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Investigating the Cultural Dimension of IT-Usage: IT-Acculturation, an Essential Construct in IS Research

Completed Research Paper

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Abstract

In this conceptual article we investigate the cultural dimension of IT-usage through the concept of IT-acculturation. This concept has been emerging in the research literature about IT-usage. Extending work from the acculturation field of research, we do not conceptualize IT-acculturation as a simple one-way linear process but rather as a recursive, multi-level process and also as a state at a given moment in time. In order to propose means of assessing IT-acculturation, we show that one may choose an approach through values and IT-values, or motivation and IT-motivation, or needs and IT-needs, or again one may combine some of these different concepts. We underline however that these concepts should be investigated at three levels that we detail. We then apply our theoretical framework and propose a new model of IT-usage that includes its cultural dimension. We bring forward a set of propositions that may open the way to fertile new research paths.

Key words: IT-Acculturation, IT-Culture, IT-Usage.

Introduction

The concept of usage has played a central role in IS (Information Systems) research, but it has received scarce theoretical treatment (Burton-Jones and Straub, 2006) and scant attention has been paid to the very nature of usage (DeLone and Mc Lean, 2003) in the IS literature. The simplified vision of system usage defined as utilization, and assessed through measures of amount or frequency, leads to the neglect of important users' behaviors such as learning behaviors (Benbasat and Barki, 2007; Papa and Papa, 1992; Vandenbosch and Higgins, 1996).

We argue that investigating the cultural nature of usage through the concept of IT (Information Technologies) - acculturation might lead us to coin antecedents of the long-established constructs of perceived usefulness and perceived ease of use (PU and PEOU: Davis, 1986; Davis, Bagozzi and Warshaw, 1989) as deemed important by some in our field. Benbasat and Barki (2007) underline the importance of paying particular attention to some of these antecedents that have been neglected.

In 1992, Orlikowski applies structuration theory (Giddens, 1984) in IS research. She underlines the dual nature of technology "as objective reality and as socially constructed product" (page 423). We argue that this essential contribution opens the path to the investigation of what we understand as the two complementary dimensions of IT-usage: IT-utilization and IT-acculturation.

The present article draws on two distinct research traditions concerning usage which have developed along parallel lines, not truly communicating, but tending to be less estranged in recent years: the sociology of usage, which includes works published in French, mainly in Belgium, France and Quebec, and English language IT-usage research published mainly in the United States. The singular term "usage" used mostly in English and the plural term "usages" mostly used in French give in themselves complementary perspectives on the concept. We integrate both these perspectives in the present article. In both schools, the cultural dimension of usage has been emerging. Hence the issue addressed in the present article is: What IT-usage model, which includes the cultural dimension of this phenomenon, can we propose?

This article is organized as follows: in the first section, we briefly present the two research traditions concerning usage that constitute the foundations of our work; we show that a cultural approach to usage has been emerging in both traditions. In the second section, we study the concept of IT-acculturation and propose various paths

towards the assessment of users' IT-acculturation. Integrating this conceptual framework in our reflection, we propose in the final section, and before concluding, a new usage model, which takes into consideration the cultural dimension of this phenomenon.

Literature review

Usage in the English and French language research traditions

The concept of usage first emerged in the 1960s and 1970s in the American "uses and gratifications" empirical stream of thought which postulated that an interactive use of media allowed the fulfilment of users' psychological or psycho-sociological needs (Proulx, 2005). In the English language tradition, IT-usage studies thus enroll originally in these culturalist works' filiations (Jouët, 2000). The construct of usage has played an essential role through the study of its antecedents and consequences; it has however led to little theoretical developments of the concept of usage itself. The need to re-conceptualize and re-define this concept, in order to achieve a consensus allowing a cumulative research tradition, was recently underlined (Burton-Jones and Straub, 2006).

Table 1: Usage in the French and English language IS research literature (Works classified in chronological order)

Authors	Research tradition	Definitions/ conceptualizations of IT- usage	Contribution
Straub, Limayem, and Karahanna-Evaristo (1995)	English	System usage is "the utilization of information technology (IT) by individuals, groups, or organizations" (page 1328).	Both objective and subjective measurements of usage should be used in order to assess usage
Jouët(2000)	French	Usage is a social construct that is structured through time by progressive acculturation.	Describes the « mosaics » of French language research on usage.
Millerand, Giroux and Proulx (2001)	French	Usage has a double dimension: concrete and symbolic and a double mediating role: social and technical.	Effective usage and users' cognitive representations are linked and differences in technical knowledge are not always reflected in usage.
Massit-Follea (2002)	French	Utilization and usage are not synonymous and practices are not uniform.	Usage must be studied with both a micro and macro sociological approach, through qualitative and quantitative studies.
Proulx (2005)	French	-What people actually do with IT -Gives sociology dictionary definition of usage: "Social practice that regular use and frequency of use render legitimate in a given culture". "Complex cultural significances of everyday life behaviors".	Proposes a social construction theory of usage(s) with 5 levels of analysis and interpretation: - Human-computer interactions - Cognitive interface between user and developer - Social context - IT- values - Macrostructures
Burton-Jones and Straub (2006)	English	- System usage is "an activity that involves three elements: (1) a user, i.e., the subject using the IS, (2) a system, i.e., the object being used, and (3) a task, i.e., the function being performed" (page 231). - Individual-level system usage is "an individual user's employment of one or more features of a system to perform a task" (page 231).	Very rich measures, reflecting usage nature, involving system, users and task, should preferably be used to assess usage rather than lean measures which only reflect utilization.
Burton-Jones and Gallivan (2007)	English	"A user's employment of a system to perform a task" (page 659).	Usage should be studied and assessed as a multilevel construct: Individual level, group level, organization level.

