the organizational and/or the national culture as surrogates to evaluate the role of culture within IS contexts. In this paper we categorize, from existing literature, different conceptions of culture rooted in diverse disciplines like anthropology, organizational studies and IS research. We then call on a *spinning top* metaphor to construct a model of the individual's global culture as a set of rotating cylinders embedded in, and built upon, an innate core cylindrical axis. Those cylinders relate to specific cultural layers of the individual: ethnic, organizational, national...and technological. These layers are permeable, dynamic and their volume as well as their relative positioning, with respect to each other and to the central innate core, can change; the layers will vary depending on the successive socialization processes occurring during the individual's lifetime. The conception of culture as a root metaphor of the individual and not only as an influential variable is central to this model. Therefore, we discuss the utility of the use of metaphors in cultural studies, more especially in organizational and IS research, and finally present how the spinning top metaphor can open a new path to study IT-related values and their impacts on IT-effective usages.

Keywords : Culture, IT Culture, Individual IT Culture (IITC), Social Identity Theory, Virtual Onion, metaphors, Spinning Top.

INTRODUCTION

A review of the past Information Systems (IS) research highlights that "human factors" are recognized as at least as important as "technological factors" (Avison, Fitzgerald & Powell, 2001). Beliefs, values, attitudes and norms related to Information Technology (IT) are some of the human-related variables which have been proposed to explain why technically viable systems are resisted by their users. This issue, labelled as a "lack of IS/culture fit", has generated a wide range of studies trying to understand cultural influences on IT adoption and usage.

Gallivan and Srite (2005) asserted that the literature on IT and culture has been dominated by two separate perspectives of research: the first one is centred on the concept of *organizational culture* or *corporate culture* and the second is concerned with the issues of *national*, *societal* or *ethnic* culture. They concluded that these two streams "have existed as "stovepipes", operating in parallel but not communicating effectively with each other" (p. 295). The result is a fragmentary and non-cumulative research tradition.

An alternative school of thought has developed in recent years proposing Social Identity Theory (SIT) (Tajfel, 1978; Tajfel & Turner, 1979) as grounding for cultural related studies in IS research. Rather than conceiving culture as only limited to

National Culture, Organizational Culture, or any other *single* dimension of a person's identity, SIT considers how multiple layers of identity converge and interact in each individual (Gallivan & Srite, 2005).

Building upon this view, Straub, Loch, Evaristo, Karahanna, & Srite (2002) have developed the metaphor of the *Virtual Onion* as a holistic perspective of culture, conceived as a set of intertwining identity layers and experiences which can shift and overlap, depending on time, organizational/ environmental contexts and various interactions (conflicts, cooperation, etc.) with other individuals and groups. These layers do not play an equal role in shaping the beliefs and behaviours of the individual, at a certain point of time (Karahanna, Evaristo & Srite, 2005).

In our study, we will adopt this holistic view of culture and propose to complete the virtual onion model by adding a specific cultural layer which precisely includes basic assumptions, values and behaviours expressed through artefacts (Schein, 1985a), all directly related to IT. Following precursory works (Kaarst-Brown & Robey, 1999; Leidner & Kayworth, 2006), this specific layer is labelled Technological Culture (or IT-Culture).

We will also build upon this theoretical view to construct a model aimed at describing and predicting the individual's attitudes and behaviours within organizations with regards to IT implementation, usage and adoption.

This paper is organized as follows. In the first section, we define culture and review the prevailing culture conceptions in anthropology, organizational studies and IS literature. In the second section, we display our theoretical model: the Individual IT culture model, represented by the spinning-top metaphor. We explain how it is built upon SIT and the virtual onion. Furthermore, we discuss the use of metaphors in organizational and IS studies and how it can be helpful to shape our understanding of the implications of individuals' social identity on IT adoption and use. Finally, we conclude by identifying the practical implications of our model and the future research perspectives it brings forward.

VARIOUS CONCEPTS OF CULTURE

Definition of the concept of Culture

Defining culture appears to be a challenge in itself if we look at the wide range of heterogeneous approaches of this concept. Kroeber & Kluckhohn did already identify 164 definitions in 1952 (Leidner & Kayworth, 2006). Fleury (2006), quoting Passeron, also reminds us that "culture is the most protean of sociological concepts. More than other polymorphous concepts [...] culture is the term which leads us to the most vertiginous maze of a Babelian library" (Passeron, 2003:209).

