

THE EFFECT OF PERCEIVED FIT AND SELF-EFFICACY OF SELF-CUSTOMIZED INTERFACE ON CONTINUED USAGE INTENTION

Completed Research Paper

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Abstract

A self-customized service has been identified as a major factor of a firm's ability to retain its competitive edge and acquire customers. However, little research has been conducted on the effects of the perceived fit of a self-customized service on customers' motivations, beliefs, and behaviors. This research study seeks to demonstrate that the perceived fit of self-customized service influences the continued usage intention of the user and also that this relationship is mediated by self-efficacy and intrinsic and extrinsic motivation. The relationships are tested with data from 640 undergraduate students that responded to a large-scale online survey of their use of NateOn, an instant messaging service provided by one of the largest Korean Internet portal sites. The study's findings show that perceived fit increases a customer's self-efficacy and motivation. Moreover, when customers are motivated and their ability to perform their tasks is enhanced, they intend to continually use their self-customized service. These findings augment the theory of self-customized service and provide service providers with managerial insights on how to attract customers to their self-customized service offerings.

Keywords: perceived fit, self-customization, self-efficacy, perceived usefulness, perceived enjoyment, intention of continuous usage

Introduction

The phenomenon of self-customization can be easily seen in almost all platforms of Internet services and products such as computer screen backgrounds, mobile phones, and favorite web sites (ex. Facebook and Twitter etc). Most of these platforms allow users to customize the standard interface according to their preferences. Customers naturally modify the standard service, function, and even menu to fit their tastes and preferences. Thus, personalization offers people the opportunity to satisfy their unique tastes and preferences in ways that may not always match what is offered by the products available in the market (Wattal et al. 2009). Personalization allows customers to feel that they are being treated as valued individuals.

Self-customization has been defined as a process that changes the functionality, interface, information content, or distinctiveness of a system to increase its personal relevance to an individual (Blom 2000). Self-customization particularly offers customers the opportunity to present their preference in their products and service. Thus, customer satisfaction is increased by forms of self-customization that provide a better fit between customers' preferences and tailored products (Simonson 2005; Kramer 2007; Gretzel and Fesenmaier 2006). Although, perceived fit has been identified as a major determinant of a customer's decision-making (to purchase or not to purchase) related to customized products (Tam and Ho 2005; Gershoff et al. 2003), the relationship between the perceived fit and the consistent use of the self-customized service is overlooked.

This research study will examine how perceived fit makes customers continually use a self-customized service with self-efficacy and with intrinsic and extrinsic motivation. This research study attempts to examine the significance of perceived fit and its role in online self-customized service, which is related to the ability of the customer to produce a self-customized service. Additionally, the customers' ability to secure a better fit tailored to their preferences will motivate them to take on the role of service provider, which influences their beliefs, attitudes, and behaviors.

Previous research on self-efficacy has mainly focused on novices or newcomers. This research study investigates the self-efficacy of experienced customers of self-customized services and examines the relationship between self-efficacy, perceived enjoyment, and usefulness, which previously have not been widely examined in IS research. By extending the research on self-efficacy in IS, our research results can help to explain the mechanism through which the fit of self-customized service enhances the customers' beliefs in their ability to use the service and influences their motivation to continually use it.

The following section draws upon the research background of perceived fit and self-efficacy to develop the hypotheses and the research model used in this study to understand (1) the effect of perceived fit on self-efficacy and intrinsic and extrinsic motivation, (2) the relationship between self-efficacy and these two motivations, and (3) the identification of the customers' behavior in relation to self-efficacy and these two motivations. The subsequent section describes the data collection procedures, survey measurement validation, and hypotheses testing using AMOS. In last section, the implications of this paper are discussed.

Research Background

Perceived fit of self-customization

The self-customization feature of an Internet-based service allows customers to customize offerings to their own preferences. Customers directly present their preference to their service, which leads to an increased fit of the customized product (Simonson 2005). An optimal level of self-customization can be identified as the extent to which the perceived fit closely reflects the customer's preferences and needs. Service providers attempt to narrow the gap between tailored services and customers' expectations regarding their preferences, tastes, and needs. Customers evaluate how well the tailored service fits their expectations after using a self-customized service (Gretzel and Fesenmaier 2006). Perceived fit is defined as the extent to which a customer perceives that the result of the tailored service and preferences correspond to his needs (Gretzel and Fesenmaier 2006). Although, the perceived fit has been identified as a major determinant of the customer's behavior and attitudes, how the perceived fit leads to the customer's behavior with a self-customized service has been overlooked.

The perceived fit is addressed by way of the expectation-confirmation theory. In this research study, the perceived fit of self-customization is explained as a confirmation of service. Confirmation is defined by the gap between the

user's level of expectations toward the products/services and the level of perceived actual performance of the products/services (Oliver 1980). The user perceives the personalized product or service as a result of his evaluation of how much the product or service fits his preference and needs. Therefore, the perceived fit of personalization connotes the concept of confirmation regarding the difference between the performance (the obtained outcome after executing personalization) and the pre-expectations (the expected outcome before executing personalization).

Past studies have shown perceived fit to be an important determinant of performance and related to the role played by self-customization with regard to customer beliefs and attitudes. This research attempts to explain how the perceived fit of self-customization enhances both the motivation of customers and the benefits they garner from the service provided.

Self-efficacy

Bandura (1989) identified four information cues that influence self-efficacy. Ranging from most influential to least influential, these information cues are: enactive mastery, vicarious experience, verbal persuasion, and emotional (physiological) arousal. While these cues provide important data, Bandura noted that it is the cognitive appraisal and integration of these data that ultimately determines self-efficacy. First, enactive mastery, defined as repeated performance accomplishments (Bandura 1989), has been shown to enhance self-efficacy more than the other types of cues (Bandura 1977; 1989).

Bandura and Schunk (1981) suggested that "a sense of personal efficacy in mastering challenges is apt to generate greater interest in the activity than is self-perceived inefficacy in producing competent performances" (p. 587). In an explicit test, the authors found self-efficacy to relate positively to intrinsic interest.

Successful outcomes require the ability to use Internet technology, which, in this context, is called self-efficacy. Self-efficacy is defined as the belief in one's ability to perform a specific task (Bandura 1989). Self-efficacy influences decisions about behaviors that fulfill actions (undertake the mastery of the behavior). Thus, people who have high self-efficacy are likely to put forth more effort and persistence when faced with obstacles. With greater self-efficacy, users are more comfortable and have more confidence in themselves regarding the processes and outcomes of online environments. Self-efficacy is a driver of behavior when people are faced with unfamiliar technology and environments. In IS research, self-efficacy with regard to specific software packages, computers, and the internet is related to their performance in a technology-based environment.