The English school started from a stance where usage is described as "the utilization of information technology (IT) by individuals, groups, or organizations" (Straub, Limayem and Karahanna-Evaristo, 1995). The lack of correspondence between self-reported and computer recorded measures is underlined. Objective and subjective measures may be necessary to assess this construct. This school then went forward toward a multi-component (user, system and task: Burton Jones and Straub, 2006), and multilevel (individual, group and organization: Burton-Jones and Gallivan, 2007) conceptualization which shows that existing usage measures range mostly from "very lean" to "rich", a "very rich" measure being difficult to reach via a reflective construct.

The first studies on usage that were carried out in the French language tradition in the 1980s centred their concern on the user; they used new sociological approaches that study our societies' transformations (Jouët, 2000) and led to the understanding of the social construction of usage at different levels: micro (individual), meso (private sphere/professional sphere) and macro (market and political environment). In this tradition, one finds very few precise definitions of the term 'usage' and in most cases one must implicitly understand its meaning. In all works of the French school, usage is conceptualized as a social construct that is built progressively through acculturation, although this term does not appear to be clearly defined; individual usage and group usage are interconnected (Jouët, 2000). The concrete and symbolic dimensions of usage as well as its social and technical mediating roles are illuminated. The link between usage and the users' cognitive representations as well as the fact that usage does not always reflect technical knowledge is brought forward (Millerand, Giroux and Proulx, 2001). In this school of thought, the two words *utilization* and *usage* have never been synonymous, whether the actual use is prescribed to, or re-invented by, the user; practices were never thought as being uniform (Massit-Follea, 2002).

The various definitions /conceptualizations of usage proposed in both research traditions are summarized in chronological order in table 1. They do not pretend to be exhaustive, but allow us to lay down the foundations of the present article.

The emergence of the concepts of IT-culture and IT-acculturation in the IS research literature

The cultural approach to IT- phenomena has been surfacing in both English and French language IS literature. However the resulting works are like a "mosaic" (Chambat, 1994) with no common theoretical grounding, thus rendering a cumulative research tradition difficult in either of the two schools of thought. Some works were more specifically investigated and are summarized in table 2 in chronological order. This review does not pretend to be exhaustive. We just aim at giving some illustrations of the terminological variety, as well as of the diversity of perspectives used in both traditions.

The English school investigates how cultural aspects of IT interfere with IS management and governance. *IT-culture* is studied at the organizational level with the help of the metaphor of the magic dragon (IT) and wizards (some users) to illustrate archetypal organizational IT-cultures. IT are considered as a "symbolic artifact open to social interpretation" (Kaarst-Brown and Robey, 1999:192). The *technological revolution* that started in the 1970s, and the changes in the *technoscape* during the last twenty years of the twentieth century, are investigated leading to *Technoculture.* The social, political and cultural aspects of IT are explored, with some pessimism; it is suggested that, in fact, IT reproduce fairly conservative social practices (Robins and Webster, 1999). The ambivalent aspects of IT are brought forward: IT allows humanity to progress but also extends its capacity for domination. In a critical philosophical approach, the possibility for humanity to establish, through technology, a more ethical relationship with the surrounding world is explored (Cooper, 2002). The role of social norms and the phenomenon that is named *Technological Culturation* are studied (Loch, Straub and Kamel, 2003). Technological culturation is defined as a latent construct that "refers to the cultural exposure and the experiences that individuals have with technology originally developed in other countries" and it "translates into a greater acceptance of a new technology" (page 46). The importance of the influence of culture (at national, organizational and group levels) on IT success and use, directly and/or through managerial processes, is recognized. Culture is shown to be revealed through *conflict* and the relationship between culture and IT is studied through the investigation of *conflicting values*. Culture is shown to be a critical variable that explains the interactions between social groups and IT; values might have to be reoriented in order to reconcile the conflicts brought to light (Leidner and Kayworth, 2006).

The French school studies the emergence of new communication behaviors that are built around a double mediation, both technical and social, as well as the phenomenon of *basic acculturation* to technology and to computer logic which is reaching more and more people in our society; the link between *numerical acculturation* and IT practices is investigated (Jouët, 1993). The user is shown to converse with the system and the user's cognition collides with the IT-designer's cognition; usage is differentiated between prescribed (by the context or by the designer's cognition) and constructed (by the user himself) usage. The move toward *computer literacy* in the 1970s, followed by the promotion of *numerical culture* is underlined. A socio-cognitive approach is used in

order to study the possible linkage between *technical culture*, limited to technical aspects of IT, and IT-usage (Millerand, Giroux and Proulx, 2001). *Informational culture* (knowledge) is differentiated from *informational literacy* (mastery/competences) and a four-level model of informational culture is proposed, which includes intellectual information mastery, but which is not only limited to this component. Information mastery is necessary to knowledge but imposes a systematic adaptation to technical innovations.