Bloch (2003) identified different schools of thought: the culturalist, the transactionalist, the socio-biologist and the cognitive anthropologist. The latter is grounded in Anthropology which provides one of the most quoted approaches of culture. The celebrated anthropologist Geertz states that "man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search for law but an interpretive one in search of meaning" (1973: 5). Gallivan & Srite (2005) notice that a similar view, largely adopted in cross-cultural studies, is Hofstede's who defines culture as "the collective programming of the mind which distinguishes the members of one human group from another" (Hofstede, 1980: 260).

In organizational studies, Schein (1985a, 1985b, 1989) has developed a considerable contribution not only in deepening the understanding of culture that he defines also from an anthropological perspective as "the sum total of all shared, taken for granted, assumptions that a group has learned throughout its history" (Schein, 1985b; 29), but also in developing a three-level model of culture comprising: basic assumptions, values and behaviours expressed through artefacts. These are referred to as "levels of awareness", ranging from the deepest (basic assumptions), to the more peripheral and therefore more visible, i.e. values, then practices. This model is particularly interesting in handling the second challenging issue in the studies involving culture: how to measure it? (Adler, 1983). Recent studies in IS Research have used values and practices as surrogates to assess the role of culture in the issues related to IT development and use (Karahanna et al, 2005). In empirical studies, core assumptions seem to be the less investigated level of culture where as Schein (1989) asserted: "If I understand the pattern of shared basic assumptions of a group, I can decipher its espoused values and its behavioural rituals. But the reverse does not work" (p. 252).

Beside this multi level conception of culture, recent theoretical developments have rejected the view of culture as a distinct, harmonious and stable entity with well defined boundaries. Researchers within this approach maintain that cultures are plural and always interpreted and reinterpreted (Fleury, 2006).

Accordingly, it has been argued that the term "cultural aspects" should be preferred to "culture" because of the fragmented, emergent and pluralistic nature of this concept. The word "cultures" (plural) can be apprehended, in an anthropological

perspective, as a characterization of man's humanity: "man as a being of culture as opposed to nature" (Fleury, 2006:7) and "the anthropological clash between nature and culture is found [...] in the distinctions between identity and identification, communication and language, organ and tool, heredity and inheritance" (Fleury, 2006:12)

In this paper, we adopt an anthropological, multi level and pluralistic view of culture and will define this concept as globally referring to "the complex set of man's acquisitions on nature and the process of its transmission" (Deloche, 2007:60). We will develop in the following sections how our theoretical foundations, Social Identity theory and a holistic view of culture, are congruent with this choice.

Culture Conceptions in organizational and IS Literature

Our purpose here is not to review literature involving culture in the organizational and IS fields but rather to extract common features from referred works in order to summarize how the notion of culture has been regarded and measured.

In organizational literature, Adler (1983) developed a methodological review in which she depicts six approaches through which culture has been linked with the study of organizations: parochial, ethnocentric, polycentric, comparative, geocentric and synergistic. Smircich (1983) stated that what we call a "cultural perspective" of organizations covers a range of five current research themes: comparative management, corporate culture, organizational cognition, organizational symbolism, and unconscious processes and organization. "Each of these five represents a viable mode of inquiry and a specific conception of culture [...]. In the first two, culture is either an independent or dependent, external or internal, organizational variable. In the final three, culture is not a variable at all, but is a root metaphor for conceptualizing organization" (p. 342). Smircich (1983) provides therefore a very useful theoretical framework according to which we can divide culture research in two areas: (1) the 'has' approach where culture is considered as a feature or a variable (dependent/independent/mediating/contextual, etc.) affecting and/or being affected by other variables within organizations. Culture can then be considered as an adaptive or regulative mechanism contributing to the overall performance of the organization; and (2) the 'is' approach, that relies much more strongly on the anthropological tradition, stands that organization 'is' culture, or that culture is a "metaphor" to study organizations. The concrete applications of this stance relate to the cognitive, symbolic, structural and psychodynamic perspectives on organization and culture studies.

