



RELATIONSHIP PERFORMANCE ON SELF-SERVICE TECHNOLOGY: RELATIONSHIP MAINTENANCE AND PERCEIVED RELATIONSHIP INVESTMENT

Powen Fang, National Cheng Kung University, Taiwan
Email: r4896104@mail.ncku.edu.tw

Yaochuan Tsai, National Cheng Kung University, Taiwan

Hsinhsin Chang, National Cheng Kung University, Taiwan
Email: easyhhc@mail.ncku.edu.tw

ABSTRACT

Purpose: This paper extends the dedication-based relationship maintenance mechanism of social exchange theory and customer perceived relationship investment to study the relationship performance of a convenience store launching an in-store kiosk business. Meanwhile, computer anxiety and time consciousness are hypothesized to moderate the effects among the relationships.

Design/methodology/approach: Results of data analysis, with in-store kiosk use experience data collected for 211 in-store kiosk users, supported our model.

Findings: Our results confirm that dedication-based relationship maintenance is related to perceived relationship investment. Higher levels of customer-perceived relationship investment impact relationship performance. Computer anxiety and time consciousness act separately as both partial and full moderators.

Originality/value: We found that the businesses that launch in-store kiosk businesses determine customer perceptions of relationship investment. This study found that customers with computer anxiety have an anchor to the use of technology. Customers who think of time as a resource escalate the effect between their perceptions that a business has invested effort in relationship building and the development of customer loyalty.

INTRODUCTION

There are more and more businesses launching SST businesses intended to provide efficiency and to gain benefits, especially Taiwanese convenience stores e.g. ibon (7-11), Famiport(Family Mart), LifeET(HiLife) (Chiu, Fang, & Tseng, 2010). Thus, the development of SST strategies for convenience stores that maintain customer relationships is gradually becoming an important issue related to gaining e-business profit (Ou, Hung, Yen, & Liu, 2009).

Kim and Son (2009) pointed out that a dedication-based relationship maintenance mechanism is one of the strategies for keeping loyal customers. It is based on social exchange theory (SET). However, very few studies have discussed the link between customer perceptions of how businesses invest their resources in relationship maintenance and their loyalty reactions, especially in the case of SST businesses (Zhu, Nakata, Sivakumar, & Grewal, 2007). Accordingly, convenience stores operate SST business that launch their resources toward keeping loyal customers by providing merchandise variety from products/services complemented by in-store kiosks, the provision of both quality e-services and a novel shopping experience that evokes customer dedication toward maintenance of the business relationship (Wells, Campbell, Valacich, & Featherman, 2010).

Therefore, some people feel anxious about the use of computers (Cambre, & Cook, 1985). A few studies have suggested a relationship between the cognition of customers with computer anxiety to the relationship between e-business loyalty maintenance strategy and customer perceptions of e-business investments of their resources in relationship building. Hence, this relationship becomes an important issue for business intending to launch in-store kiosk businesses for the purpose of gaining a higher market share.

Accordingly, the closing of these research gaps could contribute to SST research in four ways: Firstly, this study is based on a dedication-based relationship maintenance mechanism derived from social exchange theory (SET) in in-store kiosk businesses in convenience stores to discuss customer perceptions of relationship investment related to committing to in-store kiosk business operations. Secondly, this study probes into how customer perceived complementarity features of in-store kiosk retailing both directly and indirectly impact relationship performance through perceived relationship investment perceptions related to customers' post-purchase behavior. Thirdly, this study is intended to determine whether a dedication-based relationship mechanism plays an important role in reducing customer anxiety related to the use of computers and also to determine customer perceptions of



convenience store investment of resources on building customer relationships. Finally, this study will verify the moderating role of time consciousness on the relationship between customer perceived relationship investment and SST relationship performance. It will determine whether or not customers with time consciousness are the target customers and whether these customers have intention toward loyalty to in-store kiosk businesses.

THEORETICAL BACKGROUND AND CONCEPTUAL FRAMEWORK

Self-service Technology; In-store Kiosk

Meuter, Ostrom, Roundtree, and Bitner (2000) proposed that SSTs are ‘technological interfaces that enable customers to produce a service independent of direct service employee involvement’. SST has been widely applied for many purposes. One noticeable trend is the increasing use of SST by businesses (Ou et al., 2009). Zhu et al. (2007) specified that SST in physical stores that operates for the purpose of customer transactions are called “in-store kiosks”. In fact, in-store kiosks are a kind of business which can help customers independently finish their purchase tasks. Accordingly, in-store kiosks in Taiwanese convenience stores that provide distinctive characteristics (e.g. the sale of tickets, among other services) can also provide user time savings and efficiency when purchasing. Meanwhile, efficient shopping strategies and convenience store launches customer relationship investment lead to the benefit of keeping customers who think time is an essential concern.

Dedication-based Relationship Maintenance

Dedication-based relationship maintenance is based on attitudinal commitment resulting from genuine appreciation for the relationship. On the other side, constraint-based relationship maintenance centers on locked-in “economic, social, or psychological” commitment (Kim & Son, 2009). In other words, the users invest their economic, social, or psychological resources when purchasing.

According to information technology studies that have specified that information technology for business which focuses on ease and usefulness of system design (Delone & McLean, 2004; Rogers, 1983) will provide functional information technology for businesses that will attract the customers’ genuine appreciation for the relationship. Indeed, the convenience stores in Taiwan usually adopt the characteristics which result in users perceiving a quality function from their purchasing processes (Delone & McLean, 2004). Hence, this study

focused on convenience store launches of dedication-based relationship mechanisms in in-store kiosk businesses and discusses business relationship-building performance.

Perceived Relationship Investment

De Wulf, Odekerken-Schrod, and Iacobucci (2001) developed a model that pointed out that retailers direct their marketing efforts to evoke customer perception that the retailers are investing their resources in developing long-term relationships. As a result, loyalty intentions will develop. Convenience stores launch in-store kiosk businesses (Zhu et al., 2007) to provide customers with a new shopping method intended to fill customer needs for efficiency and time saving features. Hence, this study defined perceived relationship investment as customer perceptions that the convenience store has invested resources in long-term relationship building through the use of in-store kiosk business operations. Hence, this study proposes that dedication-based relationship mechanisms launched by convenience stores are related to perceived relationship investment and relationship performance.

