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ABSTRACT

"Caveat emptor" in Latin or "let buyer beware" is a maxim from early common law that proposes that the buyer is responsible for using sound judgment in the purchase of goods and services based on their intended context of use. Used analogously for " let the innovator beware" the paper looks at information technology (IT) innovation, with its adaptor-oriented nature, and puts into question the prepackaged artifact's use across diverse cultures. If widespread adoption of IT is to persist we have to address the cultural assumptions that permeates IT literature. The emerging discourses on culture and social construction highlight the need for the inclusion of alternative views on the conceptualization, construction and development of culture. Using the historical socio-constructivist perspective of activity theory, the paper presents three assumptions designed to act as a sensitizing device and complement existing literature on IT innovation by providing a foundation for context-differentiated reasoning.

Keywords

IT innovation, social construction, multiculturalism, cultural history activity theory, organizing vision, use context

INTRODUCTION

"Caveat emptor" in Latin or "let buyer beware" is a maxim from early common law that proposes the buyer is responsible for using sound judgment in the purchase of goods and services based on their intended context of use[1]. Used analogously for "let the innovator beware" the maxim incites need for due diligence. Indeed as relevant today as it was then, the use of sound judgment when innovating with information technologies (IT) rests on the innovator's ability to understand and delineate the use context of potential IT innovations (Swanson & Ramiller, 2004).

While very few question the need for IT innovation, its adaptor-oriented nature (Swanson, 1994) puts into question the prepackaged artifact's use across diverse contexts. The complexities of our global society, defined by heterogeneous cultural interaction through migration, trade and commerce, re-enforces the maxim of "caveat emptor" in IT today. Globalization has made culture a pervasive and sometimes controversial topic in IT discourse, however, it continues to gain inroads in IT research and practice. Culture has previously been examined as a critical dimension in discussions on technology compatibility and appropriateness (Chrisanthi Avgerou, 2001; Avison & Myers, 1995; Kappos & Rivard, 2008). Arguably this has much to do with the conceptualization of culture as socially constructed resulting in the concepts of socially constructed artifacts (Kaptelinin & Nardi, 2006b; Pinch & Bijker, 1984).

Previous studies have questioned the neutrality, homogeneity, and seemingly linear direction of IT innovation (Mason, 1986; Oh & Pinsonneault, 2007; Paterson, 2007). The "one size fits all", "tool" view often exhibited in much of the discourse in IT is a testament to this (Kaptelinin et al., 2006b; Orlikowski & Iacono, 2001). While emerging research on culture has heavily discounted this view inroads still need to be made to inform, advise and challenge the assumptions guiding innovating with IT. Consider the "the bandwagon phenomenon" in IT, where innovators merely take a follow the leader approach when selecting IT for innovation (Ciborra, 1999; Swanson et al., 2004). While this may prove an acceptable strategy in a context where cultural similarities abound, it is highly questionable in contrasting environments.

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[1] **caveat emptor**. (2010). In *Encyclopedia Britannica*. Retrieved February 2, 2010, from Encyclopedia Britannica Online: http://www.britannica.com/EBchecked/topic/100648/caveat-emptor

The paper proposes that emerging literature on the appropriateness of IT across cultures implicates the inclusion of social constructivists and even socio-historical constructivists views to guide innovating with IT. A set of assumptions inclusive of these views is needed to sensitize researchers and practitioners to the challenges of innovating with IT in our multi-cultural society. The assumptions proposed are design to be prescriptive and useful in the exploratory phases of innovating with IT. Used in the exploratory or comprehending phase of IT innovation, the assumptions are geared at increasing the sense-making capacity of the innovator in their quest to identify potential IT innovations for compatibility, context appropriateness, and cultural synergy.

To root our assumptions theoretically we employ the use of cultural history activity theory (CHAT), which has been previously used to present the historical and social constructivist viewpoint (Engestrom, 2001; George, 2003; Holt & Morris, 1993; Joshi, Barrett, Walsham, & Cappleman, 2007). The paper progresses as follows; we begin by visiting the literature on exploration in IT innovation to understand the informational needs at this phase. We then explore why these needs have not been met across cultures by exposing the literature on the cultural challenges evident in IT. Using the framework of CHAT we extract the relevant assumptions of the historical social constructivist lens and present then as our theoretical contribution.