Smircich's framework can be purposefully applicable to review the research on IS and culture. The two areas (the 'has' approach and the 'is' approach) are not equally present within the literature. After reviewing 82 empirical studies linking IT and culture, Leidner & Kayworth (2006: 363-364) identified six recurrent themes:

- "Culture & IS development": How does culture influence conception of IS
- "Culture, IT, adoption and diffusion": Does culture influence IT adoption and diffusion
- "Culture, IT use & outcomes": What is the influence of culture on IT use and results
- "Culture, IT management & strategy": How does culture influence IT management & strategy.
- "IT's influence on culture": What is the influence of IT on culture?
- "IT culture": "the values attributed to IT by a group" (Leidner & Kayworth, 2006:371)

Only the last theme labelled "IT culture" belongs to the 'is' approach research area. Leidner & Kayworth (2006) identified only two previous works based on this theme, the works of Kaarst Brown & Robey(1999) and Kaarst Brown (2004).

Similarly, Iivari (2002) has identified three distinct approaches amongst IS/culture research: comparative, clinical and interpretive. In the comparative approach, culture is viewed as an independent, explanatory variable hypothesized to play a specific role in an analytical framework defined a priori. In the clinical approach, culture is a manipulable, controllable, dependent variable. While the interpretive approach considers culture as a set of meanings or cognitions in the organization. Iivari (2005) has added a fourth approach: the critical approach where culture is viewed as "a dynamic, emergent, constantly interpreted, fragment, political phenomenon". Iivari (2005) also noted that "these culture conceptions are by no means equal", while the comparative approach covers the studies on what we call national culture studies or cross-cultural studies, the clinical approach is concerned more specifically with organizational culture in a therapeutic mode of analysis. Both of these belong to the 'has' approach (Smircich, 1983). The interpretive and the critical approaches are much closer to the 'is' approach and they have unsurprisingly generated much less empirical studies.

Gallivan & Srite (2005) have extensively reviewed literature on IS and culture and proposed a more integrative or holistic view which could link the two fragmentary dominant perspectives: national culture versus organizational culture studies. The new framework is based upon a conception of culture as a root metaphor (Smircich, 1983) and provides a multifaceted and a multi-layered representation of the individual cultural specificities. In this study, we intent to go further than this view and propose a dynamic model of the individual cultural identity and introduce the concept of IT-culture as presented by Leidner & Kayworth (2006) and previously applied in some works (Kaarst-Brown & Robey, 1999; Kaarst-Brown, 2004).

THE INDIVIDUAL IT-CULTURE: THE SPINNING TOP METAPHOR

Prior to explaining how our model has been inferred, we first explicit our theoretical foundations, then we explain why we have argued for a metaphoric representation of the Individual and his IT-Culture.

Theoretical foundations: SIT and the Virtual Onion Model

The notion of identity implies asking the question “Who am I?” and if the individual is part of a group or an organization “Who are we?” The answer is not single but multiple as it corresponds to multiple identities (Pratt & Foreman, 2000). Psychology and sociology have been debating for a long time about the presence of multiple identities in a single individual (Burke, 1937; Feldman, 1979; Tajfel & Turner 1979; Markus & Nurius, 1986). To understand and manage those multiple identities within organizations can be considered as an important managerial task. Social Identity Theory has put forward a considerable contribution in this stance.

Rather than taking its roots in cultural anthropology, SIT takes its sources in social psychology, and more specifically in the research on intergroup relationships (Tajfel & Turner, 1979). This theory explains why and how some individuals identify with some groups and how this can affect their behaviour; three processes are brought into play as shown by Ashforth & Mael (1989): categorization, identification and comparison. Within organizations, various collective identities linked to assumptions about IT do emerge (Kaarst-Brown & Robey, 1999) and can evolve over time. The manner in which these identities evolve in a situation of organizational learning is considered as an important managerial concern (Brown and Starkey, 2000).

Through the lens of SIT as framework, Straub et al. (2002) developed the “virtual onion” metaphor describing the different layers of subcultures which make up the global culture of each individual. Each person is the unique product of various cultural identity layers. Globally, and a fortiori in an organizational context, individuals’ behaviours are then seen as the result of their different social identity layers, these layers not being static but evolving, intermingling, and of varying importance depending on the situations met by the individuals.

Karahanna et al (2005) underline that intercultural differences have an impact on managerial theories. We are in a context undergoing a profound mutation with a general market globalization. Virtual organizations, including virtual teams, are appearing and organizational behaviours are evolving. These behaviours are related to the various cultural layers and sub-layers of each individual and «the relative influence of the different levels of culture on individual behaviour varies depending on the nature of the behaviour under investigation » (Karahanna et al, 2005: 1).