Relationship Performance

The length, breadth and depth of customer purchasing behavior is a measurement of customer's loyalty behavior (Bolton, Lemon, & Verhoef, 2004) This information can result in business owners having a more in depth understanding of the loyalty relationship. Accordingly, relationship performance includes relationship length, relationship depth and relationship breadth, and it is illustrated as below:

Relationship Length

Bolton et al. (2004) proposed that the "duration" of a transaction is the length of the relationship. Convenience stores create strategies for customer relationship building, e.g., merchandise variety in in-store kiosks, quality service, and novel shopping experiences, among others, that will determine the customer's intention to make long-term purchasing behavior in the future (De Wulf et al., 2001). Thus, relationship length is defined as customer willingness to transact with certain in-store kiosks in convenience stores in the future.

Relationship Depth

Relational depth is measured by "how often" a customer purchases in a certain store (Bolton et al., 2004). In this research, this was called "frequency of purchase". Indeed, customers

having positive relationship investment perception with regard to a retailer will determine to commit to the relationship (De Wulf et al., 2001). Hence, relationship depth is customer willingness to frequently transact in certain in-store kiosks in convenience stores.

Relationship Breadth

Bolton et al. (2004) found that relational breadth is measured by customer “cross-buying intentions”. Customers performing cross-buying in certain stores help the store create unexpected revenue (Zhang, Fang, Wei, Ramsey, McCole, & Chen, 2011). Accordingly, customer perceived the convenience store do their marketing effort in evoking customer positive SST relationship investment perception. These perceptions will evoke customer commitment to the transaction relationship (De Wulf, 2001). Hence, relationship depth is customers intention to conduct cross buying behavior in certain in-store kiosks in convenience stores.

Accordingly, the conceptual framework guiding this study is presented in Figure 1. This study employed the dedication-based relationship mechanism from social exchange theory (SET) to discuss customer perceived relationship investment toward an in-store kiosk in a convenience store. Meanwhile, we discuss customer computer anxiety as having a moderating effect between the dedication-based relationship mechanism and perceived relationship investment. We also discuss customer time consciousness as a moderator between perceived relationship investment and related relationship performance.

[Figure 1 here](#)

RESEARCH HYPOTHESES DEVELOPMENT

The influence of dedication-based relationship maintenance on perceived relationship investment

Katz and Shapiro (1985) based their research on Metcalfe’s law and argued that indirect network externality is *perceived as complementarity*. Perceived complementarity is the user base expands; users can get lots of complementarity functions and services which bring additional value.

Taiwanese convenience stores apply perceived complementarity of perceived network externality to launch in-store kiosks in order to provide efficient shopping. In fact, in-store

kiosks in convenience stores have various products/services that help customers make efficient purchases. In-store kiosks represent complementarity features such as ticket purchasing, paying bills, and copy machines (complimented in in-store kiosk businesses) to generate customer benefit perceptions (Kim & Forsythe, 2008). Indeed, synergy will be generated.

According to reciprocal theory (Huppertz, Arenson, & Evans, 1978) “relationship investment emphasizes an aim for reciprocation by consumers that is based on retention efforts made by a retailer”. Meanwhile, social exchange theory (SET) specifies that if businesses provide benefits that can be delivered to the customers, it will determine their future behavior (Kim & Son, 2009). In-store kiosks have various products/services that benefit customers. Therefore, customers will perceive the convenience store to have made positive relationship investment in in-store kiosks. Hence, Hypothesis 1 is as follows:

H1: Customers perceiving a high degree of complementarity associate with higher perceived relationship investment with regard to in-store kiosks in convenience stores.

E-service quality means an overall judgment of a service with more of an emphasis on consumers personal feelings regarding the process of service delivery, which contributes to user satisfaction, purchase intentions, and in turn, to firm performance (Yang, Cai, Zhou, & Zhou, 2005). Accordingly, e-service quality is defined as “consumers’ global judgment related to the superiority of the in-store kiosk of the convenience store that they have chosen”.

This study applies the e-service quality measurement of Lin and Hsieh (2011) to discuss an in-store kiosk service quality evaluation. Accordingly, e-service quality includes the following dimensions: First, functionality means that the in-store kiosk provides a stable function for customers’ smooth and effective manipulation. Second, enjoyment implies that the in-store kiosk service provider usually provides interesting content that evokes customer enjoyment perceptions, e.g., interactive games. Third, security represents the idea that customers can manipulate in-store kiosks that can protect their personal information e.g., ID number. Fourth, assurance is that the convenience stores which provide in-store kiosks have a good reputation. Fifth, design indicates that the in-store kiosk has invested resources in a platform designed from customer perceptions, e.g. invested in up-to-date, aesthetically appealing technology. Sixth, geographic density will lead customer perceived convenience. Hence, convenience means the in-store kiosks always exist in the main Taiwanese convenience store. Taiwanese convenience stores have high geographic density. The more

customers perceive convenience, the more positive is their relationship investment perception. Lastly, customization means the in-store kiosk can fulfill customers' specific needs. For example, an in-store kiosk in a convenience store can allow the purchase of registered airline tickets.

Reciprocal theory (Huppertz et al., 1978) has pointed that "relationship investment emphasizes an aim for reciprocation by consumers that is based on retention efforts made by a retailer". Kim and Son (2009), on the basis of social exchange theory (SET), pointed out that e-customers will receive benefits from an online business provided to adjust their future behavior. Hence, in-store kiosks provide good service quality that customers can easily use. These benefits will evoke customer perceptions that the convenience store has invested resources in keeping loyal customer relationships with their in-store kiosk businesses. The hypothesis is stated as below:

H2: Customer perceptions of a high degree of e-service quality are associated with higher perceived relationship investment with regard to in-store kiosks in convenience stores.

Diffusion of innovation was proposed by Rogers (1983). The main idea is that the technology user's intention to do behavior is affected by the innovator of the network diffusion in the technology product or service context, and it is based on the network effect (Zhu et al., 2007). Wells et al. (2010) argued that past studies do not have a specific construct by which to discuss user perceptions of innovation. Thus, perceived novelty is based on the innovativeness attributes in diffusion of innovation theory. Perceived novelty is the perspective by which to understand the user perceived the business launch the novelty management method which delivers to the customer and it is a benefit for customers using technology products.

