

Understanding Post-Training Behaviour in Information Systems

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ABSTRACT

The adoption of information systems (IS) has brought about drastic changes to organisational business processes. Despite this the benefits of IS has not been fully realised. This has been ascribed to the limited utilisation of IS. One of the reasons for this, is end-users inability apply the skills learned in the training phase of the IS implementation. Hence, the limited utilisation of skills in IS task environment. An important factor of IS training success is end-users' motivation to learn during the training. However, research have not demonstrated adequate knowledge on the impact of training motivation on subsequent use of acquired behaviour in IS arena. In addition, there is little theoretical framework on how training motivation affects other predictors of end-user's post training behaviours in IS arena, particularly, end-user's perception of ease of use (PEOU) and perceived usefulness (PU) in IS environment. Survey method was employed to collect data from end-users who had previously participated in IS training. One hundred responses of useable data were empirically analysed with partial least square (PLS) using SmartPLS 3. Findings reveal that, training motivation correlates with PEOU, PU and transfer behaviour in the IS environment. The significant explanatory power of the theoretical model developed in this study has important implications for both theory and practice. The study shows that, end-users' motivation and PEOU can affect IS transfer behaviour. This research advances the understanding end-user post training behaviours in IS.

Keywords: End-users, Information Systems, Training Motivation, PU, PEOU

1.1. INTRODUCTION

Control of large market shares through competitive advantage and efficient business process have driven the adoption of information systems (IS) solutions by organisations. For instance, the patronage of complex IS solutions like Enterprise Resource Planning (ERP) have increased in recent years, even though the implementation of this kind of solutions are very complex. Equally, the complex nature of this IS solution has increased the cost of training to support its successful implementation. The success of IS implementation depend on end-user's adoption in their daily routine. This requires enormous skills, since end-users' competence on the systems is crucial in the use of IS. Due to this, organisations make huge investment into IS training, IS training is widely used to minimise adoption problems in organisation (Umble, Haft, & Umble 2003).

End-user training is an intervention that teaches skills, and required knowledge on the system (Compeau & Higgins, 1995). End-user training is an effective strategic intervention for updating employees' knowledge and skills (Rowold, 2007; Umble et al., 2003). It is regarded as a pervasive method for enhancing individual's performance in the workplace (Arthur, Bennett, Edens, & Bell, 2003). In fact, end-user training has become a strategic intervention (Garg, 2010; Umble, Haft, & Umble, 2003) in IS implementation. Many IS studies have highlighted the importance of end-user training as a key success factor in IS implementation (Bedard, Jackson, Ettredge, & Johnstone, 2003; Marler, Linag, & Dulebohn, 2006). In spite of this acclaimed role of IS training, end-users still find IS solutions difficult to learn. This subsequent affects the post training usage behaviours of end-users in this regard, and thus suggesting that, the huge investment into IS training without its corresponding use of in the task environment could be consider wasteful.

One way of resolving this issue, is an understanding of end-user training motivation. End-user training motivation is crucial to post-training IS success. Training motivation is a motivational process that comprised of motivation during and after the training on the job. This process affects the learning outcomes, behavioural change and skill utilisation at post training context. An understanding of the impact of training motivation on PEOU, PU and end-users post-training behaviour will contribute significantly to knowledge in this area.

