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The Effects of Shoppers' Motivation on Self-Service Technology Use Intention: Moderating Effects of the Presence of Employee*

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Abstract

The introduction of self-service technologies (SSTs) in retail stores aims to provide customers with a more satisfying shopping experience. Many retailers are increasingly turning toward the adoption of self-service technologies in providing services directly to customers. Given that previous SST research has focused mainly on the impact of the introduction of SST on customer responses, the present study explored the impact of the presence of employees in the relationship between SST and customer responses. Based on the two ground theories, motivation-based theories of behavior and social impact theory, this study tested the relationships between shopping motivations, SST use intention, and retailer attitude. Moderating effects of the presence of employees on the three relationships were also tested. Data were collected using an online survey and analyzed through structural equations modeling. Test results showed that both hedonic and utilitarian shopping motivations effect on SST use intentions, and SST use intentions effect on retailer attitude, subsequently. Although the presence of employee did not moderate the relationship between shopping motivations and SST use intentions, the employee presence moderated the relationship between SST use intentions and retailer attitude. The impact of SST use intentions on retailer attitude was higher in the high presence of employee group than in the low group.

Keywords: Self-service Technology, Shopping Motivation, Presence of Employee

JEL Classification Code: M10, M30

1. Introduction

Today's retail environment is more intensely competitive. It is crucial for the traditional offline retailers to consider the competition from online retailers and not only focusing on the competition from other offline retailers. As a way to be more competitive and to have a differentiation strategy, many retailers are introducing innovative retail technologies in their stores. The introduction of Self-service technologies

(SSTs) in retail stores aims to provide customers with a more satisfying shopping experience (Curran, Meuter, & Surprenant, 2003). SSTs provide customers with shopping-related information such as product, price and location information. However, the introduction of SST replaces the role of existing retail employees and thus, there has been a continuous increase in concerns of whether or not service employees will be utilized after the SST is introduced. In retail stores, employees have been considered a crucial factor affecting customers' shopping experience in providing services directly to customers. But what should be the role of an employee when the introduction of SST eliminates the need to provide services directly?

While previous studies of SST mainly tested the impact of the introduction of SST on consumer responses, this study explored the impact of the presence of employees in the relationship between SST and consumer responses. Based on motivation-based theories of behavior, this study revealed the effects of customers' shopping motivation on SST use intention, and identified the effects of SST use intention on retailer attitude. Using the social impact theory,

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the moderating effects of the presence of employees in the relationship between shopping motivations, SST use intention and retailer attitude were also identified.

2. Literature Review

2.1. Self-Service Technology

In retail stores, the advancements of technology have enabled the improvements of service standards and transformed the facets of interaction between the service providers and their customers (Barrett, Davidson, Prabhu, & Vargo, 2015; Lovelock & Gummesson, 2004). Many service firms allow the customers to access services by means of modern and convenient channels (Reinders, Dabholkar, & Frambach, 2008). Modern advantages of emerging retail technologies have led retailers to utilize its use in providing products and services to customers. Investments in these technologies pay off when customers decide to adopt the technology and when it provides them with a positive customer experience.

In the delivery of services, academic researchers have acknowledged the critical importance of technology (Bitner, Brown, & Meuter 2000; Quinn, 1996). Some suggest that the traditional marketplace interaction involving the service employee and a customer is being replaced by a marketplace transaction. Self-service technologies (SSTs) are an example of marketplace transaction defined as “a virtual realm where products and services exist as digital information and can be delivered through information-based channels” (Curran et al., 2003). SSTs are technological interfaces that have been widely used by many service providers and retailers to help customers produce and consume services electronically without direct contact from service employees (Meuter, Ostrom, & Bitner, 2000). Since there is hardly an industry that is not undergoing an upheaval in how it deals with customers, many researches have been conducted on using SSTs to improve customer service, especially in a retailing research realm.

The introduction of SSTs offers retailers a variety of benefits. SSTs can provide opportunities to increase cost efficiency, productivity, the level of customization, market share, customer satisfaction, and customer loyalty (Kelley, 1994). SSTs can also improve competitiveness of a retail store and differentiate a store through technological reputation (Kauffman & Lally 1994; Meuter & Bitner, 1998). Considering the nature of interpersonal service encounter, the personality and mood of both the employee and customer can mix to negatively affect the service experience. With SSTs, retailers can create a more constant service atmosphere by controlling some of the heterogeneity and perishability of service delivery. Customers are able to know what to expect from the service encounter and experience the similar

service each time they visit the retail store (Schneider & Bowen, 1985).

