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Abstract

The business value of information technology (IT) is realized through the continuous use of IT subsequent to users' adoption. Understanding post-adoptive IT usage is useful in realizing potential IT business value. Most previous research on post-adoptive IT usage, however, dismisses the unintentional and unconscious aspects of usage behavior. This paper advances understanding of the unintentional, unconscious, and thereby automatic usage of IT features during the post-adoptive stage. Drawing from Social Psychology literature, we argue human behaviors can be triggered by environmental cues and directed by the person's mental goals, thereby operating without a person's consciousness and intentional will. On this basis, we theorize the role of a user's innovativeness goal, as the desired state of an act to innovate, in directing the user's unintentional, unconscious, and automatic post-adoptive IT feature usage behavior. To test the hypothesized mechanisms, a human experiment employing a priming technique, is described.

Keywords: Post-Adoptive IT Usage, Continuing IT Use, Unintentional and Unconscious Goal-Pursuit, Automatic Use, Priming Effect, Innovativeness Goal.

1 INTRODUCTION

Information Technology (IT) users can gain value from the continuous process of using IT after initial acceptance/adoption (Bhattacherjee 2001; Jasperson et al. 2005). During this process, first-time users learn and try new features of IT (Ahuja & Thatcher 2005) and appropriate those features for specific tasks at hand (DeSanctis & Poole 1994; Griffith 1999). In the longer term, users extend and modify old IT features (Saga & Zmud 1994; Hsieh & Wang 2007; Leonardi 2013; Sun 2012) and experiment with innovative ways of exploiting new IT features (Ahuja & Thatcher 2005) in order to leverage fully the potential value from IT use (DeLone & McLean 1992; 2003).

Several theoretical models have been proposed to understand post-adoptive IT feature use and to explore how to sustain extended and adaptive IT feature use (e.g., Bhattacherjee 2001; Karahanna et al. 1999; Venkatesh & Davis 2000). Most of these models conceptualize post-adoptive IT use as a series of repeated intentional behaviors, requiring active and conscious control and involving cognitive processes such as the evaluation of previous IT use experience (Limayem et al. 2007; Ruth 2012; Khalifa & Liu 2007). However, these models ignore the fact that many human behaviors are unintentional and unconscious in nature (Kim et al. 2005; Ortiz de Guinea & Markus 2009).

Recent theoretical and empirical advancement in the social psychology field offers rich insights to aid in better understanding the unintentional and unconscious nature of IT feature use (Bargh & Willams 2006; Bargh 2002; Dijksterhuis et al. 2005; Bargh & Ferguson 2000). This stream of thought suggests the unconscious mind is not subordinate to the conscious mind in driving human behaviors; rather, the unconscious mind has pervasive and powerful influence over mental processes in directing behaviors (Bargh & Morsella 2008; Custers & Aarts 2010; Bargh et al. 2001). Given its habitual nature, post-adoptive IT usage too may occur unintentionally and unconsciously, directly in response to environmental cues (Bagozzi 2007; Kim et al. 2005; Ortiz de Guinea & Markus 2009).

Although prior research into unconscious and unintentional post-adoptive use offers valuable insights (e.g., Kim et al. 2005), there is need to reveal theoretically and empirically the underlying mechanisms of unintentional, unconscious, or automatic[1] post-adoptive IT usage (Ortiz de Guinea & Markus 2009; Jasperson et al. 2005). This in-progress research intends to review recent advancement in the social psychology literature and formulate potential theoretical mechanisms of automatic post-adoptive IT feature usage, showing its unintentional and unconscious nature. In particular, post-adoptive IT usage is examined in terms of extended and adaptive IT feature usage (Saga & Zmud 1994; DeSanctis & Poole 1994).

We further argue that IT usage behavior is directed by users' goals. This suggests a less explored issue having apparent practical relevance; how automatic IT usage could be facilitated in order to encourage extended and adaptive use. Prior studies have reported the effect of the personal innovativeness construct on continuing IT usage, arguing that users with higher innovativeness are more likely to extend, adapt, and experiment with IT features in innovative ways (Ahuja & Thatcher 2005; Agarwal & Prasad 1999; Gefen & Straub 1997). As such, we theorize automatic post-adoptive IT usage behavior is directed by innovativeness goal, the desired state of an act to innovate. The extent of post-adoptive IT feature usage may thus be facilitated and encouraged through influencing users' innovativeness goals.