Karahanna & al (2005) propose a hierarchy of the cultural levels ranging from the supranational level “including regional, ethnic, religious and linguistic” to the sub organizational group level, and including the more traditionally studied levels of national, professional and organizational levels of culture. These different levels are represented by a set of intersecting ellipses, the individual culture (central ellipse) being the result of the individual’s cultural layers.

Following Gallivan & Srite (2005), we argue that this introduction to the virtual onion and SIT provides a solid framework to conceptualize and measure culture. However, we must note here that applications of this view remain still under developed.

IT-Culture: Dimensions and measures

Leidner & Kayworth underlined that “Research on IT values is still at a nascent stage and much remains to be done in isolating and understanding IT-related values and the impact of these values on IT projects” (Leidner & Kayworth, 2006:371). Karahanna et al. (2005) propose to define each of the cultural layers in terms of values and practices. However, if we adopt Schein’s (1985b) conception of culture, we should add a third dimension: the core assumptions. We argue here that there is a real need to clearly define the concept of IT-culture and consider it as a distinct sub cultural layer of the individual’s identity, as equally significant as the other layers related to ethnic, national, organizational or any other group cultural layer.

Why do we need to study cultural specificities of an individual, especially related to IT? Why not just settle for the study of IT-values or IT-practices? Why do we need a conceptually deeper level?

To answer these questions, we adopt the five arguments put forward by Schein (1989) to support culture studies in organizational research : (1) *culture implies stability* : a long term framework due to the occurrence of regularities; (2) *culture emphasizes conceptual sharing*: and therefore the study of socialization processes, (3) *culture implies patterning* : observed regularities reflecting higher order phenomena that create patterns and may lead to the formulation of cultural types; (4) *culture implies dynamics* : Regularities occur, are perpetuated, then they are changed and renewed; (5) *culture implies all aspects of group life*: it is important not to develop simplistic models which rely only on a few key dimensions, but rather models which reflect the vastness that culture represents. (pp. 246-247).

One of the most representative studies that respond positively to all these criteria is the Kaarst Brown & Robey's study of IT-Culture in organizations. The results have stressed that "Knowledge about IT cultural archetypes can be a valuable aid to managers and other participants who are charged with making effective use of IT in their organizations". The authors have identified and described five patterns or archetypes of organizational IT-Culture indicating that they "imply the persistence of enduring values and assumptions that are deeply rooted in human experience" (Kaarst Brown & Robey, 1999: 214):

- « Revered IT Cultural Archetype »: IT is worshipped and has the benefit of important resources.
- « Controlled IT Culture Archetype » : IT is mistrusted and kept under strict control
- « Integrated IT Culture Archetype » : IT personnel and users work hand in hand
- « Demystified IT Culture Archetype »: Users acquire new skills through IT and are empowered.
- « Fearful IT Culture Archetype » : IT is frightening

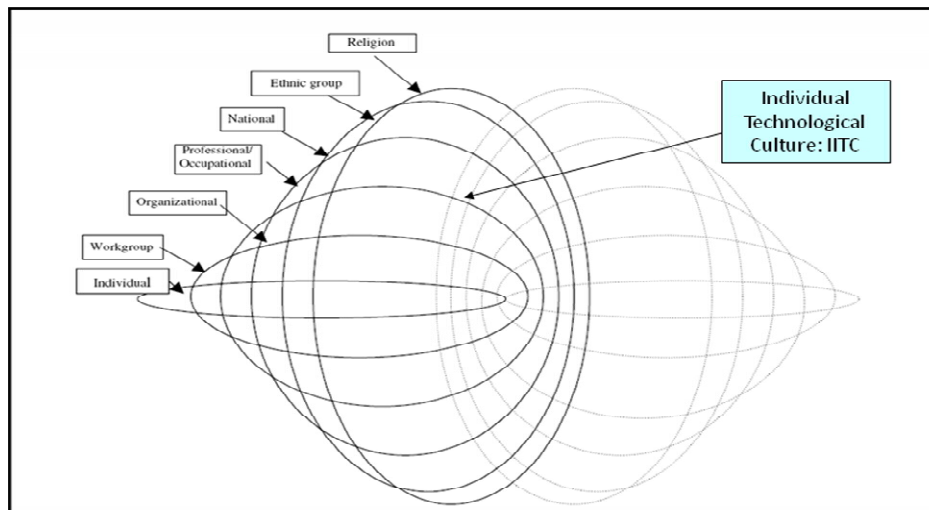


Figure 1 (adapted from Gallivan & Srite, 2005): The virtual onion model, completed.