EXPLORING INFORMATION TECHNOLOGIES FOR INNOVATION

Innovation research is seen as cross disciplinary and no single discipline has tackled all aspects of innovation. For example, IS literature on innovation has mainly discussed the characteristics of innovation, how it is adopted and diffused and its impacts on organization (Jansen, Van Den Bosch, & Volberda, 2006; Tornatzky & Klein, 1982; Zhu, Dong, Xu, & Kraemer, 2006). In economics it has mainly dealt with the allocation of resources to innovation (Fagerberg, Fagerberg, Mowery, & Nelson, 2004). Here we will use definitions associated with IT and information systems (IS) innovation. IT innovation is focused on the IT artifact, its design and implementation, while IS innovation includes the artifact as well as knowledge and its impact on society (Chrisanthi Avgerou & Madon, 2004).

IT innovation, as defined by Swanson and Ramiller (1994; Swanson et al., 2004), is a process where an organization pursues the application of IT in novel ways. This view of innovation is seen as "adaptor oriented" and organizations that adopt technology in a new way or for new uses can also be seen as innovators in their own right (Swanson, 1994). A process view of innovation presents two distinct phases: exploration and exploitation (Jansen et al., 2006). In the adaptor-oriented world of IT innovation exploration is primarily about understanding existing IT innovation for adoption. This phase in IT is called comprehension. During comprehension information is gathering and processed, this entails learning from the larger IT community often through boundary spanning activities (Swanson et al., 2004). Boundary spanning is a sense making activity enacted to retrieve and present information to and from the larger community discourse (Wang & Ramiller, 2009). The ability to make full use of boundary spanning activities lies in the innovator's ability to absorb that knowledge (Andersson, Lindgren, & Henfridsson, 2008)

These community discourses do not develop randomly, but are products of loosely coupled collaborations called organizing visions. Organizing visions are said to be comprised of inter-organizational communities of heterogeneous networks who have varying interests in a particular IT innovation but collectively create and employ an organizing vision (Swanson & Ramiller, 1997). An organizing vision is a focal community idea about the application of an IT innovation. Organizing visions are often grandiose and exaggerated beliefs of how IT should be applied. An organizing vision provides the functions of interpretation, legitimating and mobilization. The aim is to initially provide a context for the use of the innovation giving social accounts of its potential applications. The next step is to legitimize the adoption of the innovation by linking the innovation with contemporary business issues and established and respected organizations and people. Finally organizing vision mobilizes market forces to develop and promote it throughout the community (Ramiller & Swanson, 2003).

Comprehending the discourses of organizing vision requires exemplary judgment or "mindfulness". The concept of mindfulness was introduced to IS literature by Burton Swanson in his much appreciated article in MIS Quarterly, "Mindfully innovating with IT"(Swanson et al., 2004). Mindfulness is a state of being that enables better decision making on whether, when and how to innovative with IT. This mindfulness also plays the role of "devil's advocate" questioning main stream thinking on popular innovations. Innovators that possess this attribute may forego the opportunity to pursue an innovation path that is seen as generally accepted and proven in other contexts. The application of mindfulness is to combat mindlessness, disregarding context, ignoring alternative innovation paths and adopting a follow the leader stance (Swanson et al., 2004).

The mindful innovator is aware of his or her own organizational context and can use this for "contextually differentiated reasoning" (Swanson et al., 2004). The IT innovator not only has to understand the use context of an IT innovation but must also rigorously assess the needs and capabilities of its own organization (Ciborra, 1999). This is often largely dependent on previously adopted innovations (Kogut & Zander, 1992). The challenge facing the IT innovator in the comprehension phase

is to relate the use context expressed in organizing vision to its own. Assumptions about either use context, the nature of the IT artifact and the discourses surrounding them, are better understood through assumptions more actually depicting our multicultural world.