A human laboratory experiment is designed to empirically test the hypothesized role of innovativeness goal in directing users' automatic, unintentional, and unconscious post-adoptive IT usage. Goals, as mental representations, can be activated through an experimental manipulation technique called

[1] The term "automatic" or "automaticity" tends to be an umbrella concept in the literature, referring to various differing things (see Moors & De Houwer 2006 for a comprehensive review). Specifically in this research, we focus on the unintentional, unconscious, and goal-directed aspects of automaticity.

priming. In a typical priming study, an experimental instructor would first provide participants relevant stimuli (i.e., primes) in order to activate their goals (Bargh & Chartrand 2000). Once their goals are activated, the participants are expected to act towards such goals without their own conscious awareness (e.g., Harris et al. 2009). We employ the priming technique in our experiment, given its demonstrated effectiveness to study unintentional, unconscious, and automatic behavioral processes (Bargh & Ferguson 2000; Bargh & Morsella 2008; Bargh & Chartrand 2000).

It is hoped this research will make several contributions to the field, it being among the first to examine unconscious and unintentional post-adoptive IT feature usage and the role of innovativeness in directing such behavioral processes. The investigation will both theoretically explain and empirically reveal the mechanisms underlying unconscious, unintentional, and automatic post-adoptive IT feature usage. Further, it will offer evidence towards harmonizing recent debate on the role of the conscious versus unconscious mind in post-adoptive IT usage (e.g., Bagozzi 2007; Ortiz de Guinea & Markus 2009). The findings may also have practical value; uncovering potential facilitating factors of post-adoptive IT feature usage will inform design of appropriate organizational processes and work environments, to improve extended and adaptive IT usage, thereby improving organizational performance.

2 RESEARCH BACKGROUND

Post-adoptive IT use behavior is investigated under diverse labels, including continuing, continued, or continual IT use/usage (Bhattacherjee 2001; Khalifa & Liu 2007; Recker 2010; Limayem et al. 2007), post-adoption or post-adoptive IT use (Jasperson et al. 2005; Zhu & Kraemer 2005; Parthasarathy & Bhattacherjee 1998), extended use (Saga & Zmud 1994; Hsieh & Wang 2007), adaptive use (Sun 2012), and so on. These connotations, though diverse, share a common assumption; namely, IT use behavior is better separately examined in several phases, each phase associated with a different set of antecedents to explain the dependent variable (Bhattacherjee 2001; Jasperson et al. 2005). Bhattacherjee (2001), for instance, has recognized that antecedents of early IT acceptance (i.e., in pre-adoption phase) do not explain why users discontinued IT use after initial adoption. Thus, IT usage behaviors are now separately investigated in a post-adoption phase, subsequent to the pre-adoption phase. Consistent with this now conventional distinction between pre-adoption and post-adoption (Bhattacherjee 2001; Limayem et al. 2007; Kim & Son 2009) and more specifically with Jasperson et al. (2005), the thematic area of research is herein denoted as 'post-adoptive IT use' (or usage), encompassing the broad range of research in relation to understanding IT use behaviors subsequent to users' initial adoption or acceptance.

Much early research on post-adoptive IT use is inspired by the seminal work on Technology Acceptance Model (TAM) (Davis 1989; Davis et al. 1989; Venkatesh & Davis 2000). Such work often either transports the constructs of TAM directly to a longitudinal research design (Karahanna et al. 1999; Venkatesh & Davis 2000), or indirectly with some modification combines TAM and other constructs that may capture the feedback effect resulting from prior IT use experience (Bajaj & Nidumolu 1998; Venkatesh et al. 2008). This branch of work, however, is criticized for not differentiating the influences in the post-adoption versus pre-adoption phases, and as a consequence, fails to predict both users' continuance and discontinuance behavior patterns (Bhattacherjee 2001; Limayem et al. 2007; Ruth 2012; Khalifa & Liu 2007).

In attention to such limitations, several studies shift emphasis to theoretical models deriving from the marketing consumer behavior literature, the most seminal of which is the IS Continuance Model (Bhattacherjee 2001), based in Expectation-Confirmation Theory (Oliver 1980). This highly influential model analogizes users' post-adoptive IT usage behaviors with consumers' repurchasing behaviors and thereby theorizes users' continuance intention is jointly determined by satisfaction with past IT use experience and perceived usefulness of continuing use. Much follow-up research has tested the IS Continuance model in various contexts, adapted it for differing types of IT artifacts, and has

partially integrated it with TAM or other consumer behavior theories (Hsieh & Wang 2007; Khalifa & Liu 2007; Deng et al. 2010; Recker 2010; Thong et al. 2006).