In social cognitive theory, self-efficacy is shaped by environmental influences or by human internal dispositions (Bandura 2001). Although self-efficacy as an internal disposition has been widely discussed in the literature, relatively little is known about self-efficacy as an individual characteristic shaped by environmental factors. The belief about one self's ability is affected by the experience of performing tasks in an environment, especially where external cues, such as positive feedbacks, are provided (Bandura 1997; van Beuningen et al. 2011). This implies that as customers accumulate the experience of using self-service, their self-efficacy improves and their attitude toward using the self-service becomes more positive. Therefore, we consider self-efficacy to be determined by the experience of using a self-customization service rather than treating it as an individual's personal trait.

Hypotheses Development

Perceived fit of self-customization and self-efficacy

The modern self-service technology environment allows customers to design the service system according to their preferences. They can customize the interface and its functionality by selecting from the options provided in the menu. The options that they choose define the service process and the web interface through which they carry out tasks and communicate with the service provider. Although self-customization can subsequently occur, as needed, after the initial customization, at a certain point in time the customers will have their own perception about the fit between their preferences and the actual performance of the current self-customized interface as a result of their post-evaluation of the service they experience in the self-service environment.

According to social cognitive theory (SCT) (Bandura 1989; 2001), a personal mastery experience along with verbal persuasion, such as encouragement and support from others, strengthens an individual's beliefs about self-efficacy and a person becomes more proactive by taking appropriate actions when difficulties occur. Mathieu et al. (1993)

found that people who initially experienced a greater success evidenced greater self-efficacy development in the same or similar situation. In our context, a high level of perceived fit indicates a successful self-customization experience, which results in a positive evaluation of self-customization. Therefore, we posit that a high fit perception formed by a positive experience of self-customized service will strengthen the user's belief about his or her capabilities to execute the courses of actions required to attain the desired self-service performances. Thus, we propose the following hypothesis:

Hypothesis 1: The user's perceived fit of self-customized service is positively related to self-efficacy.

If given the ability to self-customize the service interface, customers would consider the tasks they want to accomplish and try to optimize the expected fit between the tasks and the customized interface. According to task-technology fit models, this fit is positively associated with perceived benefits from using the technology (Goodhue and Thompson 1995). A good fit between the task and the interface achieved through self-customization will result in a high level of perceived fit between the actual personalization and the preferences of the user. This fit perception is expected to enhance the perceived benefits from using the tailored e-service (Valenzuela et al. 2009; Franke et al., 2009).

Perceived usefulness and perceived enjoyment are the primary benefits of using IT/IS during the adoption and post-adoption stage (van der Heijden 2004; Thong et al. 2006). Perceived enjoyment is defined as the extent to which the activity of using the computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated (Davis et al. 1992). Perceived enjoyment has been widely used as an affective measure of the user experience (Kamis et al. 2008; Koufaris 2002; Novak et al. 2000). Flow theory suggests that a good fit between the skills and challenges of a task increases enjoyment. In online shopping, a good fit between the interface and the task is shown to increase perceived enjoyment (Koufaris 2002; Novak et al. 2000). In a study exploring the effect of the fit of DSS between the task and information representation, Kamis, Koufaris, and Stern (2008) have shown that the good fit offered by an attribute-based DSS for product customization is positively related to perceived enjoyment. Furthermore, the customization features of an interface also increase enjoyment by increasing the pleasure of participation and reinforcing the excitement of being capable of satisfying personal needs (Dellaert and Dabholkar 2009). The interactive feature of co-design and customization processes create an exciting experience for consumers and make these processes enjoyable (Fiore et al 2004; Lee and Chang 2011). Similarly, Franke, Schreier, and Kaiser (2009) asserted that the product created through self-customization has not only an instrumental value but also a psychological value for the originator.

Perceived usefulness refers to the degree to which a person believes that using a particular system would enhance his or her performance (Venkatesh et al., 2002). In our context, customers self-customize the service interface in such a way that they can reduce the complexity of their interactions with the e-service provider. The result is that customers can attain their intended goal in a more effective and efficient manner. Therefore, when the users perceive the interface to have a better fit, they will perceive it to be more instrumental in assisting them in goal achievement. Given these discussions, we posit that the perceived fit has positive effects on perceived enjoyment and usefulness.

Hypothesis 2: The user's perceived fit of self-customized service is positively related to the perceived enjoyment.

Hypothesis 3: The user's perceived fit of self-customized service is positively related to the perceived usefulness.

Relationships among self-efficacy and extrinsic and intrinsic motivation

Two fundamental types of motivation—extrinsic and intrinsic—have been identified as the key determinants of general behavior, including IS acceptance behavior (Davis et al. 1992; Teo et al.1999). Many past studies have viewed perceived usefulness as a form of extrinsic motivation while perceived enjoyment has been viewed as a form of intrinsic motivation for IS adoption and usage (Lee et al. 2005; Teo et al. 1999; Van der Heijen 2004). Based on SCT, we argue that self-efficacy enhances both a customer's extrinsic and intrinsic motivation to use the self-customized interfaces.

SCT suggests that self-efficacy beliefs regulate human functioning through cognitive, affective, and decision-making processes, and contributes significantly to the individual's level of motivation and performance (Bandura 1977). A person's self-efficacy beliefs determine his level of motivation as reflected in how much effort he/she should exert and how long he/she should persevere to attain his/her goals. Furthermore, self-efficacy is positively related to outcome expectations, which are derived from judgments of how well the person can execute the requisite behavior (Bandura 1977). In their study on computer use, Compeau Higgins, and Huff (1999) have shown that

computer self-efficacy is positively related to performance-related outcome expectations that reflect expected improvements in job performance. This suggests that self-efficacy will induce the user's extrinsic motivation for using self-customization services. In an e-service context, customers who have stronger self-efficacy beliefs have higher evaluations of the service quality of the technology-based services and thus find the service more useful and more valuable (van Beuningen et al. 2009).

Hypothesis 4: The user's self-efficacy will increase perceived usefulness of IM.