Table 2: Various cultural approaches to IT-phenomena (Works classified in chronological order)

Authors	Research Tradition	Cultural dimension(s)/concept studied	Contribution
Jouët (1993)	French	Numerical acculturation	Studies the link between numerical acculturation and practices
Kaarst-Brown and Robey(1999)	English	IT-culture at the organizational level	Propose a typology of IT-culture organizational archetypes
Robins and Webster (1999)	English	Technoculture	Explore social and cultural meaning of IT
Millerand, Giroux and Proulx (2001)	French	Numerical culture. Technical culture	Study the role of technical culture in cognitive appropriation of IT and its linkages with usage
Cooper (2002)	English	Technoculture	Explores the relationship between technology, politics and culture.
Loch, Straub and Kamel (2003)	English	Technological culturation	They investigate the role of social norms and technological culturation in the diffusion of the internet in the Arab world.
Leidner and Kayworth (2006)	English	IT-culture conflict	Study the possible conflict between IT-values, values embedded in a specific IT and group members' values.
Serres (2007)	French	Information literacy versus informational culture	Proposes and describes four embedded levels of informational culture: practical mastery, intellectual mastery, critical reflexivity and critical self-reflexivity.
Walsh and Kefi (2008)	Both traditions	IT-culture	IT-culture is conceptualized as one of the cultural layers which are the components of culture

One work aims at integrating the works of both schools of thought. Walsh and Kefi (2008a) propose to conceptualize *IT-culture* as one of the various cultural layers (national culture, organizational culture, ethnic culture, etc.) that constitute culture at the individual's level. IT-culture is defined as the knowledge of IT expressed through IT-basic assumptions, IT-values and IT-behaviors, which all relate to IT-values; it is argued that today a large percentage of the world's population possess such a cultural layer (more or less developed depending on the individuals and their environment) as a component of their culture. Through a value-based approach to the concept of culture, they propose to assess the structuring of the IT-culture layer through the individual's fundamental needs satisfied through IT-usage and through emerging IT-needs perceived by users. In our work we adopt this definition and approach to IT-culture.

The concept of IT-acculturation, as formally brought forward by Jouët in 1993 and largely taken for granted by subsequent authors, interests us more particularly and is investigated further in the next section.

The concept of IT-acculturation

In the field of intercultural research, the phenomenon of acculturation, though already discussed by Plato, was coined only in 1880 when Powell described the improvements in mental processes and the behavioral changes in individuals after their contact with advanced technologies (Rudmin, 2009). However, the concept of

acculturation suffers from a lack of consensus as to its definition. Many disciplines in the social sciences have defined this concept with very different approaches, each definition influencing the way this concept was understood and used (Thomson and Hoffman- Goetz, 2009). The confusion mainly results from the fact that the process of acculturation can be conceptualized at the individual and also at the group level, although initial conceptualizations of this phenomenon focused on its psychological dimensions at the individual's level (Rudmin, 2009). To illustrate this we note for example that, in anthropology, acculturation is traditionally considered as resulting from direct contact between groups with different cultures (Navas, Rojas, Garciac and Pumares, 2007); however the concept has also been applied at the individual level, implying changes in the individual's attitudes, values, etc. (see for example Graves, 1967). Furthermore, for many years, the dominating paradigm in the acculturation field of research was its interpretation of acculturation as an adaptation to a new environment (Berry, 1980; Chirkov, 2009); this paradigm however ignores the complex socio-cultural and psychological nature of the acculturation process (Chirkov, 2009; Schonpflug, 1997).

In the present work, we adopt the definition of the concept of acculturation proposed by Rudmin (2009): a "cultural learning process" (page 110). More specifically applying the concept of acculturation to the IS field of research, we define *IT-acculturation as the structuring process of the IT-culture layer; it is a cultural learning process resulting from exposure to IT, and experiences with IT. This definition is applicable and valid at the individual level as well as at the group level.* Grounding our reflection on Cuellar, Arnold and Maldonado's work (1995) in the acculturation field of research, we understand IT-acculturation as a process that is "interactive, developmental, multifactorial, multidirectional, and multidimensional" (page 279). In their review of acculturation measurements, Kim and Abreu (2001) confirm that the concept of IT-acculturation is understood as a *process* that evolves over time. However they underline that it is at the same time understood, and mostly assessed, as a *state* at a given moment in time. In our work *IT-acculturation is understood both as a process evolving over time and as a state that may be assessed at a given moment in time.*

Acculturation has been studied in terms of phenomena that impact individuals at three levels of functioning: behavioral (types of behaviors), affective (emotions) and cognitive (fundamental values) (Cuellar et al., 1995). Building on this work, Kim and Abreu (2001) propose to include four dimensions in the definition of acculturation, behavior, values, knowledge and cultural identity. We propose to study IT-acculturation at three levels of functioning: the acceptance, the adoption and the appropriation of IT. Although the terms we use to name the three levels we propose to study have been widely used in IS literature, we choose to redefine them in a cultural approach. In our chosen cultural framework, IT acceptance is understood as behavioral acceptance of IT: IT are accepted as being part of one's everyday life. IT-adoption then implies that IT start being integrated in one's cognitive schemes; IT utilization is mastered but IT-usage still remains mostly prescribed and does not affect one's basic assumptions. Finally IT-appropriation implies that IT become a cognitive extension of the individual who adapts the developers' cognitive schemes to his/her own; IT-usage is then specific to each individual although it is mostly constructed from, and grounded in, prescribed and learned usage. When IT impacts the individual at the three levels, the individual's IT-culture layer is then fully structured and has intermingled with other cultural layers; it has affected and modified the individual's global cultural profile and basic assumptions.