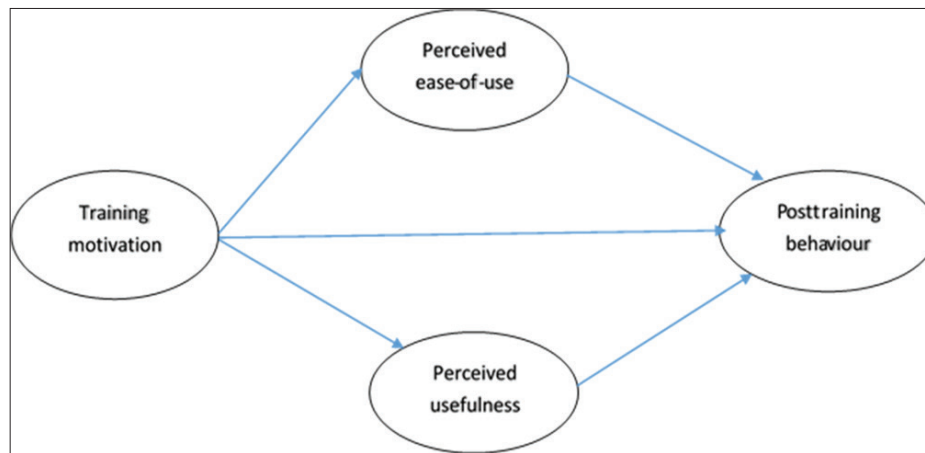


Figure 1: Research model

Post training in this context is the transfer of trained skills in IS task environment. Transfer involves the use of skills (cognitive, behaviour, knowledge) in accomplishing the organisational objectives by demonstrating and using the skills in accomplishing task performance. End-user's post training behaviours is measured by their job performance in IS terrain. The IS environment allows the use of the system to increase job outcomes through the application of acquired learning to the job. Individual job outcomes as an indicator of learning aligns with hard skills (i.e. IS) training. Basically, IS task environment uses performance based method in the assessment of training outcomes (Laker & Powell, 2011). To our knowledge, there seems to be no previous empirical investigation of this issue in IS domain.

1.2. LITERATURE

1.2.1. Training Motivation

Training motivation is defined as the desire of the learner to learn in a training environment (Noe & Wilk, 1993). In other words, it refers to an individual motivation to learn. Training motivation signifies the degree of intensity and persistence of efforts that trainees apply in learning-oriented improvement activities before, during, and after training (Burke & Hutchins, 2007).

The social cognitive school of thought explicate the role of motivational processes in the acquisition and use of learning. This school of thought argues that, individual motivational processes determine whether acquired competencies will be put to use (Bandura 1986). Training motivation as individual factor has been found to affect training success (Colquitt, LePine, & Noe, 2000). Training motivation represent the course of choices individuals make in engaging with the training content during the learning activities (Klein, Noe, & Wang, 2006). End-user's attitude and disposition affects the motivational course of action and the goals achieved in learning environment.

According to Goal setting theory (Locke & Latham, 1990a), specific goal is something a person seeks to achieve and it therefore becomes the target of the focus. Goals are better achieved based on the level of efforts deployed towards its attainment. This also affects the task-relevant strategies that can enhance its accomplishment. Since the goal of IS training is the learning of the appropriate skills, required for effective use of the systems, end-users' are to master the use of the system. Training motivation is a behavioural change that increased individual performances on the systems, by developing the critical mass of skills during training. End-user training motivation is important in both IS learning and IS usage. It is believed that, end-users that experienced high motivation in IS training, will absorb more training contents and materials. Training motivation is essentially regarded as a prerequisite for effective post training performance (Calvert, 2006; Robey, Ross, & Boudreau, 2000; Scaduto, Lindsay, & Chiaburu, 2008), especially when learning is a prerequisite for subsequent task performance (Chiaburu & Tekleab, 2005).

Going by the above arguments, end-user training motivation depict a favourable disposition and commitment to consequent performance on the job. End-user training motivation signifies user's commitment to use the system as an organisational outcome expectancy (Stone & Henry, 2003) after training. Given the limited studies on the influence of training motivation, this study do not engage in precise hypothetical proposition. However, it is assumed that, training motivation as an end-user characteristics will influence end-user's PEOU, PU and IS post-training behaviour.

1.2.2. Perceived Ease-Of-Use (PEOU)

One of the reactions from technology training is perception of ease-of-use (Davis, 1989). Perception of ease-of-use (PEOU) is the degree to which a person believes that using a system would be free of effort. That is, IS usage will not lead to severe mental tasks and complex manipulation. The absence of this complex nature of IS are believed to affect positive adoption behaviours.

Technology training has proved to be an effective intervention approach in the development of end-users' attitudes and beliefs system (Yi & Davis, 2001). In fact, it is believed that, training intervention is one way of reducing end-user's anxiety, and a way of strengthening end-user's perceptual ability on the system. IS training provides end-users the opportunity to familiarise themselves with the system's features during the training. This allows the users to have a feel of the systems, as well as to develop positive perception about the technology (Compeau & Higgins, 1995; Igarria & Iivari, 1995). PEOU enhances end-users acceptance behaviour and attitude concerning the technology (Amoako-Gyampah & Salam, 2004) PEOU also enhance end-user's learning and optimisation of the system. Positive perception of the system reduces user anxiety in learning new innovation. The resultant effect from the development of positive perception, is an increased adoption behaviour and positive attitude towards the system. Based on the above representations, a positive relationship between PEOU and IS post-training behaviour is projected.