SCT also reports that self-efficacy has a positive relationship with intrinsic motivation. Bandura and Schunk (1981) argued that, when dealing with an activity, a sense of self-efficacy is likely to generate a greater interest in that activity. This demonstrates that people with strong self-efficacy are likely to have a high level of intrinsic interest. Along this line of reasoning, in their longitudinal model of computer self-efficacy Compeau et al. (1999) argued that computer self-efficacy influences not only usefulness (or performance-related outcomes) but also affective responses, such as the enjoyment and anxiety users experience when using their computers. Other studies from different perspectives have shown the positive relationship within the Internet and computer usage context (Agarwal and Karahanna 2002; Sun and Zhang 2006) and in Internet shopping (Kamis et al. 2010). Thus, we posit the following:

Hypothesis 5: The user's self-efficacy will increase perceived enjoyment of IM.

According to Bandura (1977), self-efficacy plays an important role by regulating human functioning through cognitive, motivational, and decision-making processes. Motivation is mainly concerned with how behavior is activated. Social cognitive theory maintains that people with strong self-efficacy beliefs motivate themselves through proactive personal control by exerting a great deal of effort when engaging in an endeavor and setting challenging goals for themselves (Bandura 1989; Bandura and Locke 2003). Customers with a strong self-efficacy belief formed through self-customization are expected to be highly motivated to use the customized interface and more willing to accomplish the intended goals. The positive relationship between self-efficacy and usage and the adoption intention or usage behavior of IS has been supported in prior research (Compeau Higgins, and Huff 1999; Igbaria and Ilvari, 1995; van Beuningen et al. 2009). Therefore, we propose the following hypothesis:

Hypothesis 6: The user's self-efficacy will increase the intention to continue to use IM.

Motivations and continued usage intention

Motivation is the driving force by which people achieve their goals. As previously discussed, perceived usefulness and enjoyment have been treated as motivational factors for adopting and using IS. When people enjoy playful activities they are likely to be more engaged in the task and therefore more likely to act. In a similar way, the expectation that using the IS will result in performance improvement will increase the user's usage intention. These positive relationships between usage and the two motivational sources have been empirically validated in several studies (Davis, Bagozzi, and Warshaw 1992; Teo, Lim, and Lai 1999). The IS continuance literature also reported that these two motivational sources are positively associated with continued IS usage intention (Thong et al 2006).

Hypothesis 7: The perceived enjoyment of IM will increase the intention to continue to use IM.

Hypothesis 8: The perceived usefulness of IM will increase the intention to continue to use IM.

Only fairly recently have researchers started to address the role of motivation in the study of IT adoption and usage (Lee et al. 2005; Venkatesh et al. 2002). The direct relationship between perceived usefulness and perceived enjoyment has received considerable attention in IS research (Agarwal and Karahanna 2000; Hong and Tam 2006; Qiu and Benbasat 2009; Roca and Gagné 2008; Venkatesh et al. 2002). Perceived enjoyment has been empirically confirmed to enhance perceptions of perceived usefulness (Shang et al. 2005; Venkatech et al. 2002). From the motivational perspective, perceived usefulness (extrinsic motivation) and perceived enjoyment (intrinsic motivation) are important antecedents to predict behaviors such as adoption and usage. Deci and Ryan (1985) suggested that intrinsic motivation can reinforce the effect of extrinsic motivation on tasks that are intrinsically motivating. This suggests that when people experience enjoyable, fun and playful activities they are more likely to be engaged in the task, are more likely to find it more useful, and, therefore, are more willing to act.

As Millar and Millar (1996) argued, direct experience produces a more affective response than indirect experience. According to their study, affective responses to the environment can enhance or deter the effects of cognitive responses and would be considered as antecedents to cognitive responses. In other words, direct experience can

evoke an affective response that again determines cognitive responses. In the present study, direct experience refers to the direct participation of the user in the interface customization process. Therefore, the self-customization experience is expected to elicit an affective response or feeling of enjoyment, which then creates the cognitive response that the self-customized interface is useful. Thus, we hypothesize the following:

Hypothesis 9: The perceived enjoyment of IM will increase the perceived usefulness.

Our conceptual model, including the hypotheses, is shown in Figure 1.

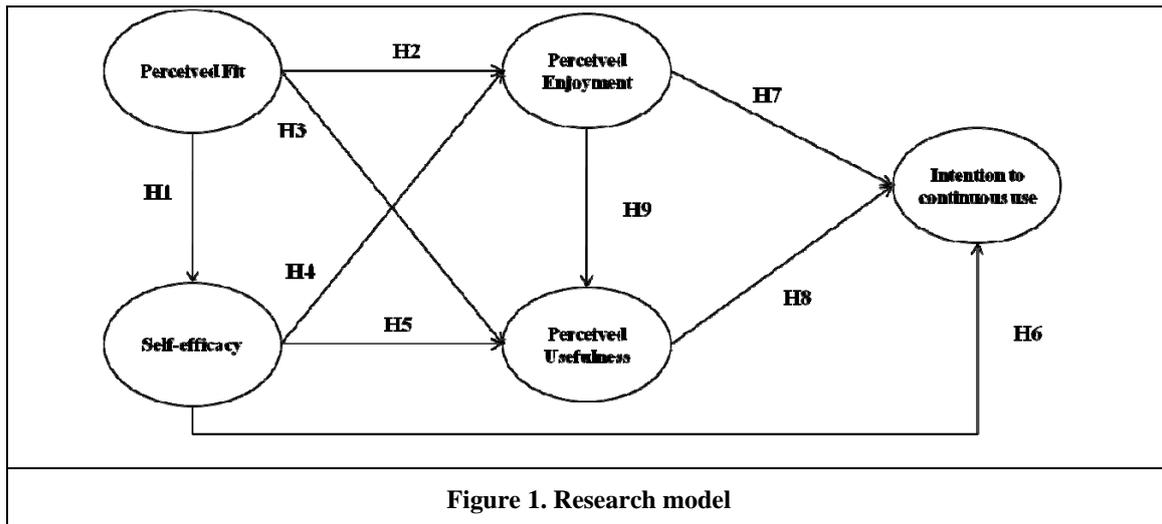


Figure 1. Research model

Research Method

The hypotheses were tested using an online survey questionnaire administered to instant messenger (IM) users. We chose to analyze IM users for two reasons. First, the study focuses on continued use of a self-customized service. All respondents were required to have prior experience using a self-customized service. IM is a commonly used online communication method. Additionally, IM users typically personalize their messenger’s interface by changing appearances, attaching pictures, adjusting the menu and functions, and using nicknames. The users customize their IM service to make it personal, unique, and convenient to use. Secondly, users use an IM service daily to connect to and communicate with their friends online.