The term "IT culture" was used in recent works (Nord & Nord, 2007 and Guzman, Joseph, Papamidal & Stanton, 2007) with a different significance, as meaning the culture pertaining to a group of individuals involved in the implementation of IT in organizations as opposed to the users' group culture.

In this study, we propose extending Kaarst Brown and Robey's conception of an IT cultural dimension to include it in Gallivan & Srite's model of the individual's culture. Rather than posit our level of analysis on the organizational level, we will target the individual level and therefore investigate what we call the Individual Technological Culture or "Individual IT-Culture" (IITC).

We can then complete Gallivan & Srite's (2005) representation of the virtual onion model (Straub et al, 2002) and include a layer of individual technological culture (see Figure 1). The individual's positioning with respect to IT, the use of IT by this individual, his norms and beliefs linked to IT as well as his basic assumptions can then all be included in a separate and

specific cultural layer amidst the others. Depending on the individual, this technological layer will be more or less important, more or less close to the core of the onion, which Gallivan & Srite identify as the individual.

Figure 1 can be read as representing the interaction of two individuals (central ellipses) who are the results of their different cultural layers, interacting with each other's layers of culture. Culture is not static, it evolves. Thus variations occur in the composition and dimensions of the identity layers which are compounded in each individual. Interactions between individuals produce these variations, for example through socialization processes.

We also propose to input in each layer of the virtual onion the three cultural sub levels identified by Schein (1985b) (basic assumptions, values, artefacts): for example in the layer identified as organizational culture, actors' sartorial attire in the organization, which is part of the visible behaviours, would be found in the most superficial part of this layer (farthest from the onion's core); the organizational membership feeling and the implication need of some of the actors would then belong to these actors' values or basic assumptions (closest to the onion core).

About the use of metaphors in organizational and culture studies

Metaphors can be defined as "cognitive lenses we use to make sense of all situations" (Kendall & Kendall, 1993). In Organization science, the use of metaphors is not something new. As sustained by Smircich (1983), "throughout the development of administrative theory and practice, organization theorists and managers alike have used a variety of metaphors, or images, to bound, frame and differentiate that category of experience referred to as (an) 'organization'" (Smircich, 1983: 340). The most common metaphors used for organizational analysis consider organizations as "machines" or "organisms" (Koch & Deetz, 1981). Other metaphors have been popularized by psycho-sociological analyzes of organizations. For instance, organizations have been represented as "theatres" for performance of roles, or as "political arenas" (Crozier & Friedberg, 1977).

In the field of Information Systems, the rapid developments and pervasive use of new technology has been accompanied by the application of a vast number of terms borrowed from the day-to-day life, like *memory*, *address*, etc. (Nielsen, 1991). For a more specifically analytical purpose, the use of metaphors in IS has been used in IT development processes concerning for example organizational requirements analysis. Kendall & Kendall (1993) examined the language of IS users in 16 organizations, the results confirmed the six main metaphors defined by Clancy (1989): *journey*, *war*, *game*, *organism*, *society and machine*; and added three emergent metaphors: *family*, *zoo and jungle*. These authors have finally associated to each group the convenient systems development methodology.

The use of a particular metaphor is often not a conscious choice, nor made explicit, but can be inferred from the way the subject is approached, by discerning the underlying assumptions that are made about the subject (Smircich, 1983). This is particularly true for the concept of culture, organizational cultures for example have been referred to as "personalities", "climate" or "mood". Literature linking IS to culture is also a very rich ground for metaphoric developments. Mason (1991) argued that metaphors play a crucial role in enacting corporate strategy and linking strategic thinking with IT planning. Kaarst-Brown and Robey (1999) used the metaphor of *magic* to represent the dynamic and somehow uncertain nature of IT. Straub et al. (2002) have introduced the *virtual onion* metaphor to represent the multi-layered nature of individual's culture.

In phase with those approaches, the present research views culture as something an individual/or organization "is", which means as a root metaphor (Smircich, 1983).

Presentation of the model

We would like to underline that the object of this study is not an attempt to reify the concept represented by the word culture; it is rather an attempt to develop a model which can be made operational as easily as possible in an organizational context of IT implementation

Hofstede reminds us that the many significances of the word culture all originate from the Latin origin of the word: the ploughing of the land (Hofstede, 1991:19) that is the work done on the soil, ie on an existing nature. This work could not be done without its prerequisite: the soil. Using this homonymy, it appears expedient to us, not to dissociate the innate and acquired dimensions in the individual, the acquired elements presupposing a pre-existing material: the innate part of the individual.

