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Abstract

It has been argued that the promising benefits of Enterprise Systems (ES) implementations are overshadowed by their high failure rate. One of the commonly cited reasons for ES implementation failures is the end-user's unwillingness to adopt or use systems. Considering that the appropriate management of expectations may play an important role in forming positive behavior toward newly implemented systems, this study examines the effect of outcome expectations on the system use activity in the mandatory-use context of information systems (IS) from the perspectives of Social Cognitive Theory and Coping Theory. Structural equation model analysis using LISREL 8.7 provides significant support for the proposed relationships. The empirical results suggest that outcome expectations and user satisfaction have positive effects on system use activity conceptualized by immersion, reinvention, and learning. Theoretical and practical implications of the study shed some light on how to improve system use activity in the mandatory-use context of IS.

Keywords: Outcome expectations, IS use activity, Social Cognitive Theory, Coping Theory.

1 INTRODUCTION

Although enterprise-wide information systems (IS) such as Enterprise Systems (ES) have received massive investment and have promised major strategic benefits, they have suffered from a high failure rate and difficulties in realizing the anticipated performance. The factors involved in ES failures are not limited to technical issues, but include various causes arising from the interactions among people, task, environment, and technology.

One of the commonly cited reasons for ES implementation failures is the end-user's unwillingness to adopt or use systems. Despite the successfully developed system, the lack of positive user acceptance can lead to simple rote use rather than sophisticated system use, leading to dissatisfaction in the organization as the expected performance gained by the system's introduction is not realized.

The introduction of new information technology (IT) generates numerous expected and unexpected consequences in the user's environment. As these consequences are subjectively interpreted and understood by users, they respond in a variety of ways to the new system. According to the Coping Theory, the individual appraises what he/she can do to cope with disruptive events based on the potential consequences of events with subjective value, and then performs different cognitive and behavioral efforts (Lazarus and Folkman, 1984). This means that the user's efforts to achieve the expected benefits or cope with the feared changes of the IT implementation depend on the user's appraisal of the expected consequences of a variety of events which are induced by IT changes. Bandura (1986) also suggests that outcome expectations are a significant cognitive factor for individuals to control their behavior. Similarly, Thompson et al. (1991) proposed that the long-term consequences are important and effective factors related to new IT usage. Particularly, Chau (1996) showed that the long-term consequences (e.g., increasing the flexibility to change jobs, increasing the opportunities for more meaningful work, enhancing the user's prestige among colleagues or professional peers) play a more important role in an individual's IT acceptance by directing the individual's focus on future benefits rather than short-term consequences (e.g., usefulness). In addition, successful system implementations are more closely related to successful management of user expectations than to user involvement or management support, and expectation management is considered highly important in determining the user's attitude toward IT acceptance from the initial stage of system development through to the adaptation stage (Hoffer et al., 1999). These study results imply that inappropriate management of expectations may have a negative impact on successful system implementation by failing to meet expectations, despite the intention for a positive system contribution to the organization.

Prior IS research on the new IT adoption has been conducted in the context of voluntary adoption of the new IT by users and either the usage or the intention to use is exploited as a dependent variable. However, most of the current enterprise-wide IS are used in non-voluntary contexts where users must use the system to perform their jobs. Therefore, debate has continued over whether usage or intention to use is an appropriate surrogate variable for actual system use behavior (Rawstorne et al., 1998, 2000). Moreover, the concept of frequency or duration used as a surrogate of system usage does not appear to be appropriate in a mandatory context. Therefore, some researchers suggest that a new concept as a dependent variable should be considered instead of the concept of intention to use or simple system usage (Barki et al., 2007; Burton-Jones and Straub, 2006).

This study aims to understand the role of outcome expectations for successful IS use and suggest a new surrogate variable for system use, based on the Social Cognitive Theory (SCT) and the Coping Theory. The study is conducted with two research objectives. First, from the IS acceptance perspective, we examine how outcome expectations affect the IS use activity of the organization members. Second, we suggest and examine a new outcome variable describing the actual acceptance behavior of the user in the mandatory-use contexts.