Using an online survey, we collected data from 640 users of NateOn, which is the most popular instant messaging service in Korea. The respondents are undergraduate students (61.3% male and 38.3% female) who are enrolled in a large university in Seoul, Korea. About 84.2% of the respondents are between the age of 20 and 26. Respondents are familiar with NateOn; the participants’ frequency of use is as follows: between six months and three years (5.9%), from three to five years (50.3.9%), and over five years (39.5%). All respondents customized at least one feature provided in the original NateOn interface, including using a nickname and personal picture or changing the appearance of the IM window.

Data collection

Respondents indicated their demographic information and responded to questions concerning their NateOn use (i.e., the length of time the messenger had been used, whether they had personally altered the messenger’s appearance, and their level of usage). Before respondents filled out the questionnaire, they were shown examples illustrating the difference between a standard and a self-customized IM service to remind them of what the researchers meant by a self-customized IM service (Figure 2).

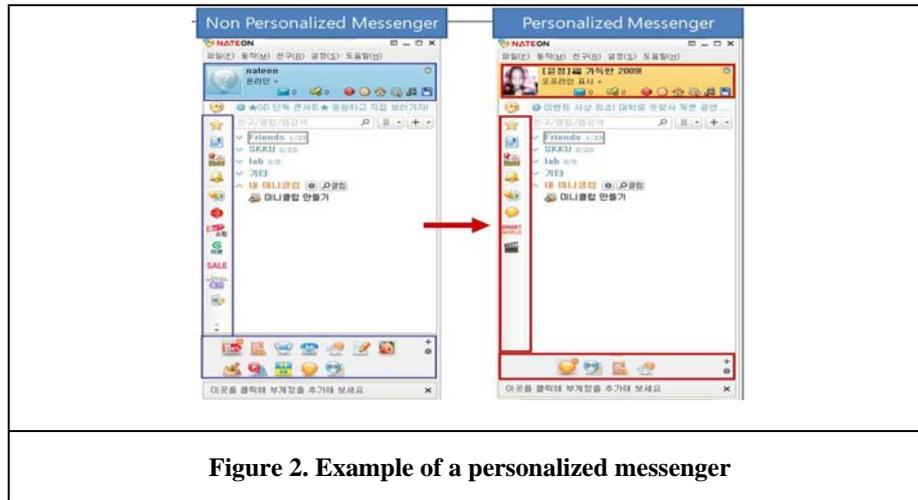


Figure 2. Example of a personalized messenger

Measurement

In this study, all measurements were recorded on a seven-point Likert scale (1 = strongly disagree, 4 = moderately agree and 7 = strongly agree). All of the measurements used in the present study were adapted from past studies as follows: the perceived fit of self-customized service measurement was adapted from Gretzel and Fesenmaier (2006), the self-efficacy measurement was adapted from Van Beuningen et al. (2009), the continued usage intention measurement was adapted from Bhattacharjee (2001), and the perceived usefulness and perceived enjoyment measurements were adapted from Venkatesh, Morris, Davis, and Davis (2003). The measurement items are listed in Table 1.

Table 1. Constructs and measures				
Constructs	Measures	Mean	Std.	Cronbach's Alpha
Perceived fit (Gretzel & Fesenmaier 2006)	This messenger reflects what I want. This messenger suits my needs. This messenger is exactly what I want	4.099	1.252	0.900
Self-efficacy (van Beuningen et al. 2009)	I believe that using this messenger is a task on which I can perform well. I am certain I can use this messenger well. I believe that it is possible for me to use this messenger at the level I would like.	4.700	1.227	0.925
Perceived Enjoyment (Venkatesh et al.2003)	I find using this messenger to be enjoyable The actual process of using this messenger is pleasant I have fun using this messenger	4.120	1.177	0.945
Perceived Usefulness (Venkatesh et al.2003)	Using this messenger would enable me to accomplish tasks more quickly. Using this messenger would enhance my effectiveness on the tasks. I would find this messenger useful in my tasks.	4.727	1.198	0.941
Continued Usage Intention (Bhattacharjee 2001)	I intent to continue to use this messenger My intentions are to continue to use this messenger If I could, I would like to continue my use of this messenger. I plan to continue to use this messenger in the future.	5.077	1.237	0.949

Results

Measurement model

The measurement model was checked using a confirmatory factor analysis in order to test for the reliability and the validity of the constructs. Table 2 summarizes the results of the measurement model. The standardized loadings of each of the measurement items underlying a construct are shown with their composite reliability and the average variance extracted. These loadings indicate that the measurement model performed well. The cross-loading matrix is provided in Table 2, which indicates that both strong convergent validity and discriminate validity exist in the measurement model (Chin 1998).

The composite reliability and AVE of each latent variable used in this study is provided in Table 3. All composite reliabilities are higher than 0.80 and the AVE is higher than 0.50. These results support that the measurement model has strong convergent validity. Following the procedure suggested by Fornell and Larcker (1981), we tested discriminant validity by comparing the AVE of each construct with the variance shared with other constructs (squared correlations). Furthermore, Table 3 shows the ratio of the square root of the AVE of each latent variable over the correlations of this variable with respect to all the other variables. The reliability of the collected data was examined using Cronbach's α values and composite reliability. All factors were greater than 0.7 and, thus, the data set is considered reliable (Table 2).

Table2. Items loading and cross-loading (reliability and discriminant validity)							
	Perceived fit	Self-efficacy	Perceived enjoyment	Perceived usefulness	Continued Usage Intention	Composite Reliability	AVE
PF1	0.907	-0.516	-0.416	-0.182	-0.180	0.938	0.834
PF2	0.939	-0.158	-0.278	0.218	0.114		
PF3	0.894	-0.364	-0.207	0.236	0.131		
SE1	-0.064	0.933	-0.301	-0.271	-0.184	0.953	0.87
SE2	-0.156	0.952	-0.417	-0.056	-0.026		
SE3	0.096	0.914	-0.364	-0.024	0.001		
ENJ1	0.435	0.254	0.944	0.289	0.159	0.965	0.901
ENJ2	0.439	0.281	0.956	0.290	0.317		
ENJ3	0.413	0.238	0.947	0.348	0.256		
PU1	0.371	0.234	0.037	0.946	0.239	0.962	0.894
PU2	0.219	-0.028	0.114	0.950	0.173		
PU3	0.282	0.068	0.009	0.941	0.097		
INT1	0.055	0.084	0.145	-0.167	0.955	0.967	0.908
INT2	0.109	0.125	0.181	-0.127	0.957		
INT3	0.124	0.145	0.213	-0.005	0.947		

In Table 3, the diagonal elements in parentheses are correlations of each construct with its measure, which is the square root of AVE. The off-diagonal elements are correlations between the constructs. Each construct is more highly correlated with its own measure than with any of the other constructs. This indicates that strong discriminant validity exists among the constructs (Chin 1998).