CULTURAL CHALLENGES IN INFORMATION TECHNOLOGY INNOVATION

Joseph Schumpeter famously proposed the causal relationship between economic growth and innovation. He cited technological competition as the major form of competition under capitalism, and that innovation itself created opportunities for further innovation (Fagerberg et al., 2004; Verspagen, 2006). Emerging from this discourse are concepts of innovative capacity, development disparities and technology driven economic growth (Furman, Porter, & Stern, 2002). They assert that innovation increases the gap between rich and poor while adoption and imitation help closed it, although with lesser rewards (Posner, 1961). This view expounds the promise of economic growth with the adoption and assimilation of IT innovation. The rapid economic growth of western nations has been attributed to the use of such technological innovation, which has lead many other cultural groups to think they must follow suit (Bowers, 2000).

Walsham (2002) conceptualizes culture as "shared symbols, norms and values in a social collective …" Culture can also be represented in visual form as artifacts. These artifacts can be physical, or they may be sets of rules, models, practices, or structured tasks (Kappos et al., 2008). Culture's emerging importance in IT has much to do with the contemporary phenomenon of globalization. Globalization has implemented a process of social change resulting from the interaction of diverse cultures with unique traditions and practices. Driven by commerce, it seeks to create common markets and standardized techniques economic, social and political (Walsham, 2005). While IT continues its widespread diffusion, cultural differences present an explanatory conundrum for the pervasiveness of homogeneity of IT adoption. Culture is acknowledged to be so deeply engrained in individuals and social relationships that it would seem unlikely that IT innovations would make such a good fit across such diverse cultures. A supporting argument for this hypothesis is its unequal diffusion. Worldwide diffusion rates of IT innovations show that countries of its origin exhibit higher diffusion rates than those with greater cultural distance (Kevin, Kenneth, & Sean, 2006). Common explanations for the diffusion disparity of IT innovations have frequently ignored culture and have reduced a complex phenomenon to a matter of resource and knowledge deficiencies (Furman et al., 2002).

As the volume of research on culture and the social impact of IT grows, it challenges established theories founded and tested in a western cultural context. An example of this can be found in a study questioning the generalizabiltiy of the popular technology acceptance model (TAM) across cultures. The model was applied across cultures, and it was found that aspects of the theory did not hold true (McCoy, Galletta, & King, 2007). Many technological innovations can be viewed as a symptom of western cultures' high regard for abstraction and formalization, which conflict with many long standing civilizations (Paterson, 2007). This is evident in the difficulty associated with trying to represent alternative views of storing, representing and transmitting knowledge with IT (Hosle, 1992). Pinch and Bijker (1984) provided the argument that technological artifacts are socially constructed. The 'success' and 'failure' of these artifacts are interpreted and evaluated differently based on objectives, goals and intentions that exist in cultures. Other researchers have advised against taking a simplistic tool view of the IT artifact and recognize the social context of its design, development and diffusion (Orlikowski et al., 2001).

IT innovation's continued expansion and its links to globalization show no signs of teetering, making addressing the problem of culturally appropriate technology of paramount importance. Everyone cannot afford to rely on popular discourse, best practices and industry buzz, as they may represent a cultural context of use outside their own. While innovating with IT, it is often assumed that the artifact is a neutral productivity enhancing tool. This has been shown to be less that accurate as the opposite effect has often been exhibited. Vasst and Walsham (2005) highlighted two ways in which IT impacted work practices; (1) IT reproduces work practices and stays true to the context and environment – sustained consonance and (2) IT causes conflict with existing work practices resulting in transformation with negative results –sustained dissonance. The emerging discussion now points to our poor understanding of culture and some reluctance to address its historical development.

CULTURAL HISTORY AND SOCIAL CONSTRUCTION

As IT becomes ingrained in our work and leisure activities we now acknowledge its influence on our society. It has the ability to transform our daily lives through its adoption, assimilation and diffusion (Walsham, 2005). Concurrently the importance of culture, its traditions, language, unique knowledge and practices are emerging as important and valid discourses of IT (Barrett, Jarvenpaa, Silva, & Walsham, 2003; Kappos et al., 2008). Often drawing on social theories IT researchers have sought to improve their understanding of the link between culture and technology (Klein & Huynh, 2004). One approach to doing this is to view the two as historically socially constructed and culture as a product of that construction

(Engestrom, Miettinen, & Punamäki, 1999; Herdin, Hofkirchner, & Maier-Rabler, 2006). We briefly present CHAT as an explanatory framework of the historical social construction of society through object oriented, tool mediate action (Kaptelinin & Nardi, 2006a). The following are the key and relevant tenets of CHAT that inform the assumptions of our study.

