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SOCIAL INFLUENCE AND INDIVIDUAL IT USE: UNRAVELING THE PATHWAYS OF APPROPRIATION MOVES

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1. INTRODUCTION

Researchers focusing their attention on understanding how and why individual users embed information technologies (IT) within their work processes must account for the strong evidence that exists indicating that the attitudes and behaviors of other individuals in a users’ social and work circles significantly impacts the users’ actions regarding technology use (Fulk, Schmitz and Steinfield 1990; Kraut et al, 1998; Rice et al. 1990; Schmitz and Fulk 1991). This phenomenon is termed social influence (Fulk, Schmitz and Steinfield 1990; Fulk et al. 1987). Prior studies of social influence have for the most part not focused their attention on the process through which social influence unfolds to impact individual IT use. Missing is how individual users actively appropriate social information into their decisions regarding IT adoption and use.

This study is motivated by the premise that social influence enters into individuals’ IT use behaviors through appropriation moves. Appropriation moves are deliberate actions taken by individual users as they respond to and, possibly, leverage the technology-directed social influence of their peers. The goal of the study is to define and to examine three such appropriation moves as well as other key constructs that intervene between these appropriation moves and IT behaviors.

2. THE CONCEPTUAL MODEL

Our conceptual model is rooted in existing theories and empirical findings about technology acceptance and use (Cooper and Zmud 1990) and the sociology of organizations (DeSanctis and Poole 1994; Orlikowski 1992). Theories of technology introduction, acceptance, and use suggest that despite an organization’s adoption of a complex workflow technology, use is a consequence of “secondary” adoption decisions by the organization’s members (Leonard-Barton 1988; Leonard-Barton and Deschamps 1988). Individuals’ use of complex workflow technologies are influenced by three main factors: their IT beliefs (Davis
Individual IT beliefs relate to the usefulness and ease-of-use of an IT capability (Davis 1989). Individual IT beliefs impact an individual’s IT use behaviors (Adams, Nelson and Todd 1992; Davis, Bagozzi and Warshaw 1989), IT knowledge (Kim 1993; Nonaka 1994), and work process reconceptualization (Saga and Zmud 1994). Furthermore, as individuals use the technology, their beliefs about the technology will change (Davis, Bagozzi and Warshaw 1989; Saga and Zmud 1994). Individual IT knowledge encompasses the components of IT know-what, IT know-how, and IT know-why; respectively, these knowledge domains reference an individual’s knowledge of what capabilities are provided by an IT, how to apply these IT capabilities, and the underlying logic that relates these IT capabilities to enhanced work performance (Garud 1997; Kim 1993; Nonaka 1994). Individuals must have some knowledge about an IT before they begin using the technology (Bohn 1994; Rogers 1995; Saga and Zmud 1994). Changes in individual IT knowledge lead to changes in individual IT belief structures (Davis, Bagozzi and Warshaw 1989; Tornatzky and Klein 1982) and reconceptualization of work processes (Dutton and Thomas 1985; Kling and Iacono 1984; Nonaka and Takeuchi 1995). As individuals use an IT, their knowledge regarding the technology will increase (Dutton and Thomas 1985; Garud 1997; Rogers 1995). Work process reconceptualization occurs as individuals redefine their work system as well as their roles within the work system to take advantage of IT capabilities (McKenney 1995; Saga 1994). Work process reconceptualization leads to deeper levels of IT use as individuals apply the IT capabilities to more effectively accomplish work (McKenney 1995; Saga and Zmud 1994; Zmud and Apple 1992).

3. APPROPRIATION MOVES AND IT USE

The nomological network relating IT beliefs, IT knowledge, and work process reconceptualization is impacted by prevailing institutional and social influence pressures (Fulk, Schmitz and Steinfield 1990; Orlikowski 1992). Occasions for institutional and social influence arise because individuals experience ambiguity about the value of a new information technology for their work (Weick 1990). Therefore, they strive to interpret and to assign meanings to the technology and its capabilities (Prasad 1993). During this sensemaking process, individuals draw upon the prevailing institutions and social circles, in addition to exercising their own knowledge. The process of interpreting a technology’s value and manner of use by drawing upon relevant scripts, meanings, and information about a technology from personal, institutional and social sources is called an appropriation move (DeSanctis and Poole 1994).