Culture, as well as acculturation, have often been assessed in the literature through human values (e.g. by Hofstede, 1980-2001; Lenartowicz and Roth, 1999; Schwartz, in press; Kim and Abreu, 2001) as culture expresses itself through behaviors which are the day to day expression of underlying values (Schein, 1991). The term 'value(s)' is a key concept used in sociology, anthropology, ethnology, social psychology, educational science and political science (Wach and Hammer, 2003). In this study, we limit ourselves to Rokeach's (1972-1973) approach to values. He gives different definitions of the word "value". His most commonly retained definition of a value is: "an enduring belief that a specific mode of conduct [instrumental value] or end-state of existence [terminal value] is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach, 1973: 5). However he also stresses that we should not confound beliefs and values: "Values are abstract ideals, positive or negative, not tied to any specific attitude object or situation" (Rokeach, 1972: 124), whereas beliefs are "simple proposition(s), conscious or unconscious, inferred by what a person says or does, capable of being preceded by the phrase 'I believe that….'. The content of a belief may describe the object of belief as true or false, correct or incorrect; evaluate it as good or bad" (Rokeach, 1972: 113). Rokeach's concern is with what we name *fundamental values,* common to all individuals. Rokeach differentiates between terminal (concerning end states of existence) and instrumental (concerning modes of behavior) values. This differentiation is questioned by Schwartz (1992). We argue for a differentiation of values between fundamental values and specific domain values. Fundamental values (universalism, benevolence, self direction, tradition, stimulation, conformity, hedonism, security, achievement, and power: Schwartz, 1992, 2006) pertain to man's humanity, i.e. they have been found to be common to all individuals though they are ranked differently depending on the individual, or group of individuals, investigated. Specific domain values depend on, and result from, the individual's varied socializations and cultural exposures related to these domains; they include for

example organizational values, national values, … , and IT-values. The two sets of values (specific domain values and fundamental values) interact with each other. *An IT-value is then understood as an enduring belief about IT that transcends any given IT and reaches beyond any given situation e.g.* "I believe IT are useful". In this definition of an IT-value, IT is used as a generic term and does not designate a specific IT. An IT-belief relates to a specific IT in a given situation e.g. "I believe the new ERP improves my efficacy at work."