Customers need to choose between an interpersonal and a technologically based encounter when using SSTs (Meuter et al., 2000). However, not all customers prefer to use SSTs. The existence of the technology-based service delivery option can cause stress for customers with higher levels of technology anxiety. Customers who are not comfortable with the technologies and their use see the introduction of an SST into the service encounter as something of a threat (Mick & Fournier, 1998). The introduction of SSTs can also have a negative impact for customers who view the service encounter as a social experience and prefer to deal with people (Zeithaml & Gilly, 1987).

2.2. Self-Service Technology and Customer Responses

Since it helps retailers understand customers' decision-making process and behaviors, the motivation-based theories of behavior have been used to understand customers' shopping behavior in a retail store (Cox, Cox, & Anderson, 2005; Strack & Deutsch, 2004). Shoppers' behavior is the consequence of a decision guided by the assessment of a future state in terms of the value of that state, and the probability of attaining such a state through this behavior (Strack & Deutsch, 2004). According to motivation-based theories of behavior, when customers intend to use SSTs, they expect value from the use of SSTs, and such values are rooted in the specific features of SSTs usage (Haas & Kenning, 2014). Hedonic and utilitarian values are the two types of values customers expect from the use of SSTs. Hedonic motivators are independent of shoppers' tasks and reflect emotional motives such as liking a service employee, while utilitarian motivators are related to rational, task-related motives such as obtaining purchase-relevant information (Babin, Darden, & Griffin, 1994).

The use of self-service technologies (SSTs) in a retail store provide intrinsic benefits such as enjoyment or feelings of independence that serve as an essential shopping motivation for customers in their shopping activity (Meuter et al., 2003; Arnold & Reynolds, 2003). According to Langeard, Bateson, Lovelock, and Eiglier (1981), some customers enjoy playing with technologies and suggest that these customers may prefer self-service options that allow them to do so. With the availability of new channels, customers are able to enjoy services with enhanced independence and freedom from time/space constraints (Meuter et al., 2000; Oliver, Livermore, & Farag, 2009). This intrinsic enjoyment that the customers experience from the shopping activity is related to the social experience of shopping (e.g., Arnold & Reynolds 2003; Cox et al, 2005). To customers, consulting with salespeople is an important

element for the formation of a favorable social experience (Reynolds & Beatty, 1999). Customers can easily be involved in consultations and the salespeople are expected to make an effort to serve and please them during the service encounter (Menon & Dubé, 2000). Thus, when customers are motivated by the enjoyment of the shopping activity, the more they will value such hedonic returns (Haas & Kenning 2014).

The use of SSTs also provides benefits such as cost and time savings, convenience, and delivers higher quality service enabling the customers to have a favorable shopping process (Meuter, Ostrom, Bitner, & Roundtree, 2003). Customers' approach to shopping involves efficiency orientation in which it implies a utilitarian, cognitive, and non-emotional method of shopping (Haas & Kenning, 2014). In efficiency orientation, customers view shopping as a deliberate activity and therefore, customers have the necessary information and sufficient knowledge about a particular product prior to the shopping trip (Moorthy, Ratchford, & Talukdar, 1997). To effectively save time in shopping, customers plan ahead for their shopping activity (Haas & Kenning, 2014). Therefore, efficiency-oriented customers have a clear understanding of the products they need and want to purchase, and consider the time spent in shopping as a valuable component in their shopping experience (Ganesh, Reynolds, & Luckett, 2007).

Prior research revealed the various features and benefits of SSTs (e.g., fun and enjoyment from using the technology, time and cost savings, and greater control over the service delivery) and showed that such features positively affect customers' potential usage of SSTs in a retail store. (Kauffman & Lally, 1994; Meuter et al., 2000; Meuter & Bitner, 1998). Considering that the features of SSTs are related to customers' hedonic and utilitarian shopping values, it is expected that customers with both hedonic and utilitarian motivations are expected to show higher levels of self-service technologies use intention. Thus, the followings are hypothesized;

H1: *Hedonic shopping motivation increases self-service technology use intention.*

H2: *Utilitarian shopping motivation increases self-service technology use intention.*