Prior social influence research indicates that individual IT beliefs and IT use are influenced by others with whom they interact (Contractor, Seibold and Heller 1996; Fulk, Schmitz and Steinfield 1990; Kraut et al. 1998; Rice et al. 1990; Schmitz and Fulk 1991). A thorough examination of the manner by which these social influences impact individual usage patterns is missing from the prior research. We identify three specific modalities of social appropriation moves: conformance, imitation, and mutual discovery. We propose these three appropriation moves as a means of explaining how social influence unfolds to impact IT use.

3.1 Conformance Appropriation Moves

One manifestation of social influence is that individuals are regularly confronted with a multiplicity of informal rules and expectations, i.e., social norms, regarding their conduct, which in part regulate members’ behaviors (Hackman 1976; Moch and Seashore 1981). Although these social norms are typically neither written down nor openly discussed, they represent a powerful “invisible” felt source of influence on individual behavior (Asch 1952). These group norms provide cues regarding appropriate IT use behaviors (Schmitz and Fulk 1991).

Conformance with these norms raises the prospects for affiliation with the social circle. Therefore, conformance appropriation moves describe voluntary decisions and actions by individuals to observe the IT use norms of their social circles. We propose that a conformance appropriation directly impacts individuals’ IT use behaviors without intervening changes in individual IT beliefs, individual IT knowledge, and reconceptualization of work processes. Although we anticipate that IT use will in turn influence IT beliefs and IT knowledge with the passage of time, these reverse links are not within the focus of our study.
3.2 Imitation Appropriation Moves

Imitation appropriation moves refer to voluntary decisions made by individuals to learn from the actions of their social peers. This appropriation move builds upon the concept of vicarious learning, where individuals model their behavior patterns by observing others’ actions (Latham and Saari 1979; Manz and Sims 1986). Individuals will often observe their coworkers successfully using an application to accomplish organizational or individual work and then believe that they would benefit from using the technology in a similar manner (Bandura 1986; Kraut et al. 1998).

An individual’s imitation appropriation moves will most likely impact his or her beliefs about IT and its relationship to work as the vicarious learning transpires. We do not feel that changes in IT knowledge itself will occur as a direct result of imitation; however, changes in IT knowledge will certainly occur in the long-run as a natural consequence of sustained IT use. We propose that changes in individual IT belief structures and work process reconceptualization mediate an imitation appropriation move’s impact on individual IT use.

3.3 Mutual Discovery Appropriation Moves

Mutual discovery describes appropriation moves made by individuals to collaborate with their peers in joint sensemaking and technology exploration. Some individuals choose to raise their knowledge and awareness about a new technology through communication with coworkers (Allen, Tushman and Lee 1979; Kraut et al. 1998). Individuals interact with their coworkers to discuss the use of the IT application and how its capabilities support organizational work (Lind and Zmud 1991). These interactions may lead to mutual discovery of previously unknown ways of using the application in supporting work.

Mutual discovery should first impact individuals’ IT knowledge since they have opportunity to have trial-and-error experimentation with the technology in collaboration with their peers. This impact on individual IT knowledge leads to greater use directly and through the mediating influence of reconceptualization of work processes. We propose that changes in individual IT knowledge structures and work process reconceptualization mediate the impact of a mutual discovery appropriation move on individual IT use behaviors.

4. RESEARCH METHODOLOGY

The research was conducted as a cross-sectional field study within a single organization using questionnaires and interviews as data collection methods. A large international public accounting firm and a proprietary computer-aided audit application (AuditIT) were selected as the research context for this study. The AuditIT application is a bundle of many specific capabilities that vary in their scope and complexity and the degree of work process changes required to use each one of them effectively in the audit work process. The unit of analysis in this research is an individual’s adoption of a specific AuditIT capability.