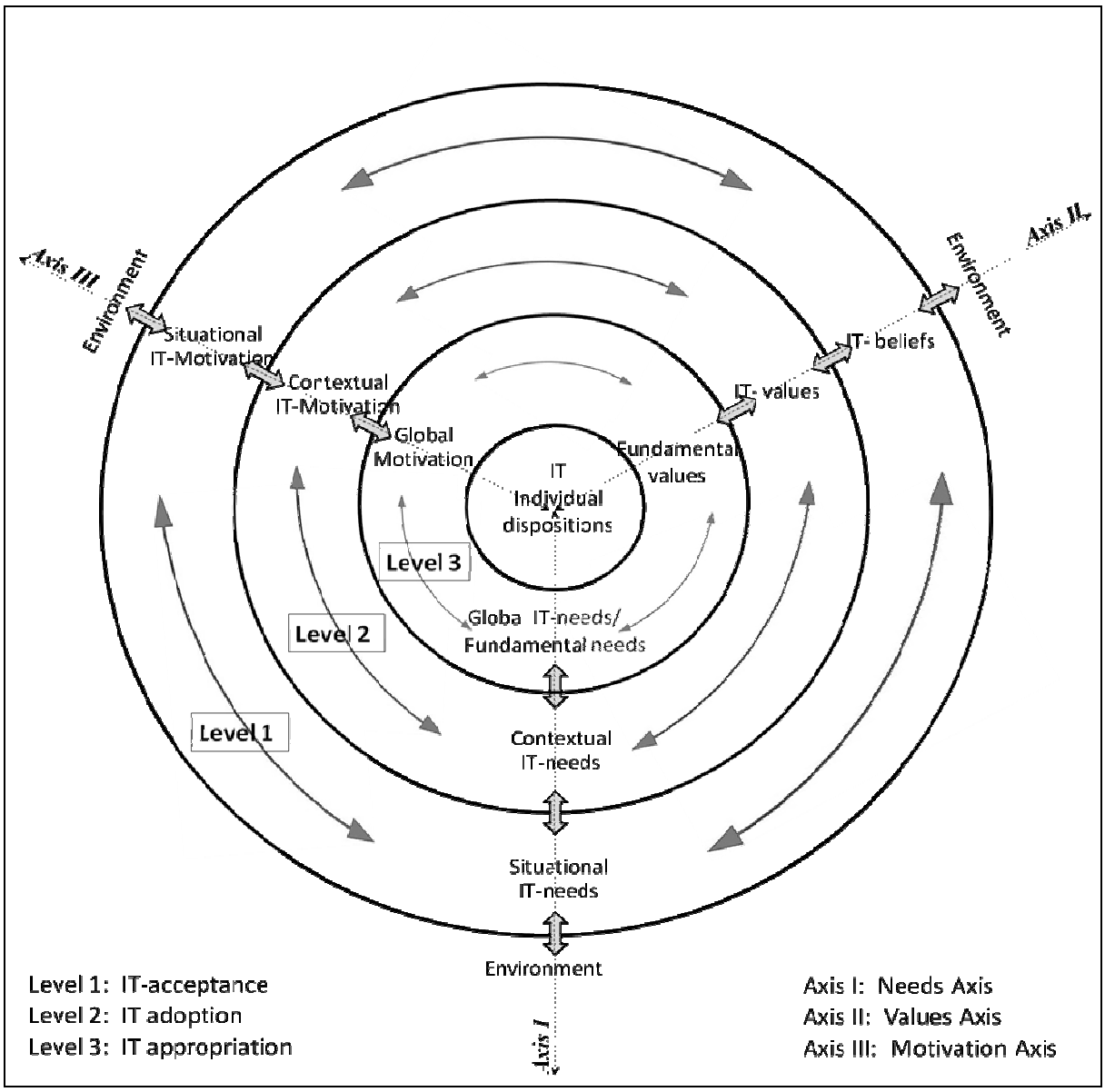

Figure 1: The various levels and components of IT-acculturation

Most authors in the social psychology field agree that values and needs reflect upon each other (Rokeach, 1973). Following the differentiation we have brought forward concerning values, we argue for a similar differentiation between fundamental needs common to all individuals but experienced with varying degrees of strength (i.e. physiological needs, security needs, social needs, self-accomplishment needs, esteem needs and self-actualization needs: Maslow, 1954) and specific domain needs resulting from exchanges of the individuals with the environment (e.g. need for religion, music, art, academic education, … , and IT); these two sets of needs (fundamental and specific domain) interact with each other. Specific IT-needs have been shown to emerge, and are perceived by the individual, at three levels (Walsh, 2009): situational (need for a specific IT in order to fulfill some given tasks), contextual (need to use IT in some given context(s) e.g. work, leisure, academic, etc.), and/or global (needs for IT in all aspects of one's life. The use of IT is implicit in one's everyday life. One might do without IT if compelled to do so, but with difficulty and discomfort). When IT-needs are perceived by an

individual at the global level, they can be considered as close to fundamental needs i.e. IT-usage fulfills some of the user's fundamental needs.

In the social psychology literature it is accepted that fundamental needs lead to motivation (Maslow, 1943) but that all motivation does not result from fundamental needs. Three levels of motivation, situational (state), contextual (life domain) and global (personality), are brought forward (Vallerand, 1997). But there appears to be no consensus in the literature as to which human needs are fundamental, and no consensual theoretical proposal appears to be available in the literature to explain fully the relationship between needs and motivation (Dalmas, 2007).

In this article we do not try to reconcile the various divergent perspectives on the concepts brought forward in our theoretical framework; instead we accept that, as agreed by all researchers of the social psychology field, the various concepts of values, needs and motivation are closely inter-related and that their relationships are multiple and complex. We integrate these various elements in the conceptual model that is summarized in figure 1. As a process, IT-acculturation is thus not conceptualized as a simple one-way process but rather as a recursive, inter-level process. As a state, at a given moment in time, each level of IT-acculturation has to be investigated and assessed through one of its components.

Some examples may serve to illustrate various states of IT-acculturation resulting from the IT-acculturation process, and how these states may differ from one individual to the next, thus leading to different users' IT-cultural profiles and different IT-usage. These examples also point at the possibility of nurturing the process of IT-acculturation. They are inspired from interviews conducted in a research that preceded the present one and aimed at investigating IT-culture users' groups (Walsh and Kefi, 2008b).

Needs approach (see Axis I, figure 1): John and Peter are at the same level in the hierarchy of their firm that has recently implemented an ERP. They have attended identical training sessions concerning this new system. They both have identical situational IT- needs to use this ERP. However, John perceives contextual IT-needs (he perceives that he needs IT to do his job) and he also fulfills his self-accomplishment needs through IT-use, whereas Peter does not perceive any IT-needs beyond the situational need to use the newly implemented ERP.

Values approach (see Axis II, figure 1): Patrick and Alan are brothers; they have been raised together and are receiving the same academic education. They have the same hierarchy of fundamental values and the same IT-belief that they need a computer to study at university. However their IT- values are not ranked identically. Because they have different friends and different experiences with IT, Patrick enduringly believes that IT-use is enjoyable and, beyond his mandatory use of IT for his studies, he spends long hours on facebook with his friends and enjoys trying any new software made available to him. Alan enduringly believes that IT-use is not enjoyable and uses his computer when he cannot do otherwise.

Motivation approach (see Axis III, figure 1): Jack and Bernard are friends. They are in the same class at university and have identical situational IT-motivation i.e. they must use the same software in order to do their assignments. However Jack is not motivated to use IT generally and uses it as little as possible because nobody in his home entourage ever uses a computer; whereas Bernard is globally motivated towards using any IT: his father is a computer engineer and he has always been surrounded with computers at home; IT is part of his daily life, of what he is i.e. IT is part of his identity.

Hybrid approach (see Axes I, II and III, figure 1): Paul and Mark are members of the commercial staff of the same corporation; they have identical situational IT-needs, i.e. using the newly implemented CRM (Customer Relationship Management) software, and they both have IT-contextual motivation to use IT (IT is an intrinsic part of their work context and they need IT to fulfill their appointed work tasks). However Paul's ranking of fundamental values positions Power (social power, authority, wealth, public image, social recognition: Schwartz, 1992, 2006) and Achievement (success, ambition, social influence: Ibid.) at the top of his hierarchy of values. Mark's fundamental values are ranked with Universalism (equality, social justice: Schwartz, 1992, 2006) and benevolence (helpful, loyal, responsible) at the top of his values hierarchy. At work, Paul aims at retaining for himself any useful IT-knowledge he has acquired, whereas Mark is willing to share such knowledge with other users, thus facilitating the implementation of the CRM software.

Therefore, if one wishes to investigate users' IT-acculturation process and/or assess users' IT-acculturation at a given moment in time, we propose that one investigates all three defined levels through one of its components. Several alternatives are possible. One may choose an approach through values and IT-values, through motivation and IT-motivation, or through needs and IT-needs, or again one may combine some of these different concepts in a hybrid approach; however all three levels should be investigated to cover all aspects of IT-acculturation. If one assesses users' IT-acculturation at a given moment in time, the higher the score obtained by an individual through such a measure, the more IT-acculturated the individual is and the more structured his/her IT-culture layer is. The development of a possible instrument to assess IT-acculturation, that takes the three proposed levels

into consideration, is beyond the scope of the present paper. It has however been achieved and a measurement model of the resulting construct, that follows the proposed guidelines, will be presented in another article. In the next section, through the proposal of a new IT-usage model, we however show why such a construct may appear as essential in IS-research.