One of the most important purposes of introducing SSTs is increasing store patronage. Considering the purpose of SSTs, understanding the impact of SSTs on retailer attitude is important since an attitude toward a retailer has been shown to predict store patronage (Korgaonkar, Lund, & Price, 1985). Research on online retailer attitude also found that innovative natures of Web sites enhance attitude toward the online retailer and patronage behavior (Fiore & Jin, 2003). Thus, the following is hypothesized;

H3: *Self-service technology use intention increases an attitude toward a retailer.*

2.3. Presence of Employee

Social Impact Theory suggests that people are impacted by the imagined presence or action of another person or group of people (Latané, 1981). Social influence situations in customer settings are not limited to interactive situations such as a customer being greeted by salespeople but include those without an interaction as well (Argo, Dahl, & Manchanda, 2005; Childers & Rao, 1992). Social situations with non-interaction involve a person that is physically present in an area but does not engage with the customer at all (Argo et al., 2005). Research has shown that a positive emotional response can be elicited through the mere association between people as it creates a level of social attachment and that, people have a human motivation to belong (Baumeister & Leary, 1995). Whereas, a negatively charged and unpleasant states may occur for some customers as the absence of humans may trigger thoughts of loneliness and isolation (Latané, 1981).

The social impact theory (SIT) research has been applied to the study of the presence of employees in a retail context (e.g., Argo et al., 2005; Zhang, Li, Burke, & Leykin, 2014). Presence of employee refers to the preference of a customer to visually see an employee at the point of a self-service transaction (Collier, Moore, Horkey, & Moore, 2015). Research in self-service notes that customers often have a desire to have an employee within sight as they perform the transaction.

The mere presence of an employee in a retail environment suggests several attributes that can enhance both pleasure and customer satisfaction. The mere presence of an employee signals less waiting time for the customer than an absent employee. Waiting time is typically negatively charged in emotion terms and negatively associated with customer satisfaction (Taylor, 1994; Weijters, Rangarajan, Falk, & Schillewaert, 2007). In an empirical study, it was shown that the absence of an employee in a retail environment produced lower levels of pleasure and customer satisfaction than the mere presence of an employee (Söderlund, 2016). In a shopping environment, customers are found to consult with salespeople more to increase their enjoyment of shopping experience. According to Cox, Cox, and Anderson (2005), customers utilize the help of salespeople to improve their shopping pleasures. It has also been found that customers may approach salespeople for issues that are not related to the shopping itself (Weber & Johnson, 2009). Thus, the mere employee presence impacts customer satisfaction even though the customer views the employee as someone not really useful in a retail setting.

Efficiency orientation is one of the sources of motivation for the customers to consult with the salesperson (Haas & Kenning, 2014). Customers uncertainty about the product-related choices motivates them to reduce the uncertainty (e.g., by acquiring the appropriate information or by finding potentially negative consequences) (e.g., Crowe & Higgins, 1997; Urbany, Dickson, & Wilkie, 1989). Salespeople are expected by the customers to have the necessary information they need and that, the information can be acquired through consultation (Pieters, Bottschen, & Thelen, 1998). Customers expect consultations with salespeople to be an effective means for purchase uncertainty reduction (Haas & Kenning, 2014). Considering that the employee presence is a prerequisite for consultation, customers can expect that their shopping uncertainty can be reduced, even without actual consultations with salespeople, by the mere presence of employee.

Meuter et al. (2000) also demonstrates that for any service provider, the abilities of contact employees are critical to customers' technology usage decisions.

Given that the presence of employee; (a) provides customers with pleasure and satisfaction, (b) increases shopping efficiency by reducing time and uncertainty, and (c) affects global evaluations of a retail store (Söderlund 2016; Haas & Kenning 2014; Curran et al., 2003), it is expected that the presence of employee will moderate the relationships between shopping motivation, self-service technology use intention, and retailer attitude. Thus, the followings are hypothesized;

H4: *Presence of employee moderates the relationship between hedonic motivation and self-service technology use intention*