2 THEORETICAL BACKGROUND

2.1 Social cognitive theory (SCT)

According to SCT, environmental influences such as social pressures or unique situations, cognitive affects and other personal factors, including personality and behavior, are reciprocally determined as interacting determinants that influence each other. This relationship is characterized by "triadic reciprocal determinism" (Bandura, 1986). It is not that the individual simply reacts to the environment events, but that the individual acts for positively creating and changing his/her environments. Furthermore, individual cognition and the way of changing his/her environment are affected by either positive or negative feedback from behavior; that is, the determined behavior influences the individual's cognitive process and environment. While SCT can approach many dimensions, this research is particularly concerned with the role of outcome expectations that form and control individual behavior. Outcome expectation that reflects expectations about the level of consequences from their behavior has been considered a significant factor predicting future behavior. While individuals are more likely to engage in behavior with expected favorable or positive consequences, outcome expectations affect their behaviors by letting them avoid expected behaviors that result in negative consequences. Therefore, outcome expectation is considered to play an important role in explaining individual behaviors in the IS research from the SCT perspective (Compeau and Higgins, 1995). Expectations about the net benefits of future IS use are continuously modified based on the IS use that is experienced, and modified expectations change the level of IS use, which further changes the perceptions of the IS performance again. Several recent studies have reported that outcome expectations affect such dependent variables as computer use, knowledge sharing, and user's organizational commitment (e.g., Stone and Henry, 2003). These research results imply that outcome expectation is a very important cognitive factor to control the user's behavior. Thus, outcome expectation that controls behavior in the SCT frame can play an important role in predicting and explaining the acceptance behavior of various users in the IS use context.

2.2 Coping theory

Lazarus and Folkman (1984, p.141) defined coping as "the cognitive and behavioral efforts exerted to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person." It deals with the adaptation acts that the individual performs in response to stimulation or disruptive events and circumstances in his/her environment. That is, the individual either adapts to the subjective meaning of the event or makes coping efforts to seek additional information and evidence for the purpose of changing or avoiding the situation (Lazarus and Folkman, 1984). Individuals apply two subordinate processes (appraisal and coping efforts) to cope with the disruptive events (Lazarus and Folkman, 1984). First, the individual evaluates the potential consequences of an event (primary appraisal and secondary appraisal). The individual evaluates specific events in relation to his/her welfare, i.e., whether it is related to him/her or it is beneficial and positive to him/her. While the primary appraisal focuses on the events that give some kind of meaning to the individual, the secondary appraisal evaluates available social and personal resources required to cope with the events and considers available behavioral options (Lazarus and Folkman, 1984). Second, the individual makes problem-focused coping and emotion-focused coping efforts to deal with the situation (Lazarus and Folkman, 1984). The former aims to solve the problem (e.g., disruptive issue) by changing the environmental pressures, barriers, and resources or by changing oneself (e.g., learning new skills or procedures and finding new channel of satisfaction). The latter aims to reduce or manage the negative emotional distress. It doesn't change the situation itself, but changes one's perception of the situation (Lazarus and Folkman, 1984). The kind of efforts that the individual makes depends on how the given situation is appraised.

In an IS research drawing on the Coping Theory, Beaudry and Pinsonneault (2005, p.496) introduced adaptation as a similar concept with coping and defined it as "the cognitive and behavioral efforts exerted by users to manage specific consequences associated with a significant IT event that occurs in their work environment." The user assesses the expected consequences of the IT event and how the changes affect himself/herself and his/her work at the stage of primary appraisal, so that the user will be aware of the opportunity or threat about the potential consequences of the significant IT event (Beaudry and Pinsonneault, 2005). Such potential consequences are a very similar concept to the long- and short-term consequences of Thompson et al. (1991) and to the outcome expectations of Compeau and Higgins (1995). For instance, if a user evaluates the fitness between work and IS to be high, the changing of the new IS would be recognized as an opportunity, otherwise it would be recognized as a threat. Based on such primary appraisal, the user appraises how much he/she modifies work, controls himself/herself with the new environment (Lazarus and Folkman, 1984), and controls the characteristics and functions of new IT at the stage of secondary appraisal (Beaudry and Pinsonneault, 2005). After such cognitive appraisal, the user makes emotion- and problem-focused adaptation that is similar to the coping efforts of the Coping Theory. Problem-focused adaptation aims at dealing with the issues of IT changes directly by adapting oneself, work, and technology (Rice and Rogers, 1980). Self-adaptation involves adjusting one's habits, learning new skills, and adjusting commitment to the work to meet the requirements of the technology. Adapting the work changes procedures and routines, and adapting the technology changes functions and features. Emotion-focused adaptation aims at changing one's perception of the consequences of the newly introduced IT or reducing emotional distress. Emotion-focused adaptation is oriented toward avoiding reality though self-deception or psychologically minimizing negative consequences, selective attention, and positive comparison to other users (Beaudry and Pinsonneault, 2005). It is especially emphasized that the user's adaptation efforts depend on the user's appraisal. In other words, the user's adaptation efforts are changed by cognitive evaluation of the IT event (i.e., the awareness and expectation of potential consequences). Thus, the Coping Theory indicates that outcome expectation plays a significant role in explaining the behaviors of various users in the IS environment.