With the aid of key informants at the audit firm, 15 AuditIT capabilities were identified as a representative subset of all AuditIT capabilities. Capabilities that were perceived as used by nearly everyone or by very few individuals in the organization were not included in the final set.

Questionnaires were distributed to individual auditors in two phases. The phase one questionnaire listed the 15 AuditIT capabilities and asked respondents to indicate the capabilities that were used in their ongoing work. The phase two questionnaire, which was mailed only to those audit professionals who used at least one capability listed on the phase one questionnaire, asked respondents to indicate their IT beliefs and IT knowledge regarding up to four used capabilities as well as the extent to which each of the three appropriation moves led to their use of each capability.

Usable phase one responses were received from 117 of 260 individuals for a response rate of 45%. Usable phase two responses were received from 46 of 68 potential respondents (65.7%) and yielded data for a total of 149 capabilities ($\overline{x} = 3.24$ capabilities per person).
All measures demonstrated acceptable psychometric properties except individual IT know-why. Individual IT use was calculated as the product of the frequency of use and length of use reported for each capability. Social influence was measured as the average level of use across the members within an individual’s office who use the particular capability under consideration. The appropriation moves were measured as the product of social influence and the extent of appropriation behavior exhibited. For example, conformance was measured as the product of social influence and the extent of conformance.

5. DATA ANALYSIS

An examination of the distributions for responses revealed that our measure of IT use exhibited a non-normal distribution: the level of use was skewed toward high levels of capability use, with sporadic instances of low and moderate levels of use. Therefore, the interval-scaled use data were transformed to a dichotomous measure to distinguish instances of lower and higher use. Cluster analysis was used to identify the cases assigned to each of these two categories of use.

With the dependent variable being dichotomous in nature, the logistic regression method was used as the primary data analysis method (Cox and Snell 1989; Hosmer and Lemeshow 1989). The pathways for imitation and mutual discovery are based on causal models that assume complete mediation. Therefore, the methodology for testing mediating effects as recommended by Baron and Kenny (1986) formed the basis for testing our propositions about the impacts of imitation and mutual discovery on IT use. Multiple linear regression techniques were used in examining the mediating relationships among the independent variables.

6. DISCUSSION OF RESULTS

The existence of at least three different modes through which individuals respond to social influence within the workplace was validated in this research. When social influence with regard to IT is encountered in a work setting, individuals may respond to this influence by conforming to any evolving normative expectations by the group, by imitating observations of another’s use, and by partnering with coworkers to mutually discover methods of using IT capabilities to increase work performance. Each of these three modes of responding to social influence directly impacts an individual’s level of capability usage. The influence of imitation and mutual discovery appropriation moves was partially mediated by individual IT knowledge.

7. IMPLICATIONS OF THE FINDINGS

The purpose of this study was to investigate how social influence unfolds to impact individual IT use. This research has expanded the previous work in this area by beginning to unravel the complex relationship between social influence and technology usage. The observed support for the three identified social appropriation moves provides a deeper understanding of how individuals respond to the social influence of the peer work group and how the social influence unfolds to impact an individual’s IT use.

The findings show that while social influence is inevitably present in all settings, the appropriation moves are the operative coin through which these influences impact IT use behaviors. Therefore, our study makes a significant extension to our growing knowledge about how individuals use information technology in their organizational settings.

This research provides further empirical evidence that an individual’s IT use can be significantly influenced by their coworkers. Managers in an organization that has introduced a work process technology into the work routine need to be aware of the impact of the social milieu on an individual’s usage of the technology. Managers who are aware of the different modes through which individuals respond to social influence should be able to guide individual users toward deeper levels of IT use.

8. CONCLUSION

This research attempts to develop a better understanding of the role played by social influence in an individual’s IT use by examining the pathways through which social influence unfolds to impact IT use behaviors. The research established that individuals may utilize different modes of responding to social influence with respect to the technology usage they encounter.
within the workplace. This research thus opens new doors for the MIS research community by identifying the complex relationship between social influence and individual IT use.

9. REFERENCES