More recently, several researchers have contested the IS Continuance Model and alike, by questioning its fundamental premise of the intentional and conscious will of IT use behaviors (Gefen 2003; Limayem et al. 2007; Kim et al. 2005; Ortiz de Guinea & Markus 2009; Jasperson et al. 2005). In particular, they argue previous studies extended from TAM and Expectation-Confirmation Theory ignore the view that post-adoptive IT use behaviors may be unintentional, unconscious, and to some extent automatic in nature (Bagozzi 2007; Kim et al. 2005; Ortiz de Guinea & Markus 2009; Limayem et al. 2007). This view claims that users' intention and conscious awareness are unnecessary for users to engage in and to control the course of IT use, suggesting that IT usage is influenced by emotional factors (Kim et al. 2007; Zhang et al. 2006; Zhang 2013), habitual experiences with IT (Gefen 2003; Limayem et al. 2007; Limayem & Hirt 2003; Kim et al. 2005), and/or environmental triggers (Ortiz de Guinea & Markus 2009; Jasperson et al. 2005).

Although previous research has usefully progressed our understanding of the unintentional, unconscious, and automatic aspects of post-adoptive IT usage, there is yet need to theoretically and empirically reveal and substantiate the mechanisms of unintentional, unconscious, and automatic post-adoptive IT usage (Ortiz de Guinea & Markus 2009; Jasperson et al. 2005). Previous research theorizing the automatic aspects of post-adoptive IT use at least partially relies on use intention; premising the inseparable role of users' conscious, intentional decisions and/or controls over the initiation and the completion of IT use act (e.g., Limayem et al. 2007; Kim et al. 2005). Both theoretical formulation and empirical demonstration of mechanisms underlying the unintentional, unconscious, and automatic post-adoptive IT use are lacking.

3 THEORETICAL FORMULATION

Behavioral processes can be automatic (at least partially). The literature has little consensus regarding what automatic or automaticity means and the term "automatic" itself is seemingly elusive, potentially encompassing a range of different aspects (Moors & De Houwer 2006). Thus, we first review recent advancement in the social psychology literature and then theorize behavioral processes of unconscious, unintentional, and automatic post-adoptive IT usage.

3.1 Unconscious, Unintentional, and Automatic Goal Pursuit

There is little disagreement that behaviors can operate both with and without a person's consciousness. The central debate seems to be to what extent behavioral processes are unconscious. Historically, many researchers have assumed that the unconscious mind has limited influence on human behaviors (Bargh and Morsella 2008). Thus, most investigated behavioral processes assume conscious evaluation and choice for the completion of an act (e.g., Theory of Planned Behavior (Ajzen 1991)).

Recent research on automatic behavior argues human behaviors once activated can run into completion automatically, with minimum or no conscious effort to control (i.e., effortless) (Bargh & Ferguson 2000; Bargh & Morsella 2008). The operation of unconscious behaviors is primarily driven by environmental cues (Bargh & Ferguson 2000). During this process, behavioral response to external stimuli happens instantly, without the formation of conscious intent or conscious evaluation of action consequence (Bargh & Ferguson 2000). It is argued, that rather than having insignificant influence, such unconscious automatic behavioral processes are pervasive in everyday life (Bargh & Williams 2006; Bargh & Morsella 2008).

Unconscious automatic processes can be either intentional or unintentional (Moors & De Houwer 2006; Bargh & Chartrand 1999). Moors and De Houwer (2006) defines an intentional act as "one that is caused by the goal (in the sense of representation) to engage in the act" (p. 303, emphasis added). According to their definition, an intentional act only determines that engaging in the act is initiated by a person's goal, but does not extend to imply the completion of the act is under conscious or

unconscious control. Examples of intentional, but unconscious automatic processes exist in skill acquisition literature (Moors & De Houwer 2006; Bargh & Chartrand 1999). For instance, driving a car may be consciously intended (i.e., with the goal to engage in driving), while completion of the act is often said to be an unconscious automatic process, where the driver directly responds to environmental stimuli (e.g., signal light or hazard situation) without conscious control over every movement and choice made. However, with frequent and consistent use of mental processes, the conscious intention may be removed from mental processes and the act becomes habitual (Bargh & Chartrand 1999). Eventually, such processes may become unintentional and the goal (e.g., to drive) may be unconsciously activated by encountered situations (e.g., seeing a car). Further, unconscious automatic processes can also be unintentional (Bargh & Chartrand 1999). For example, one intending to clean his/her house may unconsciously pick up a coin on the floor, the act of which is unintended (i.e., without the goal of picking up a coin) and is a direct response to the environmental cue (i.e., a coin on the floor).