Table1: Measurement items

Construct	Items	Standardized Factor Loadings	C.R.
Hedonic Motivation (Babin et al., 1994).	In general, grocery shopping is truly a joy for me.	.936	17.692
	For me, grocery shopping trip truly feels like an escape.	.794	13.263
	Compared to other things I could have done, the time spent for grocery shopping is truly enjoyable.	.936	17.689
	While doing grocery shopping, I feel a sense of adventure.	.846	
Utilitarian Motivation (Putrevu, & Brian, 1997)	My grocery shopping goal is the acquisition of goods rather than shopping experience.	.715	7.486
	I visit grocery stores because of necessity rather than personal pleasure.	.864	
SST Use Intentions (Venkatesh et al., 2012)	I would use the technology for grocery shopping, if it is available.	.954	23.366
	I intend to use the technology the next time I see it in the store.	.933	21.920
	I would use the technology instead of the traditional shopping cart.	.911	
Retailer Attitude (Rossiter, & Percy, 1980)	Visiting the store for grocery shopping, it would be good.	.875	18.976
	Visiting the store for grocery shopping, it would be superior.	.831	16.721
	Visiting the store for grocery shopping, it would be pleasant.	.911	21.198
	Visiting the store for grocery shopping, it would be excellent.	.929	
Presence of Employees (Collier et al., 2015)	I would like being able to see an employee while using the technology.	.809	14.890
	I would feel more confident if an employee is close while I use the technology.	.877	17.601
	Having an employee present in the technology area would enhance my technology experience.	.925	19.818
	Having a store's employees near the technology would make me feel more confident about my technology experience.	.903	

H5: Presence of employee moderates the relationship between utilitarian motivation and self-service technology use intention

H6: Presence of employee moderates the relationship between self-service technology use intention and an attitude toward a retailer.

3. Methodology

Participants of this study are all American customers. Considering that the aim of this study is investigating the effects of SSTs in a retail setting, only customers who have been shopping at a grocery store within the last month were eligible to participate in the survey. Data were collected online using Amazon Mechanical Turk from August 29, 2018 to September 6, 2018.

Participants answered the questionnaire after watching a 73-second video. The video introduces the functions and benefits of self-service technology that can be utilized in a retail environment. The presence of employee level was controlled as zero. The video was manipulated to not show service employees in the retail store. All measurement scales used in this study are derived from established studies (Table 1).

The data were analyzed through structural equations modeling using AMOS 20. A two-step structural equation modeling approach (Anderson & Gerbing, 1988) was used for the analysis. A multiple group analysis was conducted to test the moderating effects of presence of employee. A group comparison between (a) high poe group and (b) low poe group was conducted. The research model is presented in Figure 1.

4. Results

A total of 185 participants completed the online survey. The sample was mostly younger participants with college educational level. Each of the participants was given a compensation of \$0.70 for completing the survey. The participants were comprised of both males with 54.6% (n=101) and females with 45.4% (n=84). The average spending per grocery shopping was \$271.97.

Confirmatory factor analysis was conducted. The measurement model was estimated by investigating reliabilities of individual items, a convergent validity of the measures associated with each construct, and a discriminant validity between constructs (White, Varadarajan, & Dacin, 2003). All items and their associated factor loadings are shown in Table 1.

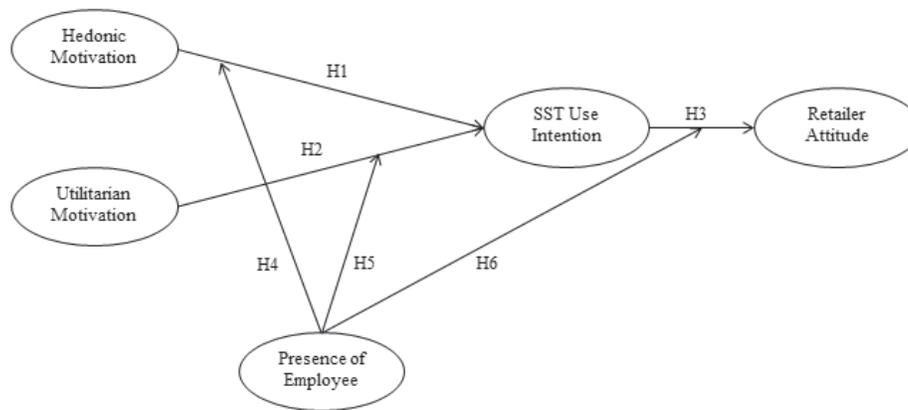


Figure 1: Research model

Table 2: Correlations between the constructs

	Hedonic Motivation	Utilitarian Motivation	SST Use Intention	Retailer Attitude	Employee Mere Presence	C.R.
Hedonic Motivation	.534	-	-	-	-	.820
Utilitarian Motivation	-.575	.531	-	-	-	.692
SST Use Intention	.247	.055	.713	-	-	.882
Retailer Attitude	.429	-.037	.817	.717	-	.910
Employee Mere Presence	.419	-.084	-.020	.032	.641	.877

Notes: Diagonal shows the AVE for each construct.

