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## The effects of source credibility and argument quality on employees' responses toward information system usage

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### ABSTRACT

Managers deliver influencing strategies to motivate employees and shape their behavior intentions related to information system acceptance. Although prior studies have acknowledged external variables in shaping employees' perceptions, they do not explain how the processes or paths of external variables affect their system acceptance. By integrating technology acceptance model, flow theory, and extending elaboration likelihood model, this study confirms the second-order formative measure of playfulness with two first-order formative constructs, challenge arousal, and skill control. Second, two persuasive messages result in different influencing routes on employees' responses. Source credibility of persuasive messages has positive influence on playfulness, while argument quality of persuasive messages has positive influence on perceived ease of use and perceived usefulness. Third, perceived ease of use has positive impact on playfulness, perceived usefulness, and attitude. Fourth, attitude plays a mediating role in the relationship of playfulness-behavior intention and perceived usefulness-behavior intention. Finally, perceived usefulness is a stronger determinant of attitude than playfulness and perceived ease of use.

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### 1. Introduction

Firms depend on information technology to execute a variety of operational, tactical, and strategic processes. Advanced technology offers a promising new avenue for employees to update their knowledge and skills. Firms often invest millions of dollars to introducing a new system for long-term benefits. However, system adoption not only involves technology or system, but the willingness of employees to accept it (Park, Roman, Lee, & Chung, 2009). Persuasive strategies, an employee's characteristics, and interaction with other members may affect the willingness of employees toward using system. Understanding employees' system acceptance behavior not only helps managers deliver influencing strategies to motivate employees, but also shapes their behavior intentions related to system acceptance.

Several theoretical models have been developed to examine an individual's information or technology system acceptance. The Technology Acceptance Model (TAM) has been regarded as especially promising (Davis, Bagozzi, & Warshaw, 1989; Davis & Wong, 2007; Kim, Chun, & Song, 2009). TAM links social cognitive theory with the constructs of perceived usefulness and perceived ease of use to understand behavioral and motivational issues in system acceptance. However, most theoretical models have their limitations and contributions, and TAM is no exception (Lee, Yan, & Joshi, 2011). This study proposes several criticisms of TAM. Perceived usefulness and perceived ease of use in the TAM represent the functional and utilitarian aspects of individual perceptions, neglecting an individual emotional variable, such as playfulness, enjoyment, and fun (Ahn, Ryu, & Han, 2007). The TAM does not explain why and how the influence of external variables may occur. Several researchers have developed a more complex model to provide better explanations for perceptions and their antecedents. Venkatesh and Davis (2000) extended the original TAM model to TAM2 by incorporating external variables, such as subjective norm, job relevance, and demonstrable results. Although prior studies have acknowledged the important roles of external variables in shaping an individual's perceptions, they do not explain how the

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processes or paths of external variables affect an individual's system acceptance (Bhattacharjee & Sanford, 2006). For example, what kind of message or information is more effective in influencing individuals' emotions and perceptions? Thus, the influencing routes of external variables on an individual's acceptance deserve further validations.

Current studies are limited in unraveling the complexities of a dynamic external influence process (persuasive messages) on an individual's functional response (perceived usefulness), utilitarian response (perceived ease of use), and emotional response (playfulness). The persuasive messages deliver the information to the employees related to the firms' policy, such as introducing new information system, in order to reduce their resistances. This study addresses the above gaps by integrating TAM, flow theory, and extending Elaboration Likelihood Model (ELM) to present a simple, yet useful theoretical model. The ELM is chosen to represent a firm's dual persuasive process, since it relates directly to the influencing processes of employee perceptions and explains why a given influence process may lead to differential outcomes (Bhattacharjee & Sanford, 2006). This research also explores the interrelationship among playfulness, perceived ease of use, perceived usefulness, attitude, and behavior intention.

This study provides several contributions to both research and practice. This study proposed that employee perceptions toward technology acceptance are malleable in response to different types of persuasive messages, and tested this assertion empirically by extending the ELM. Although Bhattacharjee and Sanford (2006) have integrated ELM and TAM, they only shed lights on employees' cognitive response. The results of this study argue that two persuasive messages would result in different influencing routes on employee emotional response, and functional and utilitarian aspects of perception.