Proposal of a new model to study IT-usage

IT-acculturation, or acculturation to Information Technologies has been defined in the previous section. IT is understood here as a generic term and does not relate to a specific IT.

If one uses traditional usage models found in the literature (e.g. TAM[1] or UTAUT[2]) we would propose that IT-acculturation (IT ACC) is an antecedent to some of their constructs e.g. PU, PEOU, performance expectancy, effort expectancy, which are mostly assessed in the literature at the situational level and relate to specific software.

Proposition I: IT ACC is an antecedent to PU and PEOU.

However, and in order to apply the conceptual approach detailed in the previous sections of the present article, we would propose a new model of IT-usage that includes its cultural dimension (see figure 2).

In our model of IT-usage, we integrate both the perspectives adopted in the French language and English language usage research traditions and their valuable insights. We differentiate "utilization" and "usage". Thus *we define IT-utilization as the actual, objectively assessed, use of an IT, and IT-usage as a socially constructed, cultural phenomenon.*

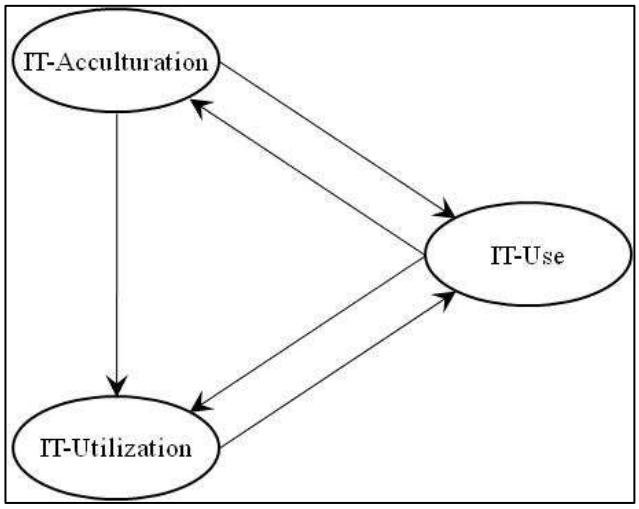

Figure 2: A new model of IT-usage

IT-Acculturation is understood, in the model of IT-usage we propose, as a *process* that may evolve over time.

IT-Utilization is understood as the actual objective, empirically observable use of a given, specific IT e.g. as reported by a machine, through computer logs.

IT-Use or the usage of IT is a cultural phenomenon. In this construct, IT may be understood as meaning a specific IT. In a systemic fashion the individual's use of a specific IT results from the individual's global state of IT-acculturation at a given moment in time; it also results from the individual's utilization of the specific IT. The use of this specific IT recursively impacts the process of IT-acculturation and the utilization of the IT in question. However, in this construct, IT may also be understood as a generic term, meaning the usage of any IT that an individual may encounter. The utilization of a specific IT, the experience that the individual will acquire with this specific IT, will impact his use of other IT. This use of other IT will in turn recursively impact the utilization of the specific IT as well as the individual's IT acculturation process.

To continue on the examples given in the previous section:

[1] Technology Acceptance Model: Davis (1986).

[2] Unified Theory of Acceptance and Use of Technology: Venkatesh et al (2003).

John and Peter may utilize the ERP for the same amount of time during their work, but their usage of this ERP will be different. John will try and understand how the software works and will report any ill-functioning whereas Peter will just try and do his work and apply what he has been told to do without any further enquiries. If the ERP usage proves a fruitful experience, meaning time gained and efficiency, then Peter might globally gain interest in IT and involve himself more thoroughly in any new IT implementation in his firm.

Patrick will be found to utilize his computer during endless hours but his use of it will be socially directed whereas Alan will only utilize it for his studies. While using his computer to study, Alan may receive an invitation to Facebook from a girl he fancies and subsequently get enrolled heavily in this social network.

Jack and Bernard will utilize the same software package to do their home assignments. However Jack will first do his assignment with paper and pen, then type it on his computer whereas Bernard hardly ever utilizes paper and pen any more. However Jack may find that his regular use of the same software make him more proficient and he may eventually give up altogether the pen and paper stage.

Paul and Mark will have very similar utilizations of the CRM, but Paul will use it as a power instrument whereas Mark will use it as a team instrument.

We finally propose a general nomological framework to study the path IT-acculturation→IT-utilization (see figure 3). We first define the constructs in our proposed nomological framework. We then propose a model for this path.

User's IT-acculturation is understood here as a *state* pertaining to a user at a given time and IT is a generic term refering to no specific IT.

Utilization of a specific IT is the actual objective, empirically observable use of a given, specific IT e.g. as reported by a machine (through computer logs).

The different levels of a user's *perceived IT-needs* were described in the previous sections. Two of these levels of perceived IT-needs appear of particular relevance in an organizational perspective as they are the two levels of IT-needs that are the most influenced by managerial implication and choices: situational and contextual perceived IT-needs.

Situational IT-need fit is the fit between a user's situational need to fulfill some given mandatory tasks and a specific IT. In order ro assess this fit and to develop scales corresponding to this construct one might investigate the task-technology fit construct (Goodhue and Thomson, 1995; Zigurs and Buckland, 1998); however one should pay attention to the fact that in this instance we have defined a fit between technology and the perceived needs of the individual to fulfill a given task with a specific IT, that is user centered; what Goodhue and Thomson (1995) identified as a task-technology-fit, appears partly centered on organizational issues (e.g. see items referring to the construct "authorization" in the proposed questionnaire: Goodhue and Thomson, 1995: 234) and partly on training issues (e.g. see items referring to the construct "locatability" in the proposed questionnaire: Goodhue and Thomson, 1995:234).