Construct	AVE	Composite Reliability	SE	PER	ENJ	PU	INT
Self-efficacy	0.848	0.944	1				
Perceived personalization	0.845	0.938	0.320*	1			
Perceived enjoyment	0.901	0.965	0.387	0.300*	1		
Perceived usefulness	0.894	0.962	0.442	0.294	0.591*	1	
Continued Usage Intention	0.790	0.937	0.425	0.296	0.529	0.633*	1

Note: * $p < 0.05$

To check the common method bias, we first conducted Harman's single-factor test with principal components factor analysis (Podsakoff and Organ 1986). According to this approach, common method variance is present if a single factor accounts for the majority of the covariance in the dependent and independent variables. Results from this test showed that single factor did not explain a majority of the variance, thus supporting that common method biases are not a likely contaminant of our results. Next, we tested the PLS model including the common method factor (see Liang, Saraf, Hu, and Xue (2007). Indicators of the common method factor included all the principal construct items, using the research model, and estimated each indicator's variances substantively explained by the principal construct. As shown in Appendix 1, the result from this test revealed that the average substantively explained variance of the indicators is 0.88, while the average method based variance is 0.002. The ratio of substantive variance to method variance is approximately 440:1. Given the small magnitude and insignificance of the method variance, we may conclude that the method is unlikely to be a serious concern for this study. In summary, all preceding tests suggest that common method bias does not seem to be a serious concern in this study.

The measurement model test presented a good fit between the data and the proposed measurement model. Table 4 presents the overall fit of the measurement model. The fit indices indicate a reasonable fit of the data: $\chi^2(1,478) = 2,474.99$, $p < .001$, root mean square error of approximation (RMSEA) = .067, goodness of fit index (GFI) = .939, root mean square residual (RMR) = .059, normed fit index (NFI) = .967, and confirmatory fit index (CFI) = .975. All factor loadings are reported in Table 2. The correlation matrix with means and standard deviations of this study's constructs are displayed in Table 1. The $\chi^2/d.f.$ value is 3.885, which falls into the range of two and five as suggested by Joreskog and Sorbom (1989). Based on these indices, we conclude that the model has a good fit to the data.

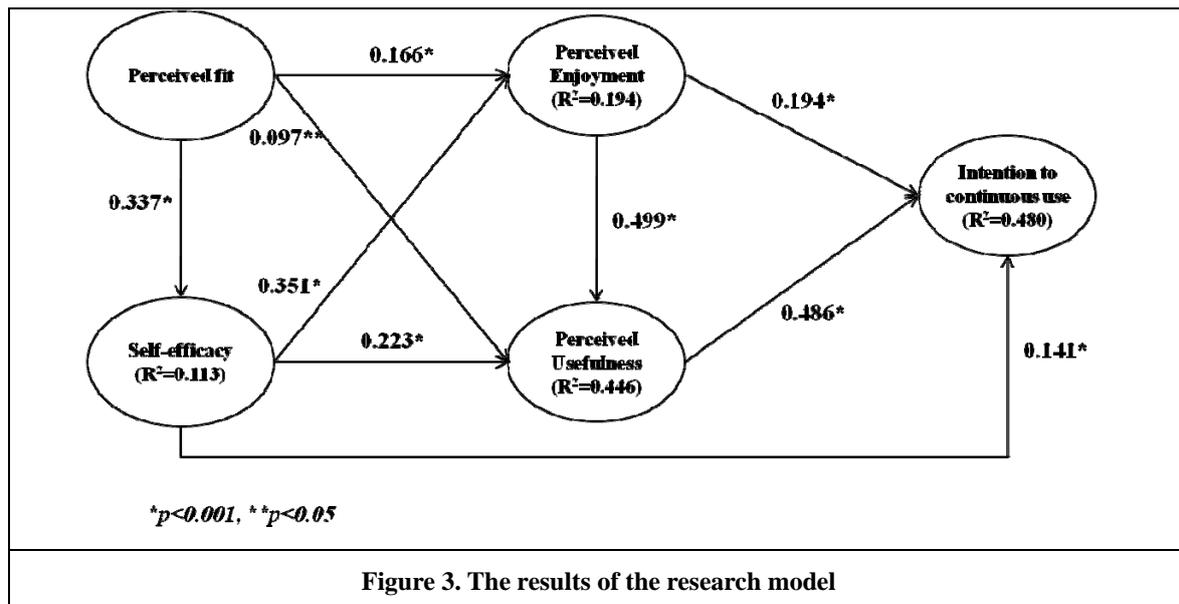
Measure	Value
Root mean square residual (RMR) (<0.05)	0.059
Goodness of fit index (GFI) (>0.9)	0.939
Normed fit index (NFI) (>0.9)	0.967
Non-normed fit index (>0.9)	0.968
Comparative fit index (>0.9)	0.975
Root mean square error of approximation (RMSEA) (<0.05–0.08)	0.067

Model testing results

The established model and the research hypotheses based on the model were then tested using AMOS 4.0. The AMOS analysis for the hypothesized model resulted in a good model fit (Hair et al. 1995): the ratio of chi-square to degrees of freedom (df), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the comparative fit index (CFI), the normed fit index (NFI), and the root mean squared error of approximation (RMSEA). Satisfactory fits are obtained when the GFI, AGFI, CFI, and NFI are greater than or equal to 0.9, and the RMSEA is less than or equal to 0.08 (Bentler and Bonnett 1980; Chin and Todd 1995). Due to the expected effect of the large sample size on the chi-square significance (Anderson and Gerbing 1988), in this study the ratio of chi-square to degrees of freedom was chosen as the preferred fit measure (Bearden et al. 1982). This ratio should be less than or equal to 5.