Novelty usually attracts customer attentions, and it is a kind of loyalty maintenance strategy from the customers benefits perception (Huppertz et al., 1978). Hence, if customers perceive novelty from in-store kiosk products/services, they will perceive that the convenience store launching the in-store kiosk business has invested resources to keep customers' loyalty. The hypothesis is as below:

H3: Customers perceptions of a high degree of novelty are associated with higher perceived relationship investment with regard to in-store kiosks in convenience stores.

The influence of perceived relationship investment on relationship performance

According to the notion of relationship quality theory (Crosby, Evans, & Cowles, 1990), it has been proposed that customer commitment can create long-term relationships. Meanwhile, commitment will be determined by the retailer making an effort to establish customer relationships. In particular, retailer investment of resources in customer relationship building will determine relationship performance.

In fact, in-store kiosks in convenience stores are businesses intended to fulfil customer needs related to efficiency of transactions as well as the convenience store launches resources on building customer loyalty intention through in-store kiosk purchasing. Hence, more efficient shopping and relation maintenance resources launched in in-store kiosk businesses will lead to the generation of more loyal customers (Liang & Chen, 2010). Accordingly, in this study, we posit that customer perceptions that businesses are making an effort in in-store kiosk transactions to fulfil their efficiency transaction needs will result in customer commitment to the relationship, a lengthening of purchasing duration, increases in the frequency of purchasing, and the generation of cross-buying. Hence, the hypothesis as below:

***H4:** Customer perceptions of a high degree of relationship investment are associated with higher (a) relationship length (b) relationship depth and (c) relationship breadth with regard to in-store kiosks in convenience stores.*

The moderating effect between dedication-based relationship maintenance and perceived relationship investment

Some people fear computers because they think computer use exhibits a lack of self-efficacy, among other weaknesses (Hackbarth, Grover, & Yi, 2003). E-environments area now wide spread. In fact, technology usually makes things more efficient. Hence, businesses launching technology-related business operations not only are effective but also evoke customer usability perceptions (Collier, & Sherrell, 2010). This study argues that if in-store kiosks in convenience stores have a variety of products/services as a driver, this will evoke perceptions that the convenience store is making marketing effort toward relationship building through the provision of a variety of products/services.

Also, Kim and Forsythe (2008) specified that computer anxiety plays a moderating role in regard to use of technology products. This study argued that a functional information technology platform can reduce customer anxiety (Elie-dit-cosaque, Pallud, & Kalika, 2011).

Hence, quality e-service will diminish customer anxiety toward a technology. Once a user with computer anxiety perceives positive quality in an e-service, this will impact the businesses' continual investment in resources related to relationship building. Hence, this study argues that computer anxiety plays a moderating role between e-service quality and perceived relationship investment.

Finally, convenience stores usually launch in-store kiosks to fulfill customer needs for innovation (Chiu et al., 2010). A novel shopping experience will lead customers to have benefit perceptions of an e-business (Wells et al., 2010). It has been argued that benefit perceptions reduce customer anxiety toward information technology (Elie-dit-cosaque et al., 2010). Hence, customers with computer anxiety will, based on novelty perception of the in-store kiosk use experience, perceive a positive relationship investment on the part of the convenience store in-store kiosk business operation. The hypothesis is as below:

***H5:** Computer anxiety moderates the influence of customer (a) perceived complementarity (b) perceived e-service quality and (c) perceived novelty on perceived relationship investment.*

The moderating effect between perceived relationship investment and relationship performance

Some people are concerned about time as resource. They believe that the efficient use of time will lead to an effective life (Kleijnen et al., 2007). Hence, time consciousness in this study is defined as a person's predisposition to consider time as a scarce resource and to plan its use carefully.

Customers are concerned about efficiency and time savings during in-store kiosk use (Collier & Sherrell, 2010). The characteristics of SST are in regards to customer independence and the completion of transactions. Particularly, customers with time consciousness usually think efficient purchasing transactions are one of the most important factors related to their shopping procedures (Kleijnen et al., 2007). Hence, the main purpose of in-store kiosks is fulfilling customers' needs for efficient e-shopping.

This study proposes that customers with time consciousness perceived the convenience store launch their resources in keeping the customers loyalty. This will lead them to be loyal to the in-store kiosk in the future. Thus, this study will deeply discuss the impactions on relationship performance. The hypothesis is as below:



H7: Time consciousness moderates the influence of customer relationship investment on (a) relationship length (b) relationship depth and (c) relationship breadth.

METHOD AND DATA ANALYSIS

Pilot Test

A seven-point Likert response scale format that ranged from “strongly agree” to “strongly disagree” was used in the questionnaire in this study. All the construct measurements were modified from previous studies and were consistent with their definitions. We collected 31 paper questionnaires, and we used SPSS 17.0 to analyze the data. Cronbach’s alpha and the item-to-total correlation were brought in as the standard items of choice for the main study (Weise, 1975). According to Weise (1975), a level of 0.3 is acceptable for the questionnaire in this study. In the case of the other 67 items, the item-to-total value exceeded 0.3. Therefore, the general requirement of reliability for the research instruments was satisfied. As a result, all 67 items were adopted. There were a total of 67 items used together in the formal questionnaire to measure the constructs.

Samples

Conducting a field survey of a bricks and clicks shopping experience provided the empirical data: An on-line survey (<http://www.my3q.com/>) was published on a bulletin board system (BBS), which yielded 246 usable responses. 35 questionnaires were eliminated in which the respondents filled in some questions incompletely. Finally, the study had 211 respondents that could be used for analysis. Sample demographics are depicted in Table 1.

[Table 1 here](#)

Validity and reliability of the measurement

All of the reliability estimates were higher than 0.8, providing evidence for a high degree of internal consistency among the corresponding indicators. According to Bagozzi and Yi (1988), AVE values greater than 0.5 are considered adequate. As table 2, all the square roots of the AVE were greater than the correlation between the two constructs of interest, indicating that the discriminate validity of the measurement model was satisfied.