1.2.3. Perceived Usefulness (PU)

Perceived usefulness is a popular construct in TAM based studies in IS. Perceived usefulness is users' belief that, using a particular system would enhance his or her job performance (Davis, 1989). End-users performance in IS task environment is dependent on the extent of the belief that, the system is useful in the performance of IS task.

Empirical investigations confirmed that, internal training significantly influence users' perceived usefulness (Igarria, Zinatelli, Cragg & Cavaye, 1997). This findings corroborates previous findings on the impact of training on user behaviour in performance based task. Previous studies shows that, training is one mechanism for influencing belief structures in IS. Amoako-Gyampah & Salam (2004) confirmed that, end-user training positively influenced the formation of shared beliefs in the benefits of the system Amoako-Gyampah & Salam (2004).

The study also argued that, training mechanisms aimed at improving the computer self-efficacy of users are likely to affect users' acceptance. Evidence has shown that, training motivation is a process and precursor for effective learning (Chiaburu & Marinova, 2005). It is a central component in learning the relevance, content, technical and functional parts of the systems for effective post training task performance. Since training motivation leads to persistence in learning the training content and material, therefore end-user's will equally develop perception of usefulness of the systems. End-user perception of usefulness of the system will enhance system usage in the task environment, based on the fact that, there is a conviction on the utility, relevance and usefulness of the system. Based on this, we proposed a significant relationship between user's PU and post training behaviour.

1.3. RESEARCH QUESTION

The research questions of this study are associated with (a) the relationship between training motivation and post-training behaviour and (b) the influence of PU and PEOU on IS post-training behaviour in IS. Theoretically, the study will provide new insights on the link between training motivation, PU and PEOU and post-training behaviour in IS.

1.4. RESEARCH METHOD

This study adopts a survey method for data collection, using online surveys. The research participants were IT professionals who had completed specific IT funded training by their organisations. To diminish the issue of common method bias (CMB), Harman one factor statistical analysis was conducted (Podsakoff et al., 2003). The analysis shows that, no single factor accounted for more than 35% of the variance. Also the SmartPLS variance inflation factor collinearity diagnostics did not reveal evidence of multicollinearity.

1.4.1. Analysis of Measurement and Structural Models

We used partial least square-structural equation modelling (PLS-SEM) using SmartPLS 3.2.3. (Ringle, Wende and Becker, 2015) version to test the relationships between the constructs. PLS-SEM is suitable for validating relationship, especially, in

areas which lacks strong theoretical base. In line with PLS analysis, we analysed separately the measurement and structural models. The measurement model analysis shows comfortable composite reliability and desired Cronbach's alpha results as shown in table below. The analysis shows that, the items are within the threshold of 0.7 for measured constructs. The hetero trait-hetero method correlations (HTMT) method (Henseler, Ringle & Sarstedt, 2015) was applied for the discriminant validity analysis. The structural model was assessed for the paths relationship, the coefficient of determination (R^2) and the model fit. The model also analysed the predictive relevance (Stone- Gesser criterion -Q2) using the SmartPLS 3's blindfolding technique. The model quality and fit was tested with standardised root-mean-square residual (SRMR) conservative scores of 0.08.

The results of the PLS analysis are shown in Table 3. The analysis indicate: (a) direct relationship between training motivation and IS post-training behaviour, (b) positive relationship between training motivation and PU and PEOU, (c) significant relationship between PEOU and IS post-training behaviour and (d) unexpectedly, the path between PU and IS post-training behaviour was insignificant.