Though not obliterating this dual aspect of the individual, rather than get involved in the ancient debate of "Nature versus Culture" or "Nature versus Nurture", we will consider and attempt to illustrate how the two concepts intermingle within an individual and their resulting force. It does not appear productive to us to confront/oppose the two notions but rather to associate them in a de facto state which constitutes the individual.

We propose a conceptual model of the individual including his multi-layered culture and his innate core: the *Spinning Top model*. This model, which includes the individual technological cultural layer, or Individual IT-Culture (IITC) layer, does also include the fundamental innate component of the individual which will affect the development of the individual's cultural layers through his varied socializations.

The individual is seen as a set of embedded cylinders, centred on the same axis of symmetry: the core cylinder representing the innate component of the individual, the characteristics he was (biologically, genetically) born with, before primary socialization occurred during childhood.

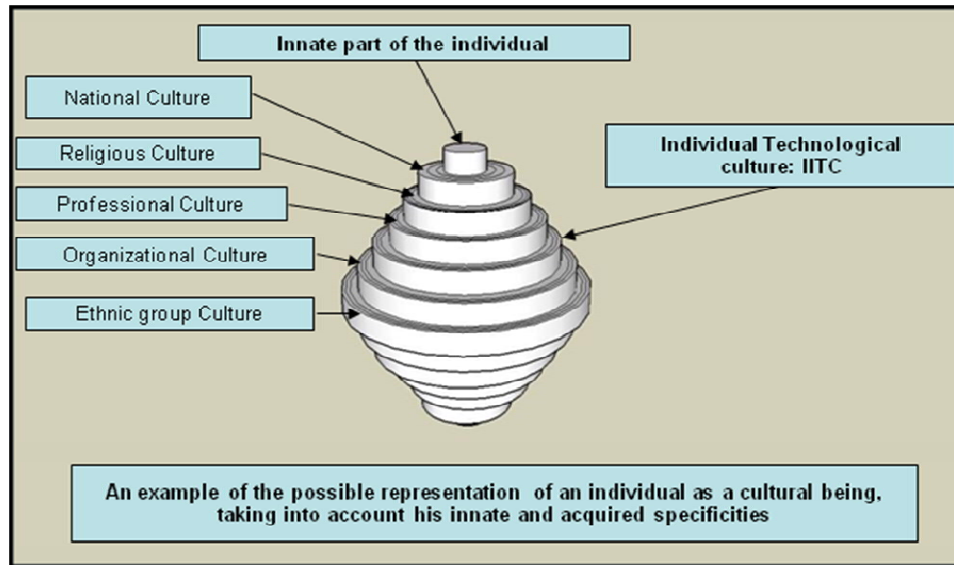


Figure 2: The Spinning Top Model

The primary socialization is a cognitive and emotional process which allows the individual to belong to society. This primary socialization must be updated by the subsequent acquisition of further knowledge (Parsons & Bales, 1955) which represents the secondary socialization; this secondary socialization is anchored on and posterior to the first; it allows an individual, already socialized, to penetrate new areas of the objective world (Berger & Luckman, 2004, p. 179).

The subsequent cylinders, added on the core/innate cylinder, thus represent the acquired/added on after birth, elements of the individual (hence representing his global culture), and are the results of his socializations, leading to his pertaining to specific groups of people.

The cylinders closest to the core cylinder, are the most stable, their possible varying dimensions signalling their relative importance in the individual's global culture.

As in the virtual onion model, the layers are permeable, dynamic and their volume as well as their positioning with respect to the central innate core will vary depending on possible changes of the external circumstances.

However the spinning top model is a modelization of the individual as a cultural being, including both his innate core (central cylinder acting as the rotating axis in the spinning top model) and his acquired specificities (outwards cylinders), whereas the virtual onion is a model of culture (acquired specificities only). All layers of the spinning top model being mobile and porous, this particular layer of innate specificities, on which acquired culture feeds and grows, has to be taken into consideration. We consider this an important element particularly when, in a managerial perspective, one should consider specific training facilities depending on users' technological cultural profiles (which also depend on the individuals' innate specificities) and not only tailored on their academic level, their professional attributions or their hierarchical position in the organization.