There are two potential mechanisms towards unconscious automatic processes – one commonly known as the perception-behavior link and another being the unconscious goal pursuit (Dijksterhuis et al. 2005; Bargh & Chartrand 1999; Custers & Aarts 2010). The perception-behavior link originates from an idea that "mental representations responsible for perception and mental representations responsible for behavior are intimately linked" (Dijksterhuis et al. 2005, p. 195). Thus, a person when perceiving an act will think about that act and is likely to perform that act. In simple words, people often do what they see (in their minds). The perception-behavior link exists ranging from simple behavioral responses to complex behaviors of social life (Bargh & Willams 2006; Dijksterhuis et al. 2005). Mimicking behaviors are the most common examples of perception-behavior link. For instance, when observing another person repeating the same action, such as face touching or foot shaking, a person tends to more frequently touch face or shake foot without his/her conscious awareness (Lakin & Chartrand 2003). Further, perception in perception-behavior link can go beyond simple behavior, in which more complex constructs such as traits, stereotypes, and goals can be activated by observing the corresponding behaviors (Dijksterhuis et al. 2005). For example, a person often behaves more aggressively or more loyally when relevant traits are activated through facing certain conditions of social interaction (Bargh & Willams 2006).

Unconscious goal pursuit is a more recently uncovered mechanism of unconscious automatic processes. A person's goal can be activated unconsciously and put into action, and then run into completion with minimum or no control by the person's consciousness (Custers & Aarts 2010; Bargh & Willams 2006; Dijksterhuis et al. 2005). When the activation or the operation of a goal is strongly associated with a particular situation, such as in the prior example of driving a car, the mere presentation of the situation is sufficient to activate the goal and put it into action, where after the act can automatically run into completion without conscious control (Bargh & Willams 2006). A series of experiments have been specifically designed and conducted to empirically evidence unconscious goal pursuit (e.g., Harris et al. 2009; Lakin & Chartrand 2003; Dennis et al. 2013; Shah 2003; Custers & Aarts 2005). Although unconscious behavioral processes are not controlled by conscious will, the operation of those processes is regulated by a person's goals[2] (i.e., mental representations of reference values for certain behavioral outcomes) (Custers & Aarts 2010; 2005; Bargh et al. 2001; Shah 2003). Thus, activating one's mental representations, should affect operation of unconscious goal pursuit processes (Shah 2003; Lakin & Chartrand 2003; Custers & Aarts 2005).

Consistent with prior literature on unconscious goal pursuit processes (Bargh & Ferguson 2000) and IT usage related literature (Burton-Jones & Straub 2006; Bhattacherjee 2001), automatic post-adoptive IT usage is theorized as users' unconscious, unintentional, and automatic employment of IT to perform

[2] Behavioral processes regulated by goals can be consciously intended or unconsciously activated (Carver & Scheier 1998; Custers & Aarts 2010). Therefore, the goal-directed unconscious automatic behavior herein should not be confused with the goal-directed intentional behavior literature (e.g., Bagozzi 1992).

tasks, after their initial IT adoption. Being unintentional, post-adoptive IT usage is not consciously intended (while performing task is). Rather, it is unconsciously activated by situational cues and operates automatically into completion without the users' conscious awareness. Further, such process is regulated by users' goals to perform tasks (Carver & Scheier 1998). We further consider the conception of IT.

3.2 Extended and Adaptive IT Feature Use

We employ a feature-centric view to understand the unconscious, unintentional, and automatic nature of post-adoptive IT usage (DeSanctis & Poole 1994; Griffith 1999). IT can be viewed as a combination of compositional features. A feature is simply an aspect or part of IT, ranging from smaller piece to larger unit (Griffith 1999). The feature-centric view premises that a user is more likely to perceive and subsequently use partial IT; that is, several, often incomplete aspects of the whole. This view may thus offer a granular lens to better characterize IT usage (as opposed to studying IT as a whole) (DeSanctis & Poole 1994; Griffith 1999).