2.3 Conceptualization of system use activity

It has been argued that predicting behavior based on intention is inappropriate in a mandatory-use environment (Rawstorne et al. 1998, 2000). The link between intention and behavior only applies when the behavior is under volitional control of the person (Fishbein and Ajzen, 1980). That is, the connection between behavioral intention and actual behavior lacks consistency in mandatory contexts.

The mandatory IS use environment means that the user has no choice but to use the system to perform his/her work, so that prior measurement of system usage based on voluntary contexts is inappropriate. The effectiveness of technology usage is decided by the organizations' aims and objectives in mandatory contexts (Adamson and Shine, 2003). Thus, simple usage behavior of IS may be inappropriate as an indicator of success for the system implementation. The behavior of the user is more complicated than simple IT use in the organizational setting (Adamson and Shine, 2003). Thus, we propose positive "system use activity" related to IS use as a surrogate variable for new IS acceptance instead of intention to use or mechanical use behavior under the premise of mandatory environment. We conceptualize system use activity into three dimensions based on the studies of Burton-Jones and Straub (2006) and Barki et al. (2007): user's immersion, reinvention, and learning.

First, Burton-Jones and Straub (2006) proposed that system usage is an activity among a user, a system, and a task, and they defined the individual user's level of system usage as the extent of his/her employment of one or more features of a system to perform a task. To measure the activity between the user and the system in their research, they adopted focused immersion, which is among the five dimensions in the cognitive absorption construct by Agarwal and Karahanna's (2000). Immersion means the extent to which the individual can set aside other concerns related to their ability to focus on

and perform the specific task required. The user's immersion activity related to system use activity can be defined as the extent to which the user concentrates on the task while using the system.

Second, Barki et al. (2007) conceptualized IS use-related activity based on task-technology fit and activity theory. IS use-related activity was classified into three behaviors: technology interaction behavior, task-technology adaptation behavior, and individual adaptation behavior. They empirically verified the effects of these activities on the individual and organizational benefits. Among them, task-technology adaptation behavior includes all behaviors like modifying or changing IT and determining how it will be used in the organization. This concept is based on Rice and Rogers' (1980) notion of reinvention, which reflects the extent to which an adopter changes an innovation following its original development. That is, reinvention can be measured as the amount of effort the IS user puts into the enhancement of the fit between the task and the system to improve his/her performance.

Third, individual adaptation behaviors suggested by Barki et al. (2007) represent behavioral changes that the individual makes to himself/herself in order to adapt to IT. Such self-modification behaviors include learning activity and interaction between individuals and the IT system (Beaudry and Pinsonneault, 2005). Information acquisition activities reflect the coping strategy of users to reduce uncertainties in their work. As users learn how to use the new IT, they can apply new ways to perform their tasks and exchange information with each other. Barki et al. (2007) categorized individual adaptation behaviors into communication behaviors (interactions with other users or IS professionals to exchange information about an IT) and independent exploration behaviors (information search behaviors undertaken independently to improve one's knowledge and mastery of an IT). So learning can be defined as the degree to which users communicate with each other and search for information in order to improve their knowledge and IT skill.

3 RESEARCH MODEL AND HYPOTHESES

The research model is shown in figure 1, which is based on previously discussed research motivation and theoretical background. We here discuss the conceptual background about the hypotheses in the research model.