Situational IT-training fit is the fit between a user's situational IT-training need to fulfill given mandatory tasks with a specific IT and the specific IT- training provided. When a new IT-tool is implemented in an organization, the need for training appears as self-evident. However, we found in the corporate field that the need to de-standardize and customize IT-training to align it with users' situational training needs (which depends on users' IT-acculturation level) appears quite neglected or not taken into account. Furthermore, we did not find elements on this issue in the literature that could help in the development process of this scale. Although Nelson's (1991) knowledge and skill requirements survey showed some promise towards developing a scale for this construct, it is deemed too broad and covering too many aspects of organizational life. Thus we did not identify in the literature any suitable, existing scale for this construct and a new scale would therefore have to be developed.

Organization-user IT-need fit is the fit between organizational IT-needs and a user's specific contextual perceived IT- needs. Organizational IT-needs have been studied by Urwiller and Frolick (2008); these authors classify organizational IT-needs in a hierarchy which includes infrastructure and connectivity needs, stability and security needs, integrated information needs, competitive differentiation and paradigm shifting; each level cannot be attained unless the preceding level of needs has been fulfilled. The users' specific contextual perceived IT-needs represent the IT-needs perceived globally by a user in a specific organizational context, in order to fulfill his/her appointed obligations. As an example of the phenomena this fit is aimed at measuring: if business-IS strategies alignment induces the organizational IT-need to implement a CRM software and if commercial staff do not perceive the need for this specific IT in their work context, the measure of this fit would be low; conversely, if, through adequate organizational communication about the new CRM, users are brought to see the congruence of the proposed change with their contextual needs, then the measure of this fit may be high. Scales would have to be developed specifically for this construct as we did not find relevant scales in the literature.

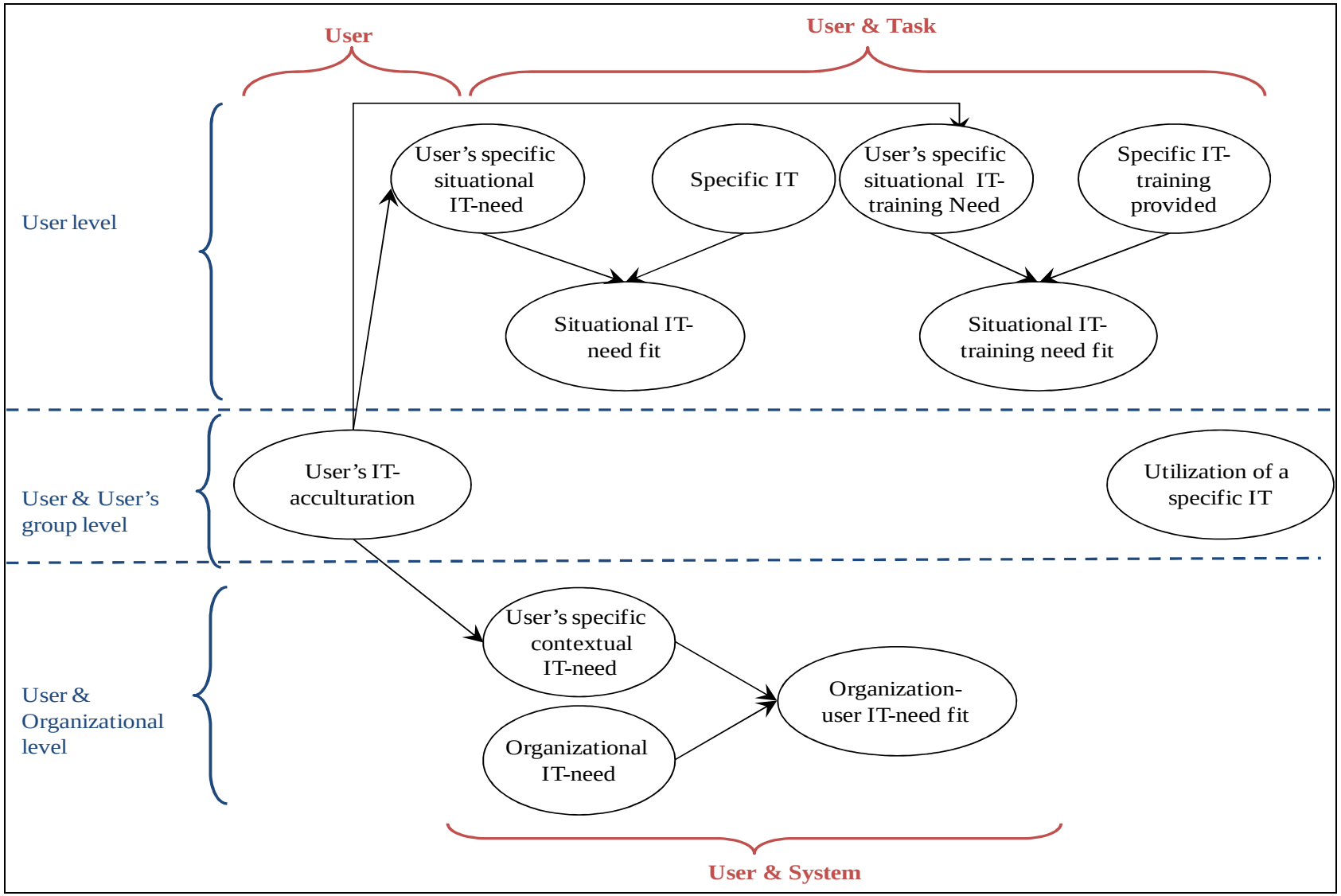

Figure 3: General nomological framework proposed to study the relation between IT-acculturation and utilization.