Table 3: Results of SEM analysis (H1, H2, and H3)

Hypothesis	Unstandardized Regression Weights	Standardized Regression Weights	S.E.	C.R.	p	Hypothesis Testing
H1	.377	.450	.084	4.490	<.001	supported
H2	.504	.308	.181	2.791	.005	supported
H3	.612	.821	.045	13.703	<.001	supported

Table 4: High and Low poe groups

Median=5 (n=185)		
	High_poe	Low_poe
Mean	6.03	3.59
SD	0.52	1.15
n	85	100
SE	0.06	0.12

Table 5: Critical Ratios for Differences between Parameters

		High_poe		
		Hed – SST Int	Uti – SST Int	SST Int – Ret Att
Low_poe	Hed – SST Int	1.067	-0.364	-0.96
	Uti – SST Int	0.602	0.097	0.573
	SST Int – Ret Att	1.406	-0.367	-2.631

All constructs in the measurement model showed Cronbach’s alpha value greater than .70, AVEs greater than .50, and construct reliabilities greater than .70. Discriminant validity was achieved for all constructs. The square root of the average variance extracted for all constructs exceeded the correlation between two latent constructs (Fornell & Larcker, 1981) (Table 2).

The final measurement model exhibited satisfactory goodness-of-fit statistics (Bagozzi & Yi, 1988); $X^2(109) = 155.834$, $X^2/df = 1.430$, $p = .002$, $GFI = .910$, $CFI = .984$, $RMSEA = .048$. The structural model (N=185) showed satisfactory goodness-of-fit statistics (Bagozzi & Yi, 1988); $X^2(61) = 104.023$, $X^2/df = 1.705$, $p = .000$, $GFI = .921$, $CFI = .981$, $RMSEA = .062$. All fit statistics were within acceptable ranges for both the measurement and the structural models.

Hypotheses 1, 2, and 3 were tested through the structural model. Hypotheses 1 through 3 were supported (Table 3). Both hedonic ($\beta=.450$) and utilitarian ($\beta=.308$) shopping motivation showed significant effects on SST use intention. SST use intention showed significant effects on retailer attitude ($\beta=.821$).

Hypotheses 4, 5, and 6 were centered on the moderating effects of the presence of employee. All participants (N=185) responded to the presence of employee scale. The presence of employee was measured with 4 items using 7 points Likert scales. A median split on responses to this scale was used to classify participants into two groups; high and low presence of employee groups. Among the total of 185 participants, participants who showed poe score higher than the median value of 5 were

classified into high poe group (N=85). Participants who showed poe score lower than the median value of 5 were classified into low poe group (N=100) (Table 4).

A group comparison between the two groups was conducted through multiple group analysis in structural equation model. The full model was divided into two separate models according to the level of presence of employee. The structural relationships, and the extent of each relationship between the two groups was compared. A multiple group confirmatory factor analysis was conducted to ensure measurement equivalence between the two groups (Raju, Laffitte, & Byrne, 2002). The test results showed that the X^2 difference between the unconstrained model and the measurement weights model was 10.383(9), which is lower than the cutoff value 16.92(9) at $p = .05$ level. Therefore, the measurement equivalence between the two groups, high and low poe groups, was confirmed.

A multiple group analysis was conducted by testing the structural relationships for each model first, and comparing each relationship between the two models using pairwise parameter comparisons in Amos 20. The group differences regarding the levels of poe were tested.

The results of high poe group showed that all paths, except for the relationship between utilitarian shopping motivation and SST use intention ($p = .067$), in the model were significant at $p < 0.01$ level. Hedonic shopping motivation showed significant effects on SST use intention ($\beta = .434$), and SST use intention showed significant effects on retailer attitude ($\beta = .900$). The results of low poe group showed that all paths in the model were significant at $p < 0.01$ level. Hedonic ($\beta = .591$) and utilitarian ($\beta = .474$)

shopping motivation showed significant effects on SST use intention, and SST intention showed significant effects on retailer attitude ($\beta = .760$).