Further, the feature-centric view is well suited to study users' cognitive processes, such as sensemaking of technology (Jasperson et al. 2005). Given limitations in human perception, a user can only perceive IT features to make sense of the functionality of the full IT (Griffith 1999; Jasperson et al. 2005). More specifically, a user may notice novel, tangible features and learn to use these features through comparing them with others they have learned (Griffith 1999). This sensemaking process is triggered only at the feature level, rather than by the full IT. In other words, less novel, intangible IT features may never be explored. Consequently, appropriation and adaptation of IT may also occur at the feature level (DeSanctis & Poole 1994). Therefore, our focus of unconscious IT use processes may exist for some features but not others.

The change in IT feature usage can be studied at two dimensions: extended usage (Saga & Zmud 1994; Hsieh & Wang 2007) and adaptive usage (Markus & Silver 2008; DeSanctis & Poole 1994). Both are useful to our purpose. Extended usage is concerned with using more IT features to accommodate more comprehensive tasks (Saga & Zmud 1994; Hsieh & Wang 2007). Users may utilize a limited number of IT features, by which the IT is clearly underutilized. Capturing extended usage provides a basis to investigate how to utilize the full potential of IT (Hsieh & Wang 2007). Further, recent literature on IT affordances suggests one IT feature may be used in differing ways, each of which represents one possibility of use (Markus & Silver 2008; Leonardi 2013; Sun 2012; DeSanctis & Poole 1994). The basic idea is that an IT feature may be appropriated and subsequently used in ways other than as designed (DeSanctis & Poole 1994). As such, the actual post-adoptive usage may change with specific tasks at hand. The adaptive usage, defined as a user's revision of actual IT feature usage (Sun 2012), can capture the difference between the actual appropriated usage and the usage as designed.

3.3 Facilitating Role of the Innovativeness Goal

Goals can be defined as "internal representations of desired states, where states are broadly construed as outcomes, events, or processes" (Austin & Vancouver 1996, p. 338). There is no doubt a person can have multiple goals in mind (DeShon et al. 2004; Schmidt et al. 2009; Vancouver et al. 2010). When multiple goals are involved, the dominant view in the literature suggests goals are hierarchically structured (Austin & Vancouver 1996). Higher-level, more abstract goals are able to coordinate and control lower-level, more concrete goals (Carver & Scheier 1998).

As such, an abstract goal 'to be innovative', termed as innovativeness goal, may affect more concrete goals such as to perform specifically designed tasks in innovative ways. Once an abstract, innovativeness goal is activated, users must pursue a concrete goal of performing tasks in innovative ways through using IT. Therefore, activating an innovativeness goal should lead to innovative usage of IT, specifically in terms of extended usage - that is, using more IT features; or adaptive usage - that is, unconventional uses of IT features.

The role of personal innovativeness in the process of using IT is empirically supported in the literature (e.g., Ahuja & Thatcher 2005; Agarwal & Prasad 1999; Gefen & Straub 1997). In particular, previous studies suggest users' innovativeness has a strong influence on post-adoptive IT usage. For instance, the Theory of Trying emphasizes the importance of a user's goal to innovate in successfully using IT for new tasks (Bagozzi & Warshaw 1990; Bagozzi et al. 1992; Ahuja & Thatcher 2005; Ortiz de Guinea & Markus 2009). Studies extending TAM have found that individual differences (e.g., gender), mediated by beliefs about innovation, are likely to influence IT usage (Agarwal & Prasad 1999; Gefen & Straub 1997; Venkatesh & Morris 2000). As we previously theorized, post-adoptive IT usage is directed by the goal to perform tasks, thus, a user's innovativeness goal as the mental representation of the desired state (i.e., innovative) about an act (i.e., to perform tasks) should influence post-adoptive IT usage.

In summary, we argue that post-adoptive IT usage (in terms of extended and adaptive feature usage) may be unconscious, unintentional, and automatic in nature, directed by users' goals. A user's goal to innovate, that is, their innovativeness goal, can direct extended and adaptive post-adoptive IT feature usage. Thus, we submit the following hypotheses.