[Table 2 here](#)

The chi-square was significant ($p < 0.001$), and $\chi^2/df = 2.25$, proving internal consistency between the observations and the theoretical model. The CFI= 0.93, the GFI=0.82, and the RMSEA= 0.08, which achieved the recommended standard. The other indices, NFI= 0.88, and the AGFI= 0.78, which were slightly lower or higher than the recommended values, but all fell within an acceptable range. The above indices proved the research model fit the sample data well.

Hypothesis Testing

AMOS 7.0 was used in this study for SEM analysis, including standardized path coefficients, path significances for each variable and model fit indices, and the results are presented in Figure 2 and Table 3. It can be seen that there are six paths in this model significant at $p < 0.001^{***}$ and one significant at $p < 0.05^{**}$. Customers perceived complementarity between in-store kiosk and variety products/services had a significant effect on perceived relationship investment ($\gamma = 0.15^{***}$; $t = 2.85$), e-service quality had a significant effect on perceived relationship investment ($\gamma = 0.70^{***}$; $t = 7.07$), perceived novelty had a significant effect on perceived relationship investment ($\gamma = 0.13^{**}$; $t = 2.41$), thereby supporting H1, H2, and H3. Perceived relationship investment had a significant effect on relationship length ($\gamma = 0.96^{***}$; $t = 8.22$). Perceived relationship investment had a significant effect on relationship depth ($\gamma = 0.91^{***}$; $t = 5.90$); Perceived relationship investment had a significant effect on relationship breadth ($\gamma = 0.75^{***}$; $t = 4.99$); thereby, H4a, H4b, and H4c were supported.

In fact, every in-store kiosk in a convenience store provides merchandise variety that build complementarity characteristics between the in-store kiosk and its products/services; the strategy is intended to create loyal customers, e.g. a concert ticket that was purchased through an in-store kiosk can be accepted by the organizer; customers can make an efficient purchase without they finding the specific ticket selling point. Accordingly, this study suggests that customer perceived complementarity between in-store kiosk and variety products/services will cause customers to commit to a future relationship with an in-store kiosk in a convenience store.

We conducted a test for the direct effect between customer perceived complimentary and relationship performance (See Table 3). The results shows that perceived complementarity did not have a significant impact on either relationship length ($\gamma = -0.22$; $t = -1.87$) or

relationship breadth ($\gamma=-0.10$; $t=-1.80$). But perceived complimentary had a negatively significant impact on relationship depth ($\gamma=-0.26^{**}$; $t=-2.27$). As a result, perceived complimentary not only has a significant impact on relationship length and breadth but also has a negatively significant impact on relationship depth.

[Figure 2 here](#)

[Table 3 here](#)

A hierarchical regression was conducted in this study for the purpose of determining the moderating effect between dedication-based relationship mechanism and perceived relationship investment, as shown in Table 5. We found that computer anxiety plays a moderating role between perceived complementarity and perceived relationship investment; however it presented a negative impact on customer perceived relationship investment. Therefore, computer anxiety did not play a moderating role among e-service quality, perceived novelty and perceived relationship investment; therefore, it did not support H6a, H6b, and H6c.

Meanwhile, a hierarchical regression was used in this study to examine whether time consciousness has a moderating role between perceived relationship investment and relationship length, relationship depth, and relationship breadth. The results (see Table 5) showed that time consciousness is a moderator between perceived relationship investment and relationship length, relationship depth and relationship breadth. Hence, H7a, H7b, H7c were supported.

[Table 4 here](#)

[Table 5 here](#)

DISCUSSION AND CONCLUSIONS

Research Findings

This study found that in-store kiosks provide merchandise variety and in-store kiosk business exhibit complementarity; it will evoke the customers perceived the convenience store invest their resources in relationship developing. Meanwhile, good e-service quality in in-store kiosks also relates to customer perceptions that the company is investing resources in



maintaining customer loyalty intentions. Also, novel in-store kiosk experiences will determine customer perceptions of the convenience store related to their belief that the store is making an effort to maintain relationships. Consequently, H1, H2, H3 were supported.

Therefore, we found that the customer perceived complementarity of dedication-based relationship maintenance mechanism is not only unrelated to relationship length and breadth but also negatively significant impact relationship depth. Kotler and Keller (2010) suggested that businesses using product-oriented strategies have not been fulfilling customer purchasing needs. In other words, the business launches product oriented strategy will be failed because the in-store kiosk in convenience store launched variety products/services without matching their relationship marketing strategy up. Indeed, marketing myopia will be infected by the business launches product oriented strategy (Levitt, 1960). Hence, convenience stores managing in-store kiosks should make an effort to complement their relationship marketing strategic slotting strategy in in-store kiosk business running.

This study found that customers perceiving an effort on the part of a store to maintain customer's loyalty intention will determine whether or not customers continue purchasing and purchase frequently as well as cross-buy in specific in-store kiosks. H4a, H4b, H4c were supported.

It was also determined that computer anxiety negatively impacts the relationship between perceived complementarity and perceived relationship investment. This is because customers with computer anxiety have an anchor on their cognition (Tversky & Kahneman, 1974) to E-businesses. Even if the convenience store offers merchandise variety in the in-store kiosk, the customers with computer anxiety will still refusing to use information technology for the purpose of purchasing. Meanwhile, customers who have computer anxiety who think that using in-store kiosk in convenience store for purchasing is a kind of computer manipulating purchasing mechanism will also experience an anchoring effect (Tversky, & Kahneman, 1974). Even if the convenience store provides good quality in-store kiosk service or novel purchasing experiences, it was found that it is hard to diminish anxiety related to the use of an in-store kiosk. Hence, H5a, H5b, H5c were not supported.

In fact, the starting point of in-store kiosk design is the provision of efficient purchasing (Chiu et al., 2010) Hence, efficient purchasing is an appropriate strategy for customers who view time as a resource. Indeed, this study found that the convenience store developing in-store kiosk businesses are making an effort to provide efficient shopping in order to maintain loyal customers. These businesses usually solicit customers who have time



consciousness. Ultimately, relationship performance will go along with this effort. Hence, H6a, H6b, H6c were supported.