Each layer of culture (national, organizational, ..., and also technological) has three sub- levels (shown by the 3 lines on each layer in Figure 3). In the IT cultural layer those three sub levels are the IT-basic assumptions, the It-values and the IT-audible, visible behaviours expressed through artefacts, which go from implicit to explicit, with different degrees of awareness.

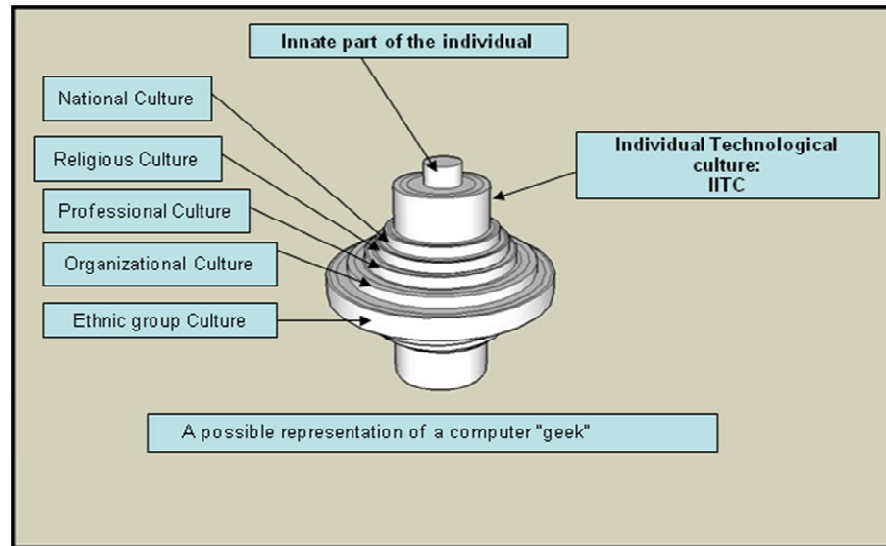


Figure 3: Illustration of a technological cultural salience

When in presence of other individuals, and in a particular context like for example an IT implementation project, the whole set of rotating cylinders speeds up and takes the shape of a spinning top, allowing all layers to intermingle into 3 fundamental levels (transcendental basic assumptions – transcendental values – total visible, audible behaviours). The speeding up of the *Spinning Top* through socialization also allows all salient features to be (metaphorically speaking) “projected outwardly” and to intervene in the socialization processes between individuals.

If we wish to investigate a specific behaviour or a behavioural evolution within an organizational context, the relative significance of each layer will vary and depend on the investigated behaviour itself. The closer the layers are to the cylindrical innate core, the greater their volume, and the more significant they are in the global cultural context of the individual.

FIGURE 2 ILLUSTRATES THE POSSIBLE REPRESENTATION OF A HUMAN BEING SEEN AS A CULTURAL BEING WITH NO PARTICULAR CULTURAL SALIENCE EXCEPT CONCERNING THE SPECIFIC HIERARCHY OF HIS (OR HER) CULTURAL LAYERS, WITH THE NATIONAL CULTURE BEING CLOSEST TO THE CORE OF THE SPINNING TOP, THEREFORE BEING CLOSEST TO HIS (HER) INNATE CHARACTERISTICS. FIGURE 3 THEN ILLUSTRATES THE POSSIBLE REPRESENTATION OF THE AMERICAN COMPUTER “GEEK” OR THE JAPANESE “OTAKU”, IMPREGNATED WITH IT, AND WHO CANNOT STAY AWAY FROM HIS COMPUTER. THE TECHNOLOGICAL LAYER IS THEN VERY THICK AND VERY CLOSE TO THE CENTRAL INNATE COMPONENT OF THE INDIVIDUAL AND IS SALIENT IN THE GLOBAL CULTURE OF THE INDIVIDUAL. IN THE ITC LAYER OF THIS INDIVIDUAL, ONE CAN ENVISAGE THE MOST UNCONSCIOUS, IMPLICIT SUB-LEVEL WHICH INCLUDES THE BASIC ASSUMPTIONS OF THE INDIVIDUAL RELATED TO IT, AS BEING ALSO SALIENT. VALUES AND VALUE SYSTEMS

If we are to be able to study more specifically users’ ITC, there is a need to clarify/redefine the three cultural sub levels described by Schein and pertaining to each cultural layer and how these three sub-levels interact with and are embedded into one another.