In order to test the moderating effects of poe, pairwise parameter comparisons were conducted to compare each path between the two groups. The critical ratios for differences between the paths are presented in Table 5. The test results of multiple group analysis showed that, among the three paths, presence of employee only moderates the effects of SST use intention on retailer attitude. Thus, hypotheses 4 and 5 were not supported. Hypothesis 6 was supported.

5. Discussion and Conclusion

Hypotheses 1, 2, and 3 were supported. Both hedonic and utilitarian shopping motivation showed a significant effect on SST intentions, and SST intentions showed a significant effect on retailer attitude. Considering that both types of shopping motivations have significant impacts on SST intentions, the hedonic and utilitarian benefits that the customers expect from the use of the new technology should be met and should satisfy the customers. In addition to utilitarian benefits such as information and knowledge obtained through the use of new technologies, it has been found that the enjoyment felt in the process of using new technologies also plays a major role in determining whether customers would use new technologies. Customers have different shopping motivations when they perform shopping activities, and the use of new technologies increase when customers expect that it can meet and satisfy their shopping motivations. The increased intention to use new technologies was linked to a favorable attitude toward retail stores that introduced the technology. Therefore, the implementation of new technologies in retail stores can be used as a store differentiation factor.

Hypotheses 4, 5, and 6 were about testing the moderating effects of the presence of employee. In order to test the moderating effects of the presence of employee, the participants in this study were divided into two groups, high and low poe groups, based on their answers to the presence of employee measurement items. Hypotheses 4 and 5 were not supported. The presence of employee did not moderate the relationship between shopping motivation and SST intentions.

In the high presence of employee group, hedonic shopping motivation showed a significant effect on SST intentions, when utilitarian shopping motivation did not. Customers in the high poe group are the one who prefer to have employees around in a retail store even if they do not engage in an interaction with them. Among the group of customers with high presence of employee, customers with utilitarian motivations were less willing to use the technology. One possible reason could be that the actual

presence of employees can meet the utilitarian aspect of the customers through an interaction with employees. Customers may also think that they have the choice to interact with the employees if they want to, thus, they would not bother using new technologies. In the high presence of employee group, customers with utilitarian motivations may find it more enjoyable and efficient to engage in an interaction with the employees in a retail store.

In the low presence of employee group, all relationships were found to be significant. Customers in the low poe group are the one who do not mind if employees are not around in a retail store during their shopping activity. Considering that customers in low poe group are not concerned about employee presence, the significant effects of hedonic motivation on SST intentions suggest implications for retailers. In addition to social experience, the hedonic shopping motivation include motivation such as pleasure, fun, and entertainment. The hedonic shopping motivation sought by customers who do not have a preference for employee presence would be pleasure, fun and entertainment rather than social experience. Given this, it can be understood that low poe group customers, like high poe group customers, feel the use of the new technology itself as a fun and enjoyable activity.

The hypothesis 6 was supported. The employee presence moderates the relationship between SST intention and retailer attitude. The impact of SST intention on retailer attitude was higher in the high group than in the low group. The introduction of new technologies in retail stores replace the services previously provided by the employees that leads to reduced service personnel. However, test results showed the need to place employees in retail stores even if the introduction of new technologies can satisfy both customers' hedonic and utilitarian needs. Still, many customers want employees to be on standby within the service area even when they do not need to interact directly with the employees. Ultimately, customers formed a more favorable retailer attitude when employees are present.

This study suggests implications for retailers. Retailers should provide both hedonic and utilitarian benefits to customers through the new technology in order to meet the customers' diverse shopping motivations and increase their willingness to use the new technology. Most of the existing technologies offered to customers in retail stores focused on providing utilitarian benefits such as providing product-related information. However, this study found that customers who seek hedonic motivation also intend to use the new technology. Customers feel the process of using the new technology itself as a fun and enjoyable activity. Thus, retailers must also consider how the new technology can satisfy customers' hedonic motivation. Moreover, it has been found that the pursuit of hedonic motivation in both high and low groups leads to the intention of using new technologies. This result highlights the result of hypothesis

1 that newly introduced technology in retail stores should satisfy customers' hedonic motivations. In addition, even if the introduction of new technologies replaces services previously provided by employees, this study showed that employees still need to be deployed in service areas within retail stores to form a more favorable attitude towards the retailer.

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