Measure	Value
Goodness of fit index (GFI) (>0.9)	0.939
Normed fit index (NFI) (>0.9)	0.967
Non-normed fit index (>0.9)	0.968
Comparative fit index (>0.9)	0.975
Root mean square error of approximation (RMSEA) (<0.05–0.08)	0.064
AGFI	0.910
$\chi^2=313.152$, d.f=81 $p<0.00$, The ratio of chi-square/ degrees of freedom (df)= 3.866	

In this study, the standardized path coefficients related to the hypotheses were all found to be significant as shown in Figure 3. Consistent with H1-H3, the perceived fit of a self-customized service is positively related to self-efficacy ($\beta = 0.337$, $p < 0.001$), perceived enjoyment ($\beta = 0.166$, $p < 0.001$), and perceived usefulness ($\beta = 0.097$, $p < 0.05$). In support of Hypotheses 4-6, self-efficacy is a significant predictor of perceived enjoyment ($\beta = 0.351$, $p < 0.001$), perceived usefulness ($\beta = 0.223$, $p < 0.001$), and intention of continued usage ($\beta = 0.141$, $p < 0.001$). As expected, Hypotheses 7-8 are also supported the following findings: continued usage intention is related positively to perceived enjoyment ($\beta = 0.194$, $p < 0.001$) and perceived usefulness ($\beta = 0.486$, $p < 0.001$). Perceived enjoyment significantly influences perceived usefulness ($\beta = 0.499$, $p < 0.001$), thus supporting Hypothesis 9.



DISCUSSION AND IMPLICATIONS

Discussion

This study seeks to provide a theoretical framework to investigate the role of self-customization in forming the intention of continued IS usage, in particular in the context of instant messaging services that are pervasive among users of portal sites, social networking sites, and smart phone applications. From the statistical analyses, we find that self-efficacy beliefs formed by the fit perception play a central role in motivating users to continue to use instant messaging services.

The results indicate that perceived fit plays a significant role in directly affecting the two motivations (H2, H3) with standardized coefficients of 0.17 and 0.10. This finding is in agreement with similar results in existing research (Thong et al. 2006; Kang et al. 2008; Kim et al. 2007) that is based on the IS continuance model in accordance with the expectation-confirmation theory (ECT).

In ECT, confirmation is defined by the fit between the user's level of expectation toward products/services and the level of perceived actual performance of the products/services (Oliver 1980). Confirmation is a critical antecedent to post-expectations, such as perceived enjoyment and usefulness that is formed by the acquisition of expected benefits through experiences with the IS. Moreover, evidence suggests that both perceived enjoyment and usefulness have a greater impact by affecting the intention of continued usage (Hong et al. 2006; Lin et al. 2005; Thong et al. 2006). This study shows similar results with regard to the effect of perceived usefulness and perceived enjoyment on continuous usage (H7, H8).

Additionally, perceived usefulness is a more powerful influence on continuous use than perceived enjoyment. Our research tested the link between perceived usefulness and perceived enjoyment, which were both included in the examination of continued usage in a self-customized setting (H9). The customers' behaviors are directly influenced by extrinsic motivation, which is directly activated by intrinsic motivation. These results show that intrinsic motivation plays an indirectly significant role within the context of the customers' behaviors.

Craig et al. (2009) found that self-efficacy, as it is perceived by customers, is still the core determinant of use service by customers familiar with that service, with a standardized coefficient of 0.14 (H6). This result indicates that self-efficacy is likely to be a relevant predictor of customers who have already been exposed to the service. According to social cognitive theory, self-efficacy is formed by the relationship between personal, behavioral, and environmental determination, which is circular. That is, people observe their own success while following explicit directions that strengthen belief in their ability and thus attain performance. Hence, self-efficacy also enhances customer motivation (both intrinsic motivation and extrinsic motivation) (H4, H5). In Bandura's SCT, people are motivated by the belief in their ability to perform the task. In IS research, studies have shown that the relationship is not found between general self-efficacy and motivation but between computer Internet self-efficacy and motivation (Compeau and Higgins 1996).

Our findings provided empirical evidence supporting the validity of the model in the context of a self-customized service. However, as this study was limited in several ways, caution should be exercised in the interpretation of our findings. First, the data collected was obtained only from users engaged with one specific company object. This may have limited the generalizability of our results. Secondly, even though our data collection method involved asking individuals to check which level of online messenger's personalization they experienced, there was no way to confirm how much a user changed and modified his or her own online messenger. Despite these limitations, this study did ultimately generate several intriguing and possibly salient outcomes.

Implications

This study's findings extend the area of prior research. First, this study investigates the role of the perceived fit that is evoked during the process of tailoring an IM service during continued use of a self-customized service. Thus, consumer self-efficacy and motivation, which are related to a continued use self-customized service, are enhanced by the perceived fit. Owing to this finding, we understand how self-customized service makes customers lock in.

Secondly, previous research has pointed towards the relevance of self-efficacy in the context of self-service technology. However, as far as we know, research has placed little focus on self-efficacy (to produce services by

oneself). In IS research, Internet/computer self-efficacy was a more important factor than self-efficacy. This research has extended the performance implications of self-efficacy in relation to services. Because self-efficacy predicts service evaluations, it is important to identify self-efficacy in the service setting.

Thirdly, the research contributes to a better understanding of the factors that influence self-efficacy in customers so as to promote self-customization. Whereas most self-efficacy research uses prior performance and previous experience as important self-efficacy antecedents, this study offers insight into antecedents when experience and prior performance are lacking. In this case, perceived fit due to prior experience or performance that facilitates task execution is used by experts to foster self-efficacy. Finally, in previous research, studies of self-efficacy have mainly shown the relationship between performance and customer behavior. The results of this research study support the idea that self-efficacy service use may enhance the customer's perception of the benefits of a given service. This finding has implications for the self-efficacy literature because the perceived fit as prior experience demonstrates the antecedent of self-efficacy.

From a practical viewpoint, the results of this study offer management suggestions about how to offer self-customization in complex online environments. Self-customization requires both customers and service providers to invest their effort and time. Thus, customers need the ability to produce services as a service provider. The service provider helps customers enhance their belief in their abilities. In a technology-based service environment, customers should be able to solve their problems using a self-service technology. Therefore, firms should attempt to find a way to enhance customer self-efficacy. The findings of this study demonstrate that service providers should provide self-customizable interface environment for users. Self-customization in which customers create their own services will provide customers with control and freedom and thus enjoyment. Service providers should design the service process to incorporate a perceived fit that reflects the customer's preferences. Customers are likely to evaluate the extent to which a self-customized service meets their preference and needs. In other words, customers are able to simultaneously use the service and produce their own services as a service provider. If a firm's objective is to build customer self-efficacy in a technology-based service environment, self-customization should be the most important criterion. The influence of the customer on the service provider could be realized directly in self-customization, which means the customer will have recognized his or her capability. Furthermore, self-efficacy drives customer motivation and behavior, so service providers should pay special attention to that factor.