Historicity

At the core of CHAT is the concept of historicity – the development of culture through historical transformation (Kaptelinin et al., 2006a). CHAT appoints human activity as the basic unit of analysis (Kaptelinin et al., 2006b). As a result both individual and group behavior can be understood through the study of current and more importantly historical activities. Attributed to Russian developmental psychologist Lev Vygotsky, activity theory has evolved from its roots in the study of childhood development to its present form as a multi-disciplinary analytical and explanatory framework (Bonnie, 1995). Vygotsky theorized that the mind is an organ that is continually developing with the purpose of making our interactions with our environment more effective (Vygotsky, 1980, p. 50). CHAT rejects the separation of the individual and his or her social environment, alternatively proposing that they are mutually constituted through historical development and that cognitive development is a process of acquiring culture (Holt et al., 1993).
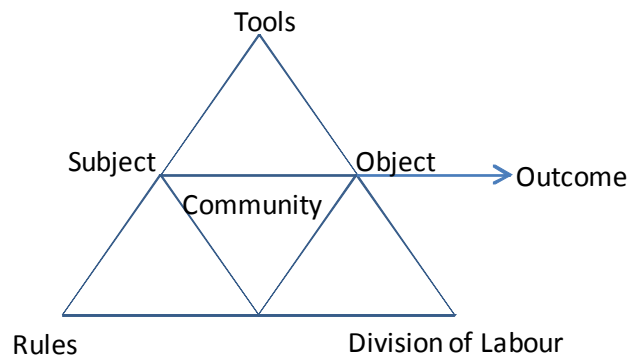

Figure 1. The Activity System

Mediation

An activity in its simplest form is a goal oriented, tool mediated action. Providing a theoretical base for the contemporary and multi-disciplinary use of CHAT is the activity system – the structure of an activity where activities are mediated by tools (*figure 1*). Building on previous work, Engestrom exposed the initial structure of subject –tool –object to elaborate the embedded elements that also mediate activity (Engestrom, 1987). The subjects of an activity strive to improve their interaction with their environment, to achieve this *outcome* they perform activities to produce *objects*, which can take on many forms including, experiences, physical goods or services (Kaptelinin et al., 2006a). *Tools* mediate these activities and can be physical like a hammer or psychological are like blueprints or a set of instructions (Bonnie, 1995, pg. 27). Individuals and groups rarely exist in isolation and are a part of *communities* that also mediate activity. Communities along with *rules* and the *division of labor* can facilitate or impede activity (Kari, 1995).

Internalization

The activity system describes a temporal activity – a product of previous activities transformed overtime. The transformation is a result of the resolutions of contradictions initiated by the emergence of a need state (Kaptelinin et al., 2006a). Using a broad definition we can define contradictions as inconsistencies or discrepancies within the system (Engestrom, 2001; Mwanza & Engestrom, 2005). Contradictions are internalized and externalized. Internalized contradictions are the result of the socio-economic forces of capitalism (George, 2003), while external contradictions are mainly the result of the introduction of new elements into the system through interactions with other activity systems (Engestrom, 2001). The residuals of the transformation are changes to the system and its elements. A transformation can affect all elements of the systems including the subject and tools. The process of a single transformation is call an expansive cycle and is the process of internalizing external cultural elements (Engestrom, 1999). These external cultural artifact become internalized over time and thus become a part of the mental process (Vygotsky, 1980). The process of internalization brings the system towards a state of harmony (Engestrom, 2001).

CHAT theorizes that the historical social construction of society is the complex transformation of individual and collective activities. Through historicity we can understand present activities by studying previous ones. Such an analysis would reveal how and why the system needed to transform, including what tools where introduced, developed and mediated the activity.

The transformation affects and changes all elements of the system. Transforming tools to fit new objects and vice versa. So too are the discourse transformed as internalization breads new assumptions about the world. As IT becomes the dominate tool in our contemporary society what transformations are taking place and what are the emerging contradictions driving those transformations?