Behaviours expressed through artefacts are the day to day vectors through which underlying values and assumptions express themselves. Underlying, tacit assumptions can be considered as values which have sedimented and have become tacitly accepted and unquestioned by the individual; they are mostly unconscious and buried deeply in the individual, thus difficult to reach and impact on directly. Underlying assumptions and behaviours expressed through artefacts can then be considered as directly related to values.

Our model is thus in phase with a growing body of research (Karahanna et al, 2005; Karahanna, Agarwal, Angst, 2006; Urwiler & Frolick, 2008) which points at the fact that we should go back to studying individuals’ values and include them in our IT acceptance and usage models. However, and as Rokeach (1973) and Schwartz (1992) showed what differentiates individuals is not the values themselves but the organization, the ranking of their values, thus their value systems.

One could object that the study of personality and cognitive styles are necessary in order to explain users' behaviours. However recent works (eg Swickert, Hittner, Harris, & Herring, 2002, Landers & Lounsbury, 2006; Amiel & Sargent, 2004; Ludford & Turveen, 2003, Taylor, 2004) have focused on the role of personality ("a stable set of characteristics and tendencies that determine people's commonalities and differences in thoughts, feelings and actions": Mac Elroy, 2007) and cognitive style (how people do perceive and form their judgment, based on Jung's work) in technology acceptance and use. Mac Elroy et al (2007) studying the role of cognitive style versus personality in Internet use have shown that personality is important to consider; they state that "future models of IS implementation and adoption deserve a dispositional component" and that "while cognitive style does not seem promising ..., other personal factors, such as personal values, might be useful" (Mac Elroy, 2007: 817). This brings us back once again to values and value systems.

IMPLICATIONS FOR PRACTICE AND FUTURE DIRECTIONS

We have theorized that the cultural layer does exist today in all individuals, whatever their nationality, religion, age, ethnic origin, etc. The technological cultural layer belongs to the supra-national level of the cultural hierarchy described by Karahanna et al (2005); this level includes "any cultural differences that cross national boundaries or can be seen to exist in more than one nation" (Karahanna et al, 2005:5).

In an organizational context of IT implementation, it could appear important to study the prospective users' IITC and their specific IT related values as they will influence the adoption/appropriation of IT.

Before implementation starts, we can then envisage to study for all prospective users, the 3 levels of their IITC. Thus, to give a concrete example, a user whose basic assumptions include the absolute necessity of IT use in his everyday life might need quite a different training on a new work tool from the one needed by another user whose basic assumptions include a fundamentally and globally negative judgement concerning all technological tools or a deeply ingrained fear of these tools.

The Spinning Top Model can be applied in positivist, interpretive or critical empirical studies. For example, one prior study could use ethnographic research techniques to develop a typology of IT users, based on their IITC. This typology would allow us to categorize users and investigate the social interactions within and between these groups as well as possible managerial implications.

The study of possible interactions between an individual with a salient IITC, rooted deeply and close to the innate core cylinder, and another individual with a minimal and/or superficial IITC could prove valuable in a managerial perspective. Culture not being static, the managerial nurturing of socialization centred on technology and possible emulation between groups of users with different IITC could be a facilitating influence before or during the implementation of new IT tools in an organization.

The identification of users' IITC profiles could also be undertaken through large-scale surveys: data could be collected by a questionnaire measuring variables related to IT-assumptions, IT-values and IT-artefacts. We can for example study the individual's value system specifically linked to IT through his or her IITC layer and its possible impact on the traditional descriptive models used in IS literature like the TAM (Technology Acceptance Model: Davis, 1989) to identify explanatory factors for IT acceptance and usages.

CONCLUSION

Grounding our reflection on SIT, we have defined in this study a new analysis framework which could allow us to identify a technological cultural dimension within the global culture of the individual. In the organizational setting of IT implementation and in a managerial context which has become globally intercultural, one can study more specifically this cultural dimension. Such a study could lead us to original approaches of IT users' acceptance, adoption and appropriation.

Researchers have studied possible links between IT and culture but most of them took only into consideration national and/or organizational culture. Very few put the focus on the global culture of the concerned individuals. To our knowledge, no other work has studied the possibility of a technological cultural dimension intrinsic to each individual' global culture. This dimension, we argue, could influence the attitudes and behaviours of all the organizational actors involved in IT issues.

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