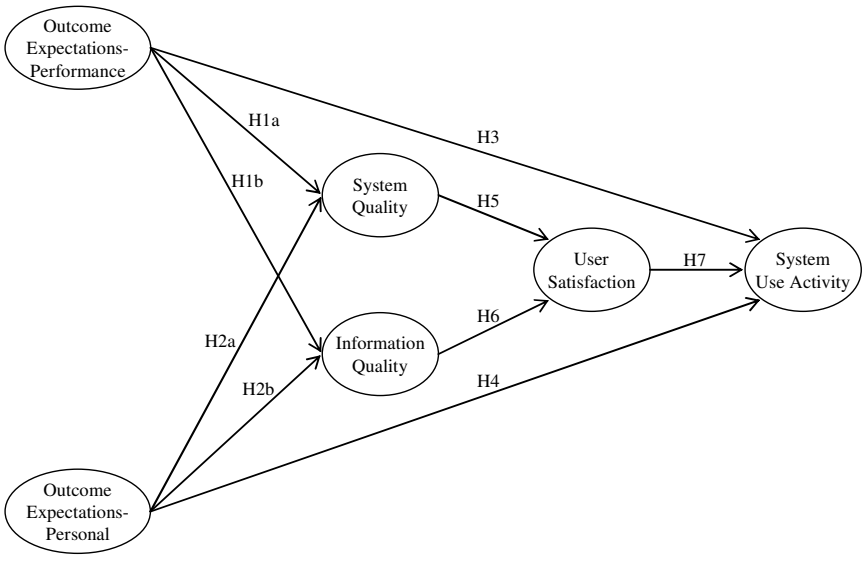

Figure 1. Research model.

According to Bhattacherjee (2001), the comparison evaluation between expectation and system performance is a continuous process, so users' expectation can change while using a system. Szajna and Scamell (1993) suggested that unrealistically high or low user expectations change into realistic levels, and that low expectations are associated with low satisfaction of users based on the Cognitive

Dissonance Theory (CDT; Festinger, 1957). According to CDT, when cognitive dissonance occurs, the perceived performance is assimilated toward the initial expectation. It has been reported that consumers' expectation based on CDT has a positive influence on perceived product performance in marketing research (Szymanski and Henard, 2001). Kim et al. (2004) suggested that the user's high expectation highly assesses system performance in IS research. Hence, we hypothesize the following:

H1a: Outcome expectations-performance has a positive effect on perceived system quality.
H1b: Outcome expectations-performance has a positive effect on perceived information quality.
H2a: Outcome expectations-personal has a positive effect on perceived system quality.
H2b: Outcome expectations-personal has a positive effect on perceived information quality.

Outcome expectation is considered an important cognitive factor in determining individual behavior, according to SCT (Bandura, 1986). Individuals do not simply respond to the environment, but behave positively to create and change it. Similarly, when the user primarily assesses the expected personal and professional consequences of a newly-introduced IT event in the organization as an opportunity, he/she recognizes and exercises control over the situation, and makes problem-focused adaptation efforts (Beaudry and Pinsonneault, 2005). That is, the user tries to increase his/her knowledge of and improve on his/her ability in using the system and makes additional efforts to communicate with other users in order to seize opportunities offered by IT changes. This behavior consequently modifies prior work procedures and even changes the function of the system (Beaudry and Pinsonneault, 2005). Thompson et al. (1991) also suggested that perceived consequences, which are composed of three dimensions (complexity, job fit, and long-term consequences of use), strongly influence the degree of computer utilization. The most valuable effect proved to be job fit, which is defined as an individual's belief that the system enhances his/her job performance. Compeau and Higgins (1995) also reported that outcome expectation has a significant impact on usage by demonstrating that both outcome expectations-performance and outcome expectations-personal affect usage. An individual's experience, environment, and use behavior affect his/her cognitive factor as suggested by SCT, which then feeds into one's behavior again by forming a feedback mechanism. Hence, we hypothesize the following:

H3: Outcome expectations-performance has a positive effect on system use activity.
H4: Outcome expectations-personal has a positive effect on system use activity.

The IS success model suggested by DeLone and McLean(1992) and Rai et al.(2002) reported that user satisfaction is affected by the quality of system and information. It was also verified that IS performance is positively associated with user satisfaction. According to Roca et al. (2006), system quality and information quality have positive effects on satisfaction of Web and e-learning users in which perceived system performance is measured in terms of quality. An empirical study on Web-based decision support systems also verified that system quality and information quality have significant impacts on decision-making satisfaction (Bharatia and Chaudhury, 2004). Incidentally, this relationship has already been proved in many studies in the IS field including the IS success model. Hence, we hypothesize the following:

H5: Perceived system quality has a positive effect on user satisfaction.
H6: Perceived information quality has a positive effect on user satisfaction.