Largely, the model explains 44.7% of variance for post-training behaviour, 31.1% for PEOU and 46.1% for PU respectively. The paths between training motivation and PEOU, PU and IS post-training behaviour were significant at ($\beta=0.558$, $t = 6.558$;

Table 1: Psychometric properties of the scales

	AVE	Cronbach's alpha	Composite reliability
PEOU	0.687	0.915	0.916
PU	0.502	0.703	0.703
PTB	0.648	0.884	0.88
Training motivation	0.518	0.804	0.808

Table 2: Measurement model

EOU1	0.844		
EOU2	0.795		
EOU3	0.882		
EOU4	0.903		
EOU5	0.705		
MOT1		0.782	
MOT2		0.815	
MOT3		0.536	
MOT4		0.715	
PU2			0.705
PU3			0.732
PU4			0.715
PTB2			0.748
PTB4			0.879
PTB5			0.863
PTB3			0.717

Table 3: Results of PLS model

	R^2	Paths	T- statistics
PEOU -> Transfer behaviour	0.447	0.446	3.329***
PU -> Transfer behaviour		0.049	0.218
Training motivation -> Transfer behaviour		0.300	1.665*
Training motivation -> PEOU	0.311	0.558	6.536***
Training motivation -> PU	0.461	0.679	8.287***
SRMR		0.051	

Note: * $p < 0.10$, *** $p < 0.01$

Table 4: Q² statistics

	SSO	SSE	Q _i ² ½ (=1-SSE/SSO)
PEOU	500	412.716	0.175
PU	300	253.317	0.156
Training motivation	400	400	
Post-training behaviour	400	297.2	0.257

$\beta=0.679$, $t = 8.287$, $\beta=0.300$, $t = 1.665$) respectively. We also examined the paths between PEOU and PU and post-training behaviour. We found significant relationship between PEOU and post-training behaviour ($\beta=0.192$, $t = 1.816$). However, the relationship between PU and post-training was insignificant ($\beta=0.192$, $t = 1.816$).

The predictive relevance of the model was confirmed. The Q2 values exceeded zero (0) for all the constructs in the model. Finally, the model produced adequate standardised root mean square residual (SRMR =0.051) for the model fit (Sarstedt, Ringle, Henseler, & Hair, 2014).

1.5. CONCLUSION

This study assesses the influence of training motivation, PEOU, and PU on post-training behaviour in IS environment. The findings of this study shows that, training motivation is a relevant predictor of post-training behaviour. The research finding corroborates earlier studies which found significant relationship between training and shared beliefs of end-users adoption behaviours (Amoako-Gyampah & Salam, 2004). This finding is also supported by previous opinion that, training motivation comprises of the intention, desires and willingness to productively utilise learning (i.e. behaviour, attitudes, skills and knowledge) in task environment (Chiaburu & Marinova, 2005).

The structural model also demonstrates the influence of training motivation on PEOU and PU. The evidence is expected, because motivation process during the training affects end-users' reaction outcomes, such as, perceptions, self-efficacy, utility and behavioural dispositions.

In addition, this study suggests a significant relationship between PEOU and post-training behaviour. The PLS statistical analysis support the paths between PEOU and post-training behaviour. Unexpectedly, the path between PU and post-training behaviour were negatively correlated. This negative relationship seems to have supported the notion that, PU may be inconsequential in IS training environment. Though training is one mechanism that allows users to explore the technical and functional perspectives of the systems (Amoako-Agympah & Salam, 2004). The research on the influence of PU in IS training context, particularly, post-training behaviour needs further analysis.

1.6. IMPLICATIONS AND LIMITATIONS

This study contributes to the body of work devoted to better understanding of an important phase of IS implementations. This adds to the examination of IS training using an individual level of analysis to understand the identified phenomenon.

Precisely, the paper examined the importance of training motivation, as a crucial condition for training effectiveness in IS training. Organisations invest on IS training, so as to help the employees cope with the dynamics of new IS deployment, however, empirical demonstration of the influence of end-user's training motivation are insubstantial.

Apart from the theoretical advances of this study, it also presents important practical implications. This seems to suggest that, the role of training motivation on PEOU, PU and post-training behaviour, in terms of IS usage is critical to IS training success. Therefore, organisations should put training strategies that could potentially affects employee motivation, and subsequent learning outcomes, such as PU and PEOU. The achievement of PU and PEOU as reaction outcomes in IS training domain, could be used to potentially harness positive IS post-training behaviour, user acceptance and overall IS success. This study is limited in that, it is a cross-sectional research. Though, important steps were followed towards having robust data set, future research could adopt other data collection methods.

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