Conclusion

The model presented in this study provides a broad conceptual framework that helps increase our understanding of the relationship between the perceived fit and continuance use of self-customization in relation to self-efficacy and intrinsic motivation and extrinsic motivation. This study's findings make significant contributions to developments related to perceived fit and self-efficacy in a self-customized service and to managing service providers. The results uncover the underlying factors that affect self-efficacy in a self-customized service environment in relation to customer motivation and behavior. The relationship between perceived fit and self-efficacy enhances the customers' perceptions of the benefits of a tailored service and increases their motivation for continuous usage. This research identifies the relationship between self-efficacy, perceived enjoyment, and usefulness, which previously have not been extensively examined in IS research. Moreover, the research on self-efficacy could be extended to link not only to specific technology, but also to specific IS tasks. By extending the research on self-efficacy in the field of IS, this research study demonstrates the practical implications for the effects of perceived fit and self-efficacy on a lock-in service.

References

- Agarwal, R., and E. Karahanna, 2000. "Time flies when you're having fun: cognitive absorption and beliefs about information technology usage," *MIS Quarterly* (24:4), pp.665-695.
- Anderson, J.C., and Gerbing, D.W. 1988. "Structural equation modeling in practice: A review and recommended two-step approach," *Psychological Bulletin* (103:3), pp.411-423.
- Bandura, A. 1977. "Self-efficacy: Toward a unifying theory of behavioral change," *Psychological Review* (84:2), pp. 191-215.
- Bandura, A. 1989. "Human Agency in Social Cognitive Theory," *American Psychological* (44: 9), pp.1175-1184
- Bandura, A. 1997. *Self-efficacy: The exercise of control*, New York: W H Freeman.
- Bandura, A. 2001. "Social cognitive theory of mass communication," *Media Psychology* (3:3), pp.265-299.
- Bandura, A. and Locke, E. 2003. "Negative self-efficacy and goal effects revisited," *Journal of Applied Psychology* (88:1), pp.87-99.
- Bandura, A. and Schunk, D. H. 1981. "Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation," *Journal of Personality and Social Psychology* (41:3), pp. 586-598.
- Bearden, W.O., Sharma, S. and Teel, J.E. 1982. "Sample size effects on chi square and other statistics used in evaluating causal models," *Journal of Marketing Research* (19:4), pp. 425-430.
- Bentler, P., and Bonnett, D. G. 1980. "Significance tests and goodness of fit in the analysis of covariance structures," *Psychological Bulletin* (88:3), pp.588-606.
- Bhattacharjee, A. 2001. "Understanding information systems continuance: an expectation confirmation model," *MIS Quarterly* (25:3), pp.351-370.
- Blom, J. 2000. "Personalization - A Taxonomy," In *Proceedings of the Conference on Human Factors in Computing Systems*, T. Turner (ed.), The Hague, The Netherlands, pp. 313-314.
- Chin, W. W. 1998. "Issues and opinion on structural equation modeling," *MIS Quarterly* (21:1), pp.7-16.
- Chin, W.W., and Todd, P.A. 1995. "On the use, usefulness, and ease of use of structural equation modeling in MIS research: A note of caution," *MIS Quarterly* (19: 2), pp. 237-246.
- Compeau, D., Higgins, C. A. and Huff, S. 1999. "Social cognitive theory and Individual reactions to computing technology: a longitudinal study," *MIS Quarterly* (23:2), pp.145-158.
- Craig, K., Tams, S., Clay, P. and Thatcher, J. 2010. "Integrating Trust in technology and Computer Self- Efficacy within the Post-Adoption Context: An Empirical Examination," in *Proceedings of the Sixteenth Americas Conference on Information Systems, Lima, Peru*.
- Davis, F. D., R. P. Bagozzi, and Warshaw, P. R. 1992. "Extrinsic and intrinsic motivation to use computers in the workplace," *Journal of Applied Social Psychology* (22:14) pp. 1111-1132.
- Deci, E.L. and Ryan, R.M. ,1985. *Intrinsic Motivation and Self-determination in Human Behavior*, New York: Plenum.
- Dellaert, B.G.C. and Dabholkar, P.A. 2009. "Increasing the Attractiveness of Mass- Customization: The Role of Complementary Online Services and Range of Options," *International Journal of Electronic Commerce* (13:3), pp. 43-70.
- Fiore, A.M., Lee, S.E. and Kunz, G. 2004. "Individual Differences, Motivations, and Willingness to Use aMass Customization Option for Fashion Products," *European Journal of Marketing* (38:7), pp. 835-49.
- Fornell, C., and Larcker, D. 1981. "Structural equation models with unobservable variables and measurement error," *Journal of Marketing Research* (18:1), pp. 39-50.
- Franke, N., Schreier, M. and Kaiser, U. 2009. "The "I Designed It Myself" Effect in Mass Customization," *Management Science*, (56:1), pp.25-140.