Individual user satisfaction with IS use reflects a status of either positive (satisfied) or negative (dissatisfied) feeling (Bhattacherjee, 2001). It can be an impression of delight or disappointment often derived from a comparison of perceived IS performance and its expectation (Bhattacherjee, 2001). It has been widely recognized that an affect associated with a user (e.g., finding delightful about the system) is a significant factor for system use behaviors (Compeau and Higgins, 1995) and that an individual's feeling for particular behaviors significantly influences that behaviors (Bandura, 1986). According to a study on innovation acceptance of system developers (Chau, 1996), although system developers are mandated to use the innovation (as the adaptation decision about the software development tool is made at an organizational level), whether or not the user enjoys using it (i.e., satisfaction with the innovation) plays a critically important role in productivity. When the

introduction of new system forces users to change tasks, techniques, attitude, and efforts, user satisfaction can play an important role as a way to reduce the resistance of the users, particularly when the system is closely associated with the users' work (Melone, 1990). We can infer that the user who is satisfied with system use may spontaneously apply the system to his/her work to achieve benefits provided by the new system. In doing so, he/she will exert great effort to learn the new system, modify his/her work procedures, and concentrate on the task during system usage, thereby reducing the negative aspects of the new system. Hence, we hypothesize the following:

H7: User satisfaction has a positive effect on system use activity.

4 RESEARCH METHODOLOGY

We performed a questionnaire survey at the individual level. The data used to test this research model were collected from ERP system users who use the system to perform their organizational tasks. We selected ERP system users because they are supposed to use the system in the mandatory context. Four hundred questionnaires were distributed by mail and 225 responses were received. After the exclusion of 17 incomplete responses, 208 usable respondents were analyzed in the study. The validated questions used to make measurements in this study were mainly adopted from the relevant literature whenever possible and were modified for adjustment to the current research context. All items were measured using a seven-point, Likert-type scale with answers ranging from strongly disagree to strongly agree. The instrument was reviewed by three IS researchers and feedback results were reflected in the question items. Measurement instrument used in this study is shown in table 1.

Construct	Item	Measure	Reference
Outcome expectations-performance (PFO)	If I use ERP system, I expect		Compeau and Higgins 1995
	PFO1	I will increase my effectiveness on the job.	
	PFO2	I will spend less time on routine job task.	
	PFO3	I will increase usefulness of performing the task.	
	PFO4	I will increase the quality of output of my job.	
	PFO5	I will increase the quantity of output for the same amount of effort.	
Outcome expectations-personal (PSO)	If I use ERP system, I expect		Compeau and Higgins 1995
	PSO1	My co-workers will perceive me as competent.	
	PSO2	My sense of accomplishment will be increased.	
	PSO3	I will be seen as higher in status among colleagues.	
	PSO4	My reputation will be better among my colleagues.	
	PSO5	My opportunities of getting a promotion or changing my job will be increased.	
System quality (SYQ)	SYQ1	ERP system is possible to exchange data with other systems.	Bailey and Pearson 1983, Wixom and Todd 2005
	SYQ2	ERP system stably operates without interruption or errors.	
	SYQ3	ERP system is flexible by new conditions, processes, structure of organization, and circumstances.	
	SYQ4	ERP system returns answers to my requests quickly.	
Information quality (IFQ)	IFQ1	ERP system provides the precise information you need.	Bailey and Pearson 1983, Rai et al. 2002
	IFQ2	ERP system provides sufficient information to enable you need.	
	IFQ3	ERP system provides up-to-date information.	
	IFQ4	The provided ERP system's ouput is presented in a useful format.	
User satisfaction (USF)	How you feel about your overall experience of ERP system use.		Bhattacherjee 2001
	USF1	Very dissatisfied/Very satisfied	
	USF2	Very displeased/Very pleased	
	USF3	Very frustrated/Very contented	
	USF4	Absolutely terrible/Absolutely delighted	
Immersion (IME)	When I use ERP system,		Agarwal and Karahanna 2000, Burton-Jones and Straub 2006
	IME1	I am able to block out all other distractions.	
	IME2	I feel totally immersed in what I am doing.	
	IME3	I feel completely absorbed in what I am doing.	
	IME4	My attention does not get diverted very easily.	
Reinvention (RIV)	When I use ERP system, I exert myself to		Barki et al. 2007, Rice and Rogers 1980
	RIV1	Find improvements in the system's functionalities and interface.	
	RIV2	Modify my tasks so that it better fits the system.	