DISCUSSION AND CONTRIBUTION

Many of our lives have been transformed by globalization and many cultures and organizations within those cultures have now been thrust into the information age unaware of the complications of cross cultural technology adoption (Stahl, 2007). Popular assumptions about the IT artifacts and discourse reveal little about these complexities when innovating with IT. Our previous discussion highlights the need for mindfulness and the pursuit of context differentiation. Culture, a key element in context, can be understood through the tenets of CHAT. Using its socio-historical constructivist viewpoint we construct three assumptions meant to guide and sensitize innovators about the added complexities of innovating with IT in a multicultural world. The assumptions should present caution signs and denote the need for sound judgment when innovating with technology design developed outside your cultural context.

Historicity of Culture – Many cultures have taken different paths developing different artifacts and social structures. Issues of primitive, advanced, developed or developing countries are often based on predefined historical milestones. Reducing the rich cultural heritage of a society to predefined stages is a simplistic and misguiding view of cultural development not shared by CHAT (Engestrom, 1999, pg. 25). The concept of historicity in CHAT enables us to shrug off ideas of advanced and primitive and look at cultural development as a result of choice and environment. The cultural history of any group cannot be separated from the artifacts it develops, and those artifacts are a result of decisions, often made in small but important increments. The application of IT should be in line with these historical choices as they are a product of the object of that society.

Mediation by IT Artifacts – IT innovations can be seen as possessing both physical and physiological elements. A piece of software directs action and a computer mouse for example has many physical attributes. The mediation of activities with IT is evident in our society. We often have to adopt the way we work to new technologies in order to make full use of them (Vasst et al., 2005). This mediates our effectiveness in achieving a pre-defined object. Knowledge and its discourse are also "tools" in our cultural histories (Engestrom, 1999, pg. 24)Innovating with technologies that build on existing competences greatly improve the chances of sustained consonance.

Internalization of IT innovations – In an existing social structure we learn in traditional forms through mentorship and teaching. Learning at this stage uses knowledge that exists within the social structure (Engestrom, 2001). When a need arises we seek solutions. This exploration phase is dominated by external artifacts (Engestrom, 1999, pg. 35)When we innovate with IT we look for our solutions in IT artifacts. This is both the process of internalizing these external artifacts. To find out what we need to learn about technologies we need to acquire, but we must first understand the state we want to transcend to. What is the state we want to achieve and how can, if at all, IT innovations get us there?

 The assumption about culture and IT innovation in popular discourse puts innovators at a disadvantage. We propose that this is due to the lack of understanding of socio-historical development. The goals of these assumptions are to complement existing discourses on IT innovations by putting them into the context of their social and historical foundations. We do not discredit other studies that had subtracted socio-cultural and historical developments from their research. We only seek transparency on the cultural context where these studies are most valid.

CONCLUSION

The paper presents arguments supporting the historical social constructivist view of our global society. It recognizes the importance of culture in our information age. This view is used to shed new light on the comprehension phase in IT innovation. Using the theoretical foundations of CHAT the paper proposes three assumptions to guide mindful comprehension. The assumptions proposed are meant to sensitize the innovators to the pitfalls of innovating with IT across diverse cultural contexts. The assumptions form the foundations needed to begin context differentiated reasoning by exposing the historical social construction of culture and their associated artifacts and discourse.

The paper contributes to the mounting literature using CHAT in research on culture and IT. The assumptions derived from the study complements the limited research on historical social construction in IT innovation, but the paper is not without its own limitations. The paper is initially limited by the word count traditionally applied to conference papers. This has limited the ability to expose the full merits of CHAT and IS discourse on culture. The paper is also limited by its heavy theoretical packaging and this kind of study will always benefit from primary data.

With that said the paper contributes to contemporary discourses on technology appropriateness and begs for further research on the historical social construction of IT. The paper is inspired by pervious papers encouraging researchers to understand context differentiation and historical construction (Chrisanthi Avgerou, 2008; Swanson et al., 2004). Research in this area is timely and provides a benefit to an entire global community as we seek to create a better world.

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