As proposed by Lee, Cheung, and Chen (2005), perceived usefulness and perceived ease of use in the TAM represents functional and utilitarian aspects of individual perceptions, and inclusion of emotional response provides a more holistic understanding of system acceptance in employees. This study adopted playfulness, which represents emotional response from Koufaris' (2002) work, to improve the specificity and explanatory power of the TAM. This study applied flow theory to explain an individual's playful experience, but this theory mainly applies to the field of online behavior or web surfing rather than work settings. For practitioners, this study introduced alternative modes of elaboration as policy tools that managers can employ to motivate system acceptance. Thus, the findings offer pragmatic insights to understand employees' system acceptance and drive managers to effectively deliver messages related to information system implementation.

## 2. Theoretical background

### 2.1. Technology acceptance model

The TAM is adapted from the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975). The TRA explains behavior as a function of individual belief about behavior outcome and evaluates the value of outcomes. In TAM, similar to TRA, individual belief determines attitudes toward using a system, which lead to intention to use. Perceived usefulness and perceived ease of use are beliefs that determine attitudes and actual usage intention. Perceived usefulness is defined as the degree to which an individual believes that using a technology would enhance job performance, while perceived ease of use is defined as the degree to which a person believes that using a technology or system would be effortless (Davis et al., 1989). The TAM has become one of the most widely used models in exploring technology acceptance, partly because of

its understandability and simplicity (King & He, 2006). This study adopts TAM as a base model to investigate employees' system acceptance behavior.

### 2.2. Flow theory

Most applied research focusing on system acceptance at work only considers employee perceptions, such as perceived ease of use and perceived usefulness. However, the emotional response of employees toward system acceptance cannot be neglected (Koufaris, 2002). As the distinction between work and fun becomes less clear, employees' emotional response, such as playfulness, can enhance job productivity (Ahn et al., 2007). Although the flow theory has been embedded within the fields of advertising and consumer behavior, jobs can be a major source of flow experience for adults (Csikszentmihalyi & LeFevre, 1989). This study provides a more comprehensive view of understanding employees' system acceptance through integrating the TAM and flow theory with employees' cognitive and emotional responses.

Csikszentmihalyi (1990) defined flow as a state of consciousness experienced by individuals who are deeply involved in some event, object, or activity. A common flow measure could be the level of playfulness of an activity, similar to the emotional response of pleasure from environmental psychology (Koufaris, 2002). Playfulness is defined as the extent to which an individual perceives an activity as enjoyable in its own right, apart from any performance consequence that may be anticipated (Davis, Bagozzi, & Warshaw, 1992). Csikszentmihalyi (1990) suggested four components for flow experience, including control, attention, curiosity, and intrinsic interest.

Davis and Wong (2007) suggested four indicators to identify flow state, including seamless sequence of responses facilitated by machine interactivity, an intrinsically enjoyable experience, accompanied by a loss of self-consciousness, and a self-reinforcing quality to the activity. Since challenge arousal and skill control are highly related to the emotion in the working setting and have been widely used and recognized important factors, they are used to represent the playfulness construct. Challenge refers to the extent to which employees stretch their ability, and skill/control refers to ability to dominate over interaction with a new system.

### 2.3. Elaboration Likelihood Model (ELM)

ELM has been applied to understand individual information processing and evaluation (Martínez-López, Luna, & Martínez, 2005; Wang & Doong, 2010). Because employees can vary in their thinking regarding a persuasive message, ELM might provide a unique opportunity to understand employee thoughts, feelings, and actions in response to a persuasive message (Jones, Sinclair, & Courneya, 2003). This study attempts to understand employee information processing of information system acceptance through integrating TAM and extending ELM.

Petty and Cacioppo (1986) proposed the ELM to explain individual attitude change in terms of central route and peripheral route, based on the amount of information processing or individual demand for subject elaboration. The central route refers to critical thinking about task-related arguments and relative merits of forming judgment about a target behavior, while the peripheral route refers to an individual heuristic that relies on simple cues or inferences toward the target behavior without cognition. Mak, Schmitt, and Lyytinen (1997) proposed that perceived credibility of message source has been regarded as one of the major peripheral cues, while strength of the argument has been found to be a critical factor for central route messages.

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