	RIV3	Find improvements in the system so that it better fits my tasks.	
	RIV4	Be better fits between the system and my business processes.	
Learning (LEN)	LEN1	I exert myself to have opportunities to communicate with colleagues or specialists in order to better understand how ERP system operates on my own initiative.	Barki et al. 2007, Rice and Rogers 1980
	LEN2	I exert myself to increase my knowledge and my mastery of ERP system on my own initiative.	
	LEN3	I exert myself to learn ERP system on my own initiative.	
	LEN4	I invest much effort in order to better use ERP system.	

Table 1. Measurement instrument

5 DATA ANALYSIS AND RESULTS

5.1 Confirmatory factor analysis

First, we checked the unidimensionality of each construct to test the convergent validity. Following proposed methodological procedure, we conducted revisions on the measurement model by removing, one at a time, those items which shared a high degree of residual variance with other items. The measurement model showed a suitable fitness level after removing five items (PFO4, SYQ1, IFQ1, LEN1, and USF4). The normed χ^2 (χ^2 to degree of freedom) was 1.532, which was a good fit as it was below the desired maximum cut-off of 3.0. The root mean square error of approximation (RMSEA) also showed a good fit at 0.051, which was below the maximum desired cut-off of 0.06. The root mean square residual (RMR) was 0.044, which was lower than the desired maximum cut-off 0.05 (Hair et al., 1998). The goodness-of-fit index (GFI) was 0.849, which was above the recommended threshold of 0.8 (Hair et al., 1998). The other fit indices were also satisfactory: comparative fit index (CFI)=0.989, normed fit index (NFI)=0.972, and non-normed fit index (NNFI)=0.987. Thus, we concluded that the measurement model had adequate overall fitness.

As shown in table 2, most standardized path loadings were greater than 0.7 and significant (t-value > 1.96) with only one exception: PFO5. Composite reliability (CR) and the Cronbach's α for all constructs were larger than 0.7. All the average variance extracted (AVE) for each factor exceeded 0.5. Thus, the constructs used in this study had convergent validity.

Construct	Items	Factor loading	CR	AVE	Cronbach's α
PFO	PFO1	0.857	0.894	0.681	0.886
	PFO2	0.870			
	PFO3	0.877			
	PFO5	0.681			
PSO	PSO1	0.899	0.955	0.808	0.954
	PSO2	0.870			
	PSO3	0.943			
	PSO4	0.919			
	PSO5	0.860			
SYQ	SYQ2	0.783	0.849	0.652	0.848
	SYQ3	0.844			
	SYQ4	0.795			
IFQ	IFQ2	0.809	0.853	0.658	0.852
	IFQ3	0.797			
	IFQ4	0.828			
IME	IME1	0.838	0.940	0.797	0.937
	IME2	0.952			
	IME3	0.951			
	IME4	0.823			
RIV	RIV1	0.857	0.948	0.821	0.948

	RIV2	0.901			
	RIV3	0.938			
	RIV4	0.926			
LEN	LEN2	0.889	0.946	0.855	0.946
	LEN3	0.947			
	LEN4	0.937			
USF	USF1	0.858	0.906	0.762	0.902
	USF2	0.841			
	USF3	0.919			

Table 2. Results of convergent validity testing.

Next, we accessed the discriminant validity. As shown in table 3, the square root of AVE for each construct exceeded the correlations between the construct and other constructs. Hence, the constructs used in this study had discriminant validity. In addition, we examined common method bias (CMB) using Herman's single factor test (Podsakoff et al., 2003). A significant difference in the χ^2 statistic of the original (χ^2=534.6, df=349) and single factor model (χ^2=3814.4, df=377) revealed that this research was not affected by CMB.