Theoretical Implications

Blau (1964) argued that businesses that provide benefits to customers will determine these customers' future behavior. Further, Kim and Son (2010) argued that when online businesses launch dedication-based relationship mechanisms, this will directly impact online user loyalty. Therefore, in-store kiosk business in convenience store launches dedication-based relationship mechanism strategy was not all affecting to the customer commit with their relationship with an in-store kiosk in convenience store. On the contrary, the dedication-based relationship maintenance mechanism should tie into the business relationship building effort. In other words, convenience stores that launch in-store kiosk businesses are not only providing benefits to customers but also are making an effort to evoke perceptions that the businesses are truly investing their resources to maintain customer loyalty. Relationship performance related to loyalty will in turn, be a result.

Meanwhile, this study found that computer anxiety negatively plays a moderating role between perceived complementarity of dedication-based relationship maintenance mechanisms and customer perceived relationship investments. Therefore, the anchoring effect from customers who have computer anxiety will serve as a notice for businesses willing to launch physical e-businesses in the situation of purely in-store kiosk transaction in convenience store (Tversky, & Kahneman, 1974). Hence, the dedication-based relationship maintenance mechanism has limitations that are a result of computer anxiety on the part of customers.

Finally, De Wulf et al. (2010) found that businesses who focus relationship investment in relationship building will determine customer loyalty. In fact, this study found that time consciousness acts as a moderator between relationships. Hence, customers who think of time as a resource escalate the effect between their perceptions that a business has invested effort in relationship building and the development of customer loyalty.

Managerial Implications

We found that the businesses that launch in-store kiosk businesses determine customer perceptions of relationship investment. Hence, convenience stores that are willing to

continually launch in-store kiosk businesses should tie in their relationship marketing strategy. Indeed, provision of merchandise variety, quality service and novel purchasing experiences to customers should be based on relationship marketing strategy. This will help in-store kiosks attract more loyal customers. Meanwhile, the business will earn long-term relationship benefits through relationship building strategies.

Further, this study found that customers with computer anxiety have an anchor to the use of technology. Hence, this study suggests that businesses that are willing to launch e-businesses should set strategy (e.g., on trial) designed to escalate customer experience in regard to the use of technology (Kim & Forsythe, 2008) Consequently, the habit of using technology will be gradually generated (Venkatesh, Thong, & Xu, 2012). This strategy will help the population of users who have computer anxiety. Finally, it will help e-businesses to become smoothly set into action in the future.

Finally, convenience stores that launch in-store kiosk businesses should continually develop efficacy purchasing process and functional relationship marketing strategy. This will benefit the in-store kiosk businesses ability to gain long-term benefits from relationship building with customers, especially the customers with time consciousness.

REFERENCES

1. Bagozzi, R.P., and Yi, Y. (1988), "On the evaluation of structural equation models", *Journal of the Academy of Marketing Science*, Vol.16 No.1, pp.74-94.
2. Blau, P.M. (1964), "Exchange and power in social life", Wiley, New York, NY.
3. Bloom, P.N., Gundlach, G.T., and Cannon, J.P. (2000), "Slotting allowances and fees: Schools of thought and the views of practicing managers", *Journal of Marketing*, Vol.64 No.2, pp.92-108.
4. Bolton, R.N., Lemon, K.N., and Verhoef, P.C. (2004), "The theoretical underpinnings of customer asset management: A framework and propositions for future research", *Journal of the Academy of Marketing Science*, Vol.32 No.3, pp. 271–292.
5. Cambre, M. A., and Cook, D. L. (1985), "Computer anxiety: Definitions, measurement, and correlates", *Journal of Educational Computing Research*, Vol.1 No.1, pp.37–54.
6. Compeau, D.R., and Higgins, C.A. (1995), "Computer self-efficacy: Development of a measure and initial test", *MIS Quarterly*, Vol.19 No.2, pp.189-211.
7. Collier, J.E., and Sherrell, D.L. (2010), "Examining the influence of control and convenience in a self-service setting", *Journal of the Academy Marketing Science*, Vol.38 No.4, pp.490-509.

8. Chiu, T.T.H., Fang, S.C., and Tseng, C.C. (2010), "Early versus potential adopters: Exploring the antecedents of use intention in the context of retail service innovations", *International Journal of Retail & Distribution Management*, Vol.38 No.6, pp.443-459.
9. Crosby, L.A., Evans, K.A., and Cowles, D. (1990), "Relationship quality in services selling: An interpersonal influence perspective", *Journal of Marketing*, Vol.54 No.3, pp.68-81.
10. De Wulf, K., Odekerken-Schrod, G., and Iacobucci, D. (2001), "Investments in consumer relationships: A cross-country and cross-industry exploration", *Journal of Marketing*, Vol. 65 No.4, pp.33-50.
11. Delone, W.H., and McLean, E.R. (2004), "Measuring e-commerce success: Applying the information systems success model", *International Journal of Electronic Commerce*, Vol.9 No.1, pp.31-47.
12. Elie-dit-cosaque, C., Pallud, J., and Kalika, M. (2011), "The influence of individual, contextual, and social factors on perceived behavioral control of information technology: A field theory approach", *Journal of Management Information Systems*, Vol.28 No.3, pp.201-234.
13. Gutierrez, S.S.M., Izquierdo, C.C., and Cabezudo, R.S.J. (2010), "Product and channel-related risk and involvement in online contexts", *Electronic Commerce Research & Applications*, Vol.9 No.3 pp.263-273.
14. Hackbarth, G., Grover, V., and Yi, M.Y. (2003), "Computer playfulness and anxiety: positive and negative mediators of the system experience effect on perceived ease of use", *Information & Management*, Vol.40 No.3, pp.221-232.
15. Huppertz, J. W., Arenson, S. J., and Evans, R. H. (1978), "An application of equity theory to buyer-seller exchange situations", *Journal of Marketing Research*, Vol.15 No.2, pp.250-260.
16. Katz, M.L., and Shapiro, C. (1985), "Network externalities, competition, and compatibility", *American Economic Review*, Vol.75 No.3, pp. 424-440.
17. Kim, J., and Forsythe, S. (2008), "Adoption of virtual try-on technology for online apparel shopping", *Journal of Interactive Marketing*, Vol.22 No.2, pp.45-59.
18. Kim, S.S., and Son, J.Y. (2009), "Out of dedication or constraint? A dual model of post-adoption phenomena and its empirical test in the context of online services", *MIS Quarterly*, Vol.33 No.1, pp.49-70.
19. Kleijnen, M., De Ruyter, K., and Wetzels, M. (2007), "An assessment of value creation in mobile service delivery and the moderating role of time consciousness", *Journal of Retailing*, Vol.83 No.1, pp.33-46.
20. Kotler, P., and Keller, K. (2010), "A Framework for Marketing Management (5th ed)", Prentice Hall, New Jersey, NJ.