- Gershoff, A. D., Mukherjee, A. and Mukhopadhyay, A. 2003. "Consumer Acceptance of Online Agent Advice: Extremity and Positivity Effects," *Journal of Consumer Psychology*, (13:1-2), pp. 161-70.
- Goodhue, D.L. and Thompson, R.L. 1995. "Task-technology fit and individual performance," *MIS Quarterly* (19: 2), pp. 213-236
- Gretzel, U., and Fesenmaier, D. R. 2006. "Persuasion in Recommender Systems," *International Journal of Electronic Commerce* (11:2), pp. 81-100.
- Hair, J. J. F., Anderson, R. E., Tatham, R. L. and W. C. Black, 1995. *Multivariate Data Analysis with Readings*, Englewood Cliffs, NJ: Prentice-Hall.
- Hong, S. J., and Tam, K. Y. 2006. "Understanding the Adoption of Multipurpose Information Appliances: The Case of Mobile Data Services," *Information Systems Research* (17:2), pp.162-179.
- Igbaria, M. and Iivari, J. 1995. "The effects of self-efficacy on computer usage," *Omega* (23:6), pp.587- 605.
- Joreskog, K. G., and D. Sorbom, 1993. *LISREL8: Structural equation modeling with the SIMPLIS command language*, NJ: Erlbaum.
- Kamis, A., Koufaris, M. and Stern, T. 2008. "Using an Attribute-Based Decision Support System for User-Customized Products Online: An Experimental Investigation." *MIS Quarterly* (32:1), pp. 159-177.
- Kamis, A., Stern, T. and Ladik, D.M. 2010. "A flow-based model of web site intentions when users customize products in business-to-consumer electronic commerce," *Information Systems Frontiers* (12:2), pp.157-168.
- Kang, Y. S., Hong, S. and Lee, H. 2009. "Exploring continued online service usage behavior: The roles of self-image congruity and regret," *Computer in Human Behavior* (25:1), pp. 111-122.
- Kim, H.-W., Chan, H. C. and Chan, Y. P. 2007. "A balanced thinking-feelings model of information systems continuance," *International Journal of Human-Computer Studies* (65:6), pp.511-525.
- Koufaris, M., 2002. "Applying the Technology Acceptance Model and Flow Theory To Online Consumer Behavior," *Information Systems Research* (13: 2), pp. 205-224.
- Kramer, T., 2007. "The Effect of Measurement Task Transparency on Preference Construction and Evaluations of Personalized Recommendations," *Journal of Marketing Research* (44:2), pp.224-233.
- Lee, H.H. and Chang, E. Y. 2011, "Consumer Attitudes Toward Online Mass Customization: An Application of Extended Technology Acceptance Model," *Journal of Computer-Mediated Communication* (16:2), pp. 171-200.
- Lee, M. K.O., Cheung, C. M.K. and Chen, Z. 2005. "Acceptance of Internet-based learning medium; the role of extrinsic and intrinsic motivation," *Information & Management* (42:8), pp. 1095-1104
- Liang, H., N. Saraf, Q. Hu and Xue, Y. 2007. "Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management," *MIS Quarterly* (31:1), pp. 59-87.
- Lin, C.S., Wu, S., Tsai, R. J. 2005. "Integrating perceived playfulness into expectation-confirmation model for web portal context," *Information & Management* (42:5), pp. 683-693.
- Mathieu, J. E., Martineau, J. W. and Tannenbaum, S. I., 1993. "Individual and situational influences on the development of self efficacy: Implications for training effectiveness," *Personnel Psychology* (46:1), pp.125-147.
- McKee, D., Simmers, C. S. and Licata, J. 2006. "Customer Self-Efficacy and Response to Service," *Journal of Service Research* (8:3), pp. 207-220.
- Millar, M. G., and Millar, K. U. 1996. "The effects of direct and indirect experience on affective and cognitive responses and the attitude-behavior relation," *Journal of Experimental Social Psychology & Marketing* (32:6), pp.561-579.
- Novak, T. P., Hoffman, D. L. and Yung, Y. F. 2000. "Measuring the Customer Experience in Online Environments: A Structural Modeling Approach," *Marketing Science* (19: 1), pp. 22-42.

- Oliver, R., 1980, "A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions," *Journal of Marketing Research* (17:4), pp.460-469.
- Podsakoff, P. M., and Organ, D. W. 1986. "Self-Reports in Organizational Research: Problems and Prospects," *Journal of Management* (12:4), pp.531-544.
- Qiu, L. and Benbasat, I. 2009. "Evaluating Anthropomorphic Product Recommendation Agents- A Social Relationship Perspective to Designing Information Systems," *Journal of Management Information Systems* (25: 4), pp. 145–181.
- Roca, J. C., & Gagné, M. 2008. "Understanding e-learning continuance intention in the workplace: A self-determination theory perspective," *Computers in Human Behavior* (24:4), pp.15-85.
- Shang, R. A., Chen, Y. C. and Shen, L. 2005. "Extrinsic versus intrinsic motivations for consumers to shop on-line," *Information & management* (42:3), pp.401–413.
- Simonson, I., 2005. "Determinants of Customers' Responses to Customized Offers: Conceptual Framework and Research Propositions," *Journal of Marketing* (69:1), pp.32-45.
- Sun, H., and Zhang, P. 2006. "Causal Relationships between Perceived Enjoyment and Perceived Ease of Use: An Alternative Approach," *Journal of the Association for Information Systems* (7:9), pp.618-645.
- Tam, K.Y. and Ho, S.Y. 2006. "Understanding the Impact of Web Personalization on User Information Processing, Behavior and Judgment," *MIS Quarterly* (30: 4), pp. 865-890.
- Teo, T. S. H., Lim, V. K. G. and Lai, R. Y. C. 1999. "Intrinsic and extrinsic motivation in Internet usage," *OMEGA International Journal of Management Science* (27:1), pp. 25-37.
- Thong, J. Y. L., Hong, S. J. and Tam, K. Y. 2006. "The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance," *International Journal of Human-Computer Studies* (64:9), pp. 799-810.
- Valenzuela, A., Dhar, R. and Zettelmeyer, F. 2009. "Contingent Response to Self-Customization Procedures: Implications for Decision Satisfaction and Choice," *Journal of Marketing Research* (46:6), pp.754-763.
- Van Beuningen, J., Ruyter, K. D., Wetzels, M. and Streukens, S. 2009. "Customer Self-Efficacy in Technology-Based Self-Service: Assessing Between- and Within-Person Differences," *Journal of Services Research* (11:4), pp.407-428.
- Van der Heijden, H. 2004. "User acceptance of hedonic information systems," *MIS Quarterly* (28:4), pp.695-704.
- Venkatesh, V., Speier, C. and Morris, M. G. 2002. "User acceptance enablers in individual decision making about technology: toward an integrated model," *Decision Sciences* (33:2), pp.297-316.
- Venkatesh, V., Morris, M. G., Davis, G. B. and Davis, F. D. 2003. "User acceptance of information technology: Toward a unified view," *MIS Quarterly* (27:3), pp.425-478
- Wattal, S., Telang, R. and Mukhopadhyay, T. 2009. "Information Personalization in a Two-Dimensional Product Differentiation Model ," *Journal of Management Information Systems* (26:2), pp. 69–95.

Appendix 1.

Appendix1. Common method bias					
Construct	Indicator	Substantive Factor Loading (R1)	R12	Substantive Factor Loading (R1)	R12
Perceived fit	PF1	0.877	0.769	0.039	0.002
	PF2	0.955	0.912	-0.025	0.001
	PF3	0.904	0.818	-0.014	0.000
Self-efficacy	SE1	0.906	0.820	0.035	0.001
	SE2	0.961	0.923	-0.013	0.000
	SE3	0.934	0.873	-0.024	0.001
Perceived Enjoyment	ENJ1	0.895	0.801	0.060	0.004
	ENJ2	0.973	0.947	-0.021	0.000
	ENJ3	0.978	0.957	-0.040	0.002
Perceived Usefulness	PU1	0.933	0.871	0.015	0.000
	PU2	0.953	0.907	-0.003	0.000
	PU3	0.950	0.902	-0.012	0.000
Continued Usage Intention	INT1	0.994	0.987	-0.046	0.002
	INT2	1.010	1.020	-0.063	0.004
	INT3	0.854	0.729	0.109	0.012
Average		0.938	0.881	0.000	0.002