Construct	Mean(SD)	PFO	PSO	SYQ	IFQ	IME	RIV	LEN	USF
PFO	5.140 (1.118)	**0.825**							
PSO	4.022(1.347)	0.420	**0.899**						
SYQ	4.397 (1.365)	0.474	0.549	**0.807**					
IFQ	4.780 (1.251)	0.557	0.509	0.790	**0.811**				
IME	4.373 (1.213)	0.504	0.696	0.505	0.687	**0.893**			
RIV	4.435(1.259)	0.382	0.580	0.430	0.496	0.658	**0.906**		
LEN	4.697(1.298)	0.453	0.562	0.450	0.552	0.630	0.660	**0.925**	
USF	4.863(1.184)	0.609	0.641	0.723	0.710	0.699	0.549	0.615	**0.873**

Table 3. Results of discriminant validity testing.

5.2 Second-order confirmatory factor analysis

System use activity consists of immersion, reinvention, and learning activity. Thus, the second-order factor, system use activity, was assumed to be indirectly measured through the lower-order factors. The results of second-order confirmatory factor analysis showed a satisfactory fit level (Normed χ^2=1.671, RMR=0.025, GFI=0.943, NFI=0.984). Therefore, the first-order factors and the second-order factor were verified to have strong relations. We carried out item parceling by averaging the first-order factors to measure the latent variable of system use activity, the second-order factor, in the structural model.

5.3 Hypothesis testing

The test of hypotheses using the structural model was performed with LISREL 8.7. We first evaluated the goodness of fit indices. Considering the overall fit indices (χ^2/df=2.07, GFI=0.846, CFI=0.977, and NFI=0.960), we concluded that the research model provided a good model fit to the data. The standardized path coefficients for the research model are presented in figure 2. All three variables (outcome expectations-performance, outcome expectations-personal, and user satisfaction) were significantly related to system use activity and explained 72.7% of the variance in system use activity: outcome expectations-performance (β=0.125, $p<0.05$), outcome expectations-personal (β=0.457, $p<0.01$), and user satisfaction (β=0.434, $p<0.01$). Outcome expectations-performance and outcome expectations-personal showed significant relationships with perceived system performance (system quality and information quality) and explained 44.1% and 47.3% of the variance respectively: outcome expectations-performance (β=0.338, $p<0.01$; β=0.453, $p<0.01$) and outcome expectations-

personal (β=0.447, p<0.01; β=0.360, p<0.01). Perceived system performance had a significant relationship with user satisfaction and explained 61.8% of the variance in user satisfaction: system quality (β=0.466, p<0.01) and information quality (β=0.457, p<0.01). These results supported all hypotheses.