> *Proposition 1: A user's innovativeness goal will direct the user's unconscious, unintentional, and automatic,* ***extended*** *IT feature usage in the post-adoptive stage.*
>
> *Proposition 2: A user's innovativeness goal will direct the user's unconscious, unintentional, and automatic,* ***adaptive*** *IT feature usage in the post-adoptive stage.*

4 EXPERIMENT DESIGN

To test the propositions, a controlled human experiment is designed. The experimental technique of manipulating a person's mental goal representation is called priming. In a general priming process, target mental representations are primed or activated in a subtle, unobtrusive manner in the first phase of an experiment, and the hypothesized effects of the activation are subsequently assessed in the second phase of the experiment (Bargh & Chartrand 2000; Harris et al. 2009; Lakin & Chartrand 2003). The occurrence of behaviors in the second phase is beyond a person's consciousness or intentional will. Thus, unobtrusive activation of mental representations in the first phase, also outside of a person's consciousness or awareness, is hypothesized to predict the unconscious behavior in the second phase; in such a manner, demonstrating the direct causal linkage from perception (i.e., the activation of goal) to behavior (Bargh & Chartrand 2000). The effects of the priming technique have been demonstrated in several recent studies, such as for stimulating a person's eating (Harris et al. 2009) and imitating (Lakin & Chartrand 2003; Custers & Aarts 2005) behaviors.

Experimental manipulation can prime different kinds of psychological constructs, such as psychological traits and stereotypes (Förster et al. 2007). This research focuses on goal priming, more specifically, priming a user's innovativeness goal. Consistent with previous studies (Harris et al. 2009; Lakin & Chartrand 2003; Custers & Aarts 2005; Shah 2003), the experimental design follows recommendations of Bargh and Chartrand (2000).

100 undergraduate students from a major Australian university will be recruited for the experiment. An invitation email will be sent from the authors' home university. The email will encourage students' voluntary participation and will offer participants AUD$30 cash as an incentive. Given a relatively large proportion of international students in the university, the participants are anticipated to have diverse ethnic and cultural backgrounds. Given the aims of this experiment, the participants are required to have at least a minimal level of computer skills (e.g., using word-editing software and web browsing).

Each participant will first be informed that "the purpose of the experiment is to understand task performance in a working environment and that the entire process will take approximately 1.5 hours"; they will be encouraged to perform as best as they can in handling the tasks. Basic demographic information of each participant is then obtained through completing a questionnaire.

- The subjects will participate in the experiment individually, within a closed office environment, equipped with a readily available desktop personal computer, a chair and a desk.
- In the first phase of the experiment, the instructor will ostensibly test the participants' language skills by instructing them to complete the "Scrambled Sentence Test" (Bargh & Chartrand 2000) on the computer, throughout which concepts related to "innovativeness" will be either inserted to the text or not for a comparison group. The actual purpose of this test is to prime the innovativeness goal with the relevant inserted concepts.
- Then, the participants will be instructed to perform requested tasks using the IT system (as further illustrated in the following subsection), during which users' usage patterns will be recorded by the IT system without the users' awareness.
- After completing the tasks, participants will be debriefed by the experiment instructor to check their awareness (e.g., asking whether or not the participants noticed anything unusual, and letting the participants guess the purpose of the experiment). The aim of the check is to ensure participants are not aware of the potential, anticipated consequences of priming; that is, extended usage of IT features, even though they may notice or guess the priming manipulation, such as unusual words inserted in the language skill test.

The IT system will be developed specifically for the purpose of the study; the system allows users to design an object (such as a chair or a cup) using various alternative system features.

Participants are instructed to use the IT system to complete a set of design tasks, with each task requiring the design of a specific object. Each task can be completed by using multiple different IT features. Conversely, one IT feature can also be used for different tasks. All the usage patterns can be recorded without users' awareness.

The concepts that are used to prime the innovativeness goal will be pre-tested to evaluate the relevance of the concepts for innovativeness. Specifically, each concept will be independently judged by two recruited PhD students who are unaware of the study purpose. The extent of extended IT feature usage is operationalized as the number of features used in performing the tasks (Hsieh & Wang 2007). As one IT feature could potentially be used for multiple tasks, the extent of adaptive IT feature usage is operationalized as the average number of involved tasks per IT feature (to what extent has each feature been adapted to multiple tasks).

5 DISCUSSION

The proposed research will have implications to theory and practice. In the post-adoptive IT usage literature, it will make some first steps toward theoretically formulating and empirically demonstrating the existence of automatic, unintentional, or unconscious post-adoptive IT feature usage. The findings may change our understanding about post-adoptive IT usage, showing whether post-adoptive IT usage could occur and run into completion with minimum or completely without users' conscious awareness and intentional will.

For practice, the research findings will inform the design of IT and organizational processes and work environment. The findings may suggest that IT can be designed to encourage extended and adaptive feature usage, through integrating relevant cues in the virtual work environment where the IT system resides. The design of organizational processes and work environment may consider relevant triggers to leverage users' innovativeness desire and to facilitate extended and adaptive IT feature usages and performance.

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