21. Levitt, T., 1960. Marketing myopia, *Harvard Business Review*.38(4): 57–66.
22. Liang, C.J., and Chen, H.J. (2009), “A study of the impacts of website quality on customer relationship performance”, *Total Quality Management and Business Excellence*, Vol.20 No.9, pp.971-988.
23. Lin, J.S.C., and Hsieh, P.L. (2011), “Assessing the self-service technology encounters: Development and validation of SSTQUAL scale”, *Journal of Retailing*, Vol.87 No.2, pp.194-206.
24. Meuter, M.L., Ostrom, A.L., Roundtree, R.I., and Bitner, M.J. (2000), “Self-service technologies: Understanding customer satisfaction with technology-based service encounters”, *Journal of Marketing*, Vol.64 No.3, pp.50-65.
25. Oliver, R. L. (1999), “Whence consumer loyalty?”, *Journal of Marketing*, Vol.63 No.4, pp.33-44.
26. Ostlund, L.E. (1974), “Perceived innovation attributes as predictors of innovativeness”, *Journal of Consumer Research*, Vol.1 No.2, pp.23-29.
27. Ou, C.S., Hung, S.Y., Yen, C.D., and Liu, F.C. (2009), “Impact of ATM intensity on cost efficiency: An empirical evaluation in Taiwan”, *Information & Management*, Vol.46 No.8, pp.442-447.
28. Podsakoff, P. M., MacKenzie, S. B., Lee, J.Y., and Podsakoff, N. P. (2003), “Common method biases in behavioral research: A critical review of the literature and recommended remedies”, *Journal of Applied Psychology*, Vol.88 No.5, pp.879-903.
29. Rogers, E. M. (1983), “*Diffusion of Innovations (3rd.Ed.)*”, Free Press, New York, NY.
30. Saeed, K.A., and Abdinnour-Helm, S. (2008), “Examining the effects of information system characteristics and perceived usefulness on post adoption usage of information systems”, *Information & Management*, Vol.45 No.6, pp.376-386.
31. Tversky, A., and Kahneman, D. (1974), “Judgment under uncertainty: Heuristics and biases”, *Science*, Vol.185 No.4157, pp.1124-31.
32. Verhoef, P.C. (2003), “Understanding the effect of customer relationship management effects on customer retention and customer share development”, *Journal of Marketing*, Vol.67 No.4, pp.30-45.
33. Venkatesh, V., Thong, J.Y.L., and Xu, X. (2012), “Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology”, *MIS Quarterly*, Vol.36 No.1, pp.157-178.
34. Wells, J.D., Campbell, D.E., Valacich, J.S., and Featherman, M. (2010), “The effect of perceived novelty on the adoption of information technology innovations: A risk/reward perspective”, *Decision Science*, Vol.41 No.4, No.813-843.
35. Weise, G. (1975), “*Psychologische Leistungstests*“, Hogrefe, Göttingen, GO.
36. Yang, Z., Cai, S., Zhou, Z., and Zhou, N. (2005), “Development and validation of an



- instrument to measure user perceived service quality of information presenting web portals”, *Information & Management*, Vol.42 No.4, pp.575-589.
37. Zhang, Y., Fang, Y., Wei, K., Ramsey, E., McCole, P., and Chen, H. (2011), “Repurchase intention in B2C e-commerce—A relationship quality perspective”, *Information & Management*, Vol.48 No.6, pp.192-200.
38. Zhu, Z., Nakata, C., Sivakumar, K., and Grewal, D. (2007), “Self-service technology effectiveness: The role of design features and individual traits”, *Journal of the Academy of Marketing Science*, Vol.35 No.4, pp.492-506.
39. Zhou, T., and Lu, Y. (2011), “Examining mobile instant messaging user loyalty from the perspectives of network externalities and flow experience”, *Computers in Human Behaviour*, Vol.27 No.2, pp.883-889.