We conceptualize the situational IT-need fit, situational IT-training need fit and organization-user need fit, as "fits as matching" (Venkatraman, 1989 page 433) i.e. and as summarized by Zigurs and Buckland (1998) as a match between two theoretically related variables without reference to a criterion variable.

Some important elements must be underlined. In our understanding, the user is part of the system used and of the task to be accomplished; the user is also part of a group and of the organization; therefore the user (hence his/her culture) is, self-evidently, at the core of usage. This is why, although one may find different levels in the proposed framework (user, group and organization), and different entities involved (the user, the system, the task), our suggestion is that all measures (except utilization, based on objective measures, and organizational IT-needs) be user-centred i.e. based on the user's perception. All measures, after being assessed at the individual level may also be aggregated and assessed at the users' group level.

Finally we bring forward a set of propositions which are illustrated in Figure 4 and remain to be tested.

Proposition II: IT-acculturation positively influences the utilization of any specific IT.

Proposition III: *The effect of IT-acculturation on utilization is moderated by Situational IT-Need Fit.*

Proposition IV: The effect of IT-acculturation on utilization is moderated by Situational Training Need Fit.

Proposition V: The effect of IT-acculturation on utilization is moderated by Organization-Users IT-Need Fit.

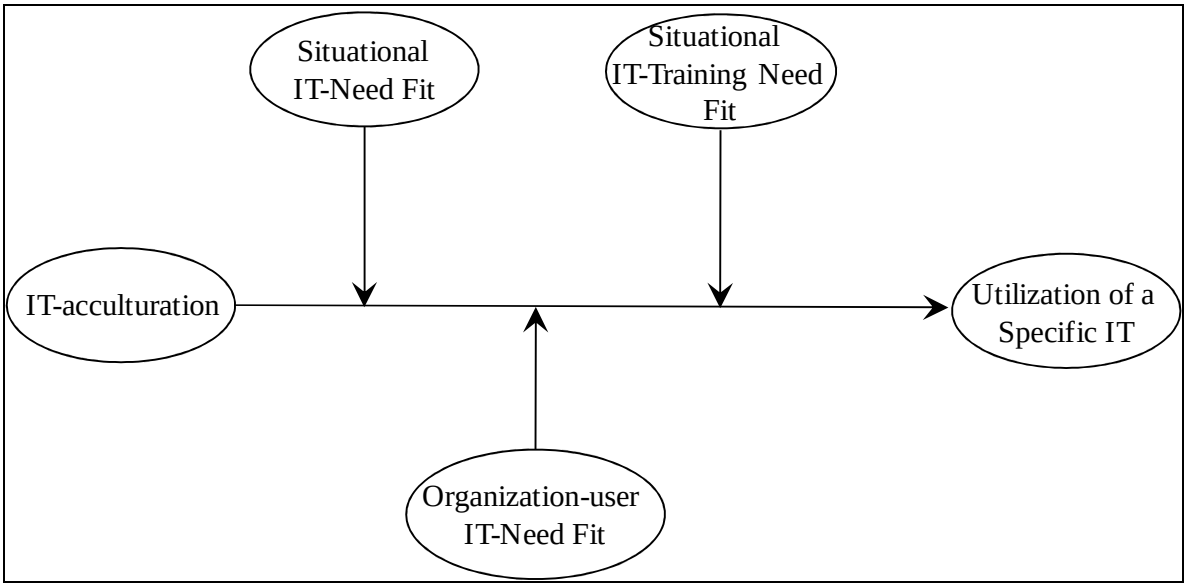

Figure 4: IT-acculturation as an antecedent to IT-utilization

Conclusion

The main limitation of our work results from the complexity of the IT-acculturation concept itself apprehended both as a process and as a state. The complexity and dual aspect of acculturation has been underlined numerous times in the acculturation field. Further work is most definitely needed in order to continue investigating this concept applied to the IS field as well as the possible resulting construct(s). Future research may more particularly aim at further investigating IT-acculturation as a process and the means to nurture this process towards purposeful enculturation in organizational contexts.

We have shown that the cultural dimension of IT usage has been emerging in two complementary schools of thought. By taking both perspectives into account, we have brought forward a new model of usage as well as a model for the path between IT-acculturation and IT-utilization that may be tested. These models open fertile new ground for future research.

The usage model we proposed integrates both French and English language research traditions: the French school provides the essential understanding of the socially constructed cultural dimension of usage; the English school breaks fresh ground and proposes extremely useful guidelines in the study of usage while underlining the complexity of the concept and the necessity to consider it with multiple perspectives. The models we propose might lead us to very rich measures of usage taking into account the user, the system and the task (Burton Jones and Straub, 2006); it may also lead to the study of usage simultaneously at multiple levels i.e. the user, the group and the organization as deemed important by some authors (Burton-Jones and Gallivan, 2007).

Our conceptualization of IT-usage goes beyond its vision as the simple utilization of some specific IT. This conceptualization could also lead us to reconsider some postulates of our research field. Thus IT-usage, as we have defined it, might no longer be considered as an indicator of IT-acceptance as is the case in the IS literature which uses traditional models of our research field (Schwarz and Chin, 2007). Our conceptualization of usage tends to reverse the relation: IT- acceptance, adoption and appropriation, as we re-defined them, become the indicators of IT-usage if we take into consideration its cultural dimension.

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