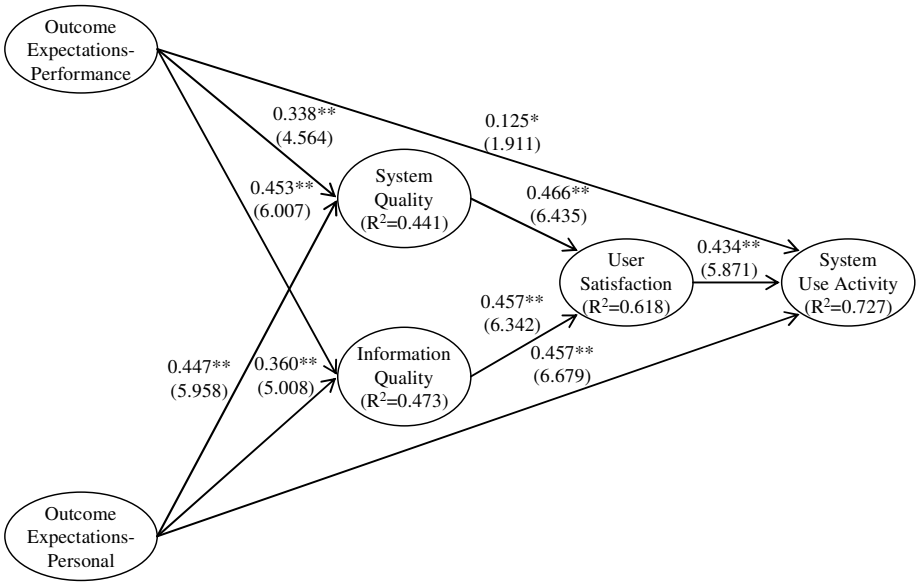

*Figure 2. Results of research model (*p<0.05; **p<0.01; One-tail test).*

6 DISCUSSION AND IMPLICATIONS

The study results suggested that as the user uses the system, both the expected usefulness related with job (outcome expectations-performance) and personally expected usefulness (outcome expectations-personal; e.g., recognizing my competence, accomplishment, or obtaining a promotion) have a significant effect on positive system use activity of users. In contrary to Compeau and Higgins (1995) who reported that outcome expectations-performance has a more significant impact on computer usage than outcome expectations-personal, this study showed that improving job performance through IS may not be a strong motivation for IS use on the individual level in the mandatory-use context. Rather, in this context, a good assessment of outcome expectations-personal like image as a constant driving force is an important factor in positive system activity beyond a simplistic view of system use such as the amount or frequency of IS use. Similar to the present study result, Tampoe (1993) suggested personal growth as a knowledge worker's motivation, and argued that, in particular, professional and personal accomplishments are seen to be the driving force of ongoing motivation. Two types of outcome expectations and user satisfaction explained 70.5% of the variance in system use activity. This might imply that the user assesses the potential consequences derived from IT changes as an opportunity. This translates to positive system use activity (e.g., concentrating on the job, efforts to fit between task and system, and efforts to understand the system activity) as users try to cope with these kinds of challenge in terms of the Coping Theory. The results of this research also supported the importance of user satisfaction as a way to reduce the resistance of the user, when the system is closely associated with the user's work. The cognitive process from user's outcome expectations to positive system use activity shows that the user's high expectations induce a high evaluation of perceived system performance (system quality and information quality), which is consistent with CDT. In addition, the results of this research supported those of existing IS research showing that perceived system quality and information quality have a significant effect on user satisfaction with system use.

The findings of the present study have several implications for theory and practice. From the theoretical perspective, first, we developed a theoretical model to explain the effect of outcome expectations on IS use activity of organization members. This proposed theoretical model provides an understanding of the role of outcome expectations for successful IS adaptation, especially outcome expectations-personal as intrinsic motivation in the perspective of expectancy management. In addition, the suggested research model can present the cognitive process from outcome expectations to positive IS use activity through the IS success factors (system quality, information quality, and user satisfaction). Second, this research proposed a new variable composed of three dimensions (immersion, reinvention, and learning) as a surrogate variable of system use or intention to use in mandatory IS use context. This may reflect a user's actual system acceptance behavior in the condition when the introduced system use is decided by management. Most of the existing IS studies suffer limitations in representing various responses of users as they have focused the user's system acceptance behavior simply on the system use or the intention to use without considering the IS use environment (voluntary or non-voluntary environment). Thus, the research results facilitate an understanding of the varied responses and behavior of users in IS acceptance studies by suggesting a new dependent variable. Third, the study finding implies that user satisfaction and positive system use behavior are significant factors in individual impact to achieve the goals of introducing a new system in an organization. Igbaria and Tan (1997) suggested that user satisfaction is a more important factor in individual impact than system usage and the influence of user satisfaction on an individual's performance is partially mediated by system usage. A satisfied user shows a high-level of system use activity because he/she does not simply use the system, but tries hard to use it better. Eventually, the user shows a high-level individual performance.

From the practical perspective, the study results support two findings. First, the results represent how outcome expectations enforce the system use activity of users in the perspective of expectancy management. Szajna and Scamell (1993) showed that expectation can change as a user uses an IS, i.e., the user can have realistic expectations and form a positive user attitude about the newly introduced IS while performing appropriate expectations management. In other words, positive system use activity can be reinforced, thereby supporting successful implementation of the system through the user's positive employment of the system and appropriate expectations management. This is required for systematic evaluation and reward systems. Systematic evaluation and reward are the easiest ways for the management to inform the members of the organization of worthwhile activities and perceived results from these activities. The management should focus on preparing a systematic plan to properly manage job performance and expectancy at the individual level. Second, outcome expectations-personal is enhanced when an individual's colleagues encourage system use. A user will expect, among other things, that his/her behavior will be recognized and will please other members of the organization (Compeau and Higgins, 1995). The results of Compeau and Higgins's (1995) study show that a user's image can be enhanced as the user follows his/her colleagues' requirements or recommendations to develop the initiative to use the system. Consequently, when the user has opportunities to discuss aspects of the IS changes with his/her colleagues, it may lead to positive system use activity. Thus, the management should be interested in creating a friendly job atmosphere that is conducive to discourses regarding IT changes among members of the organization.

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