Dedication Based
 Relationship Maintenance

Relationship
Investment

Relationship
Performance

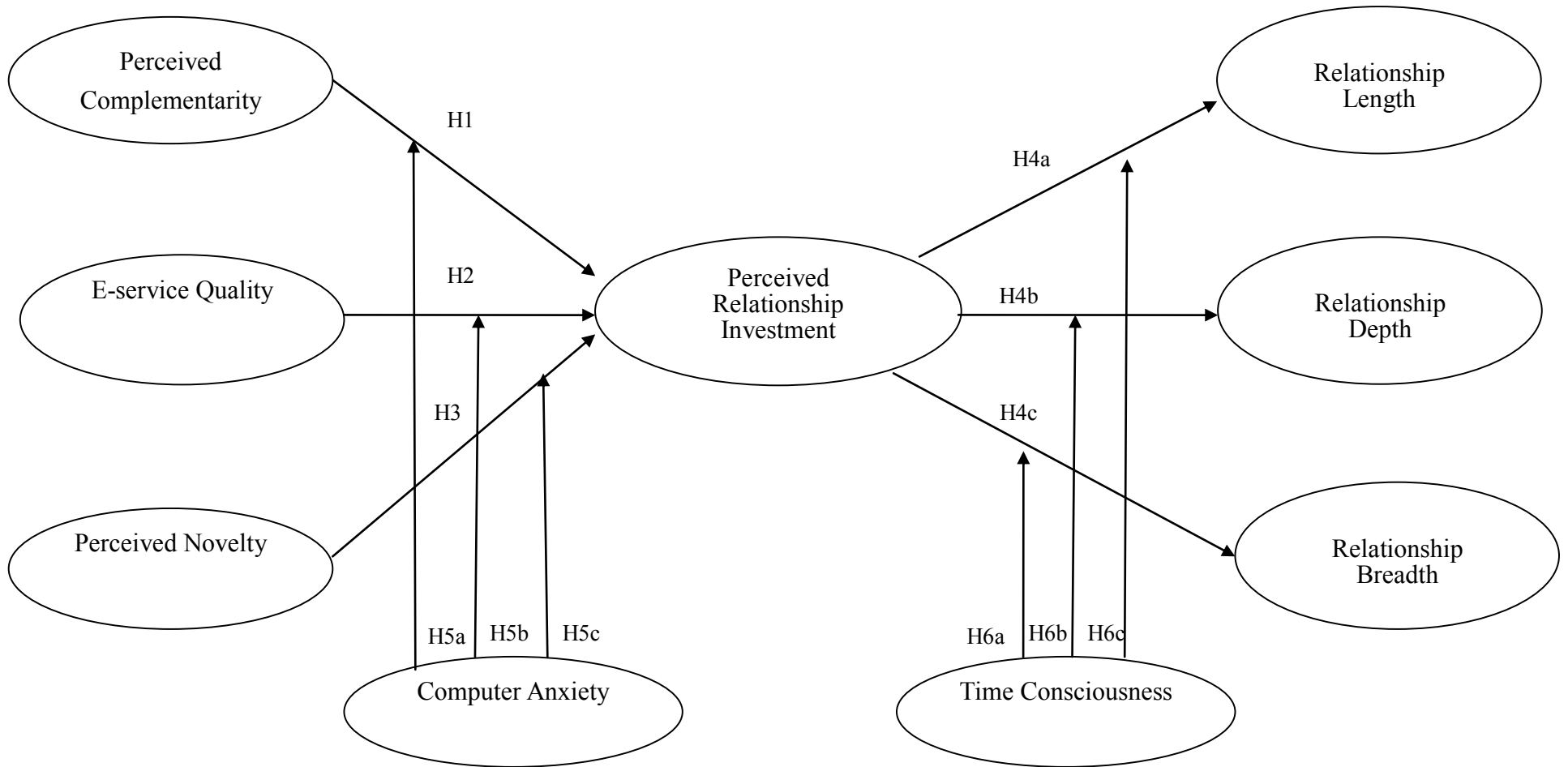


Figure 1 The conceptual framework

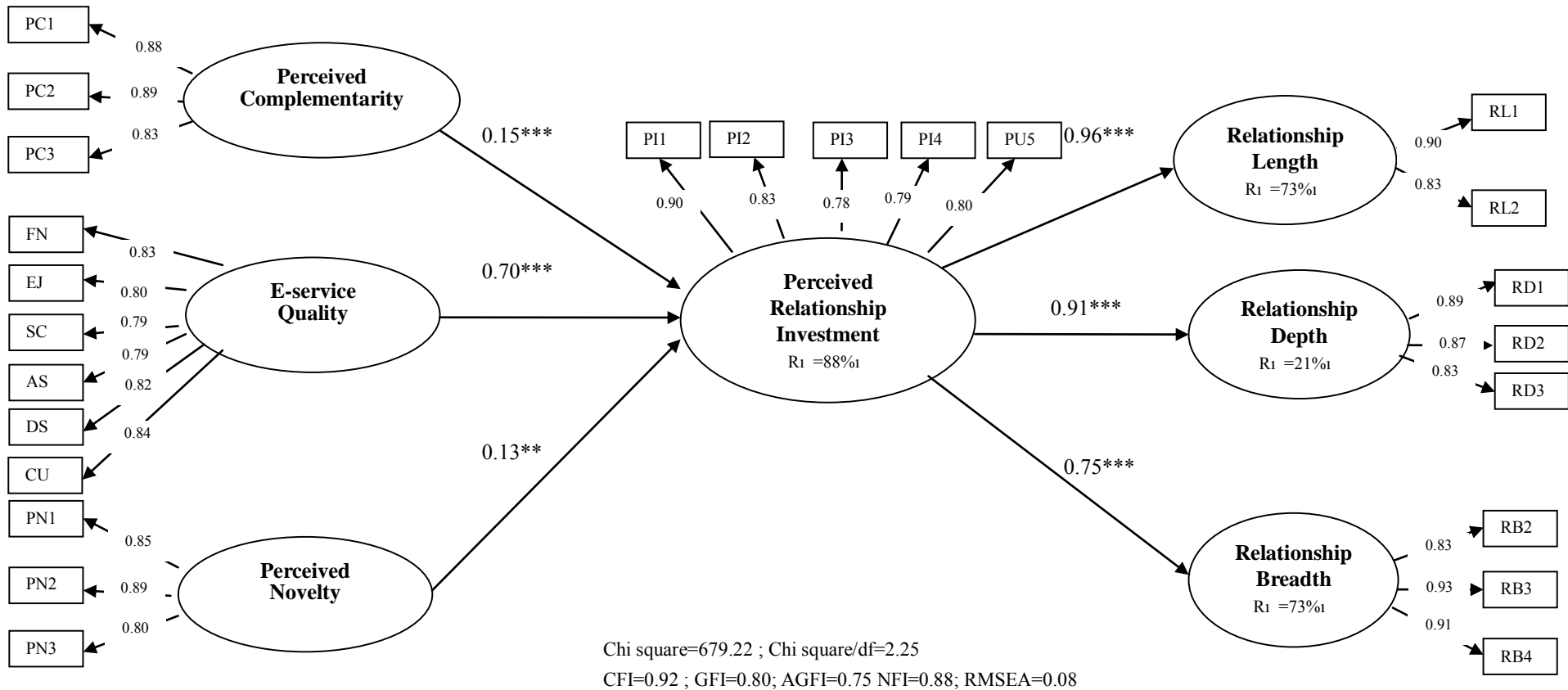


Figure 2 Results of structural equation modeling

Table 1 Sample demographic (N= 211)

Measure	Items	Frequency (%)	
Gender	Male	101	(47.90)
	Female	110	(52.10)
Age	Under 20	9	(4.30)
	21-24	76	(36.00)
	25-29	73	(34.60)
	30-34	45	(24.30)
	35-39	4	(1.90)
	>40	4	(1.90)
Education	Under High School	1	(5.00)
	High School	5	(2.40)
	University	123	(58.30)
	Graduate School	82	(38.90)
Disposable income(\$USD/per month)	Lower than \$500	94	(44.50)
	\$501-\$1000	27	(12.80)
	\$1001-\$2,000	42	(19.91)
	\$2,001-\$2,500	28	(13.30)
	>\$2,501	20	(9.50)
Occupation	Public sector	32	(15.20)
	Private sector	78	(37.00)
	Housewife	4	(1.90)
	Student	89	(42.20)
	Others	8	(3.80)
How many times do you usually shop through in-store kiosk?	<1	109	(51.70)
	2	65	(30.80)
	3	23	(10.90)
	4	8	(3.79)
	>5	6	(2.84)
In which in-store kiosk in convenience store do you usually purchase?	i-bon(7-11)	191	(90.50)
	Famiport(Family Mart)	110	(7.10)
		5	(2.40)
	LifeET(HiLife)		

Table 2 Discriminate validity

Constructs	PC	SQ	PN	PI	TC	CA	RL	RD	RB
PC	0.87⁺								
SQ	0.55**	0.81⁺							
PN	0.52**	0.76**	0.85⁺						
PI	0.56**	0.76**	0.71**	0.82⁺					
TC	0.29**	0.46**	0.28**	0.37**	0.80⁺				
CA	-0.26*	0.02**	0.02**	-0.08**	0.04*	0.84⁺			
	*				*				
RL	-0.30*	0.60**	0.51**	0.49**	0.43*	0.17**	0.90⁺		
	*				*				
RD	0.06**	0.49**	0.35**	0.30**	0.32*	0.38**	0.69*	0.86⁺	
					*		*		
RB	0.45**	0.76**	0.63**	0.67**	0.38*	0.06**	0.64*	0.53*	0.91⁺
					*		*	*	+

Note 1: PC=Perceived complementarity; SQ= e-service quality; PN= Perceived novelty; TC= Time consciousness; CA= Computer anxiety; RL=Relationship length; RD= Relationship Depth; RB=Relationship breadth

Note 2: ⁺ = Square Root of Average Variance Extracted (AVE)

Note 3: **correlation is significant at the 0.01 level (two-tailed).

Table 3 The results of the structural equation model

	Hypothesized relationship	β	t-value	Conclusion
H1	Perceived Complementarity → Perceived Relationship Investment	0.15***	2.85	Supported
H2	e-service Quality → Perceived Relationship Investment	0.70***	7.07	Supported
H3	Perceived Novelty → Perceived Relationship Investment	0.13**	2.41	Supported
H4a	Perceived Relationship Investment → Relationship Length	0.96***	8.82	Supported
H4b	Perceived Relationship Investment → Relationship Depth	0.91***	5.90	Supported
H4c	Perceived Relationship Investment → Relationship Breadth	0.75***	4.99	Supported
	Perceived Complementarity → Relationship Length	-0.22	-1.87	Insignificant
	Perceived Complementarity → Relationship Depth	-0.26**	-2.27	Negative Significant
	Perceived Complementarity → Relationship Breadth	-0.10	-1.80	Insignificant

Note: ***P<0.001; **P<0.01

Fit Index: Chi square=679.22; Chi square/df=2.25; CFI=0.92; GFI=0.80; AGFI=0.75 NFI=0.88; RMSEA=0.08

Table 4 Hierarchical regression between dedication-based relationship maintenance mechanism and perceived relationship investment (Computer Anxiety)

Dependent variable: Perceived Relationship Investment																		
Independent Variables	Step 1		Step 2		Step 3		Step 1		Step 2		Step 3		Step 1		Step 2		Step 3	
	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value
Perceived Complementarity	0.62** *	9.87	0.64** *	9.86	0.69** *	10.15												
e-service Quality							0.76** *	7.58	7.65** *	17.00	0.77** *	16.93						
Perceived Novelty													0.62** *	14.57	0.57** *	13.34	0.57** *	13.30
Computer Anxiety			0.05	1.20	0.05** *	10.17			-0.06* *	-2.03	0.06	-1.91			0.06	-0.06	0.16** *	3.84
Interaction																		
Perceived Complementarity * Computer Anxiety					-0.10***	-2.22												
e-service Quality* Computer Anxiety													-0.01	0.76				



Dependent variable: Perceived Relationship Investment																		
	Step 1		Step 2		Step 3		Step 1		Step 2		Step 3		Step 1		Step 2		Step 3	
Anxiety																		
Perceived Novelty* Computer Anxiety																	-0.01	-0.57
R2	0.56		0.57		0.58		0.58		0.58		0.58		0.50		0.54		0.53	
Adjusted R2	0.32		0.32		0.33		0.57		0.58		0.58		0.50		0.53		0.53	
ΔR2	0.32		0.05		0.02		0.06		0.58		0.00		0.50		0.03		0.00	
VIF	1.00		(1.07~1.07)		(1.08~1.18)		1.00		(1.00~1.00)		(1.00~1.05)		1.00		(1.08~1.08)		(1.01~1.10)	

Note: ***P<0.001; **P<0.05

Table 5 Hierarchical regression between perceived relationship investment and relationship performance (Time Consciousness)

	Dependent variable: Relationship Length						Dependent variable: Relationship Depth						Dependent variable: Relationship Breadth					
	Step 1		Step 2		Step 3		Step 1		Step 2		Step 3		Step 1		Step 2		Step 3	
Independent Variables	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value
Perceived Relationship Investment	0.61**	8.12	0.47**	6.16	0.49***	4.40	0.48**	4.54	0.34**	6.16	0.36**	3.46	0.77**	12.90	0.70**	11.11	0.71**	11.42
Time Consciousness			0.30**	4.64	0.28***	6.39			0.34*	4.64	0.28**	3.21			0.15**	2.83	0.13**	2.56
Interaction																		
Perceived Relationship Investment * Time Consciousness					0.19***	2.93					0.44**	5.50					0.13**	2.87
R2	0.24		0.31		0.34		0.09		0.14		0.25		0.44		0.46		0.48	



	Dependent variable: Relationship Length			Dependent variable: Relationship Depth			Dependent variable: Relationship Breadth		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Adjusted R2	0.24	0.30	0.33	0.09	0.13	0.24	0.44	0.46	0.48
$\Delta R2$	0.24	0.07	0.03	0.09	0.05	0.11	0.44	0.02	0.02
VIF	1.00	(1.16~1.16)	(1.01~1.18)	1.00	(1.16~1.16)	(1.01~1.18)	1.00	(1.16~1.16)	(1.01~1.18)

Note: ***P<0.001; **P<0.05