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A COMPARISON OF THREE TYPES OF SERVICES WITH SELF-SERVICE TECHNOLOGIES IN SERVICE ENCOUNTERS

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ABSTRACT
Self-service technologies (SSTs) have increasingly been changing the relationship between customers and firms. Therefore, it is a crucial issue for many service providers to understand customer-perceived service encounters. Although there are varied characteristics of SSTs in our daily life, research which has documented the link between customer encounters and SSTs is little. Therefore, the aim of this study attempts to explore service encounters on three types of services (the KTV system, the ticket vending machine, and the city guide kiosk) with SSTs. This study first adopted the critical incident technique (CIT) to collect a total of 722 critical incidents from participants in interviews. This study further categorized these critical incidents into a hierarchy-level service encounters construction. Finally, this study found that "poor design" received the highest percentage at the service failures level of dissatisfactory service encounters. Moreover, there were some deviations among these three types of services with SSTs at the interaction issue level. In addition, this study further proposed some service design suggestions to reduce the negative critical incidents.

Keywords: service design, service encounter, SSTs, CIT

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1 INTRODUCTION

To effectively reduce the labor and cost of service (Dabholkar, 1996) and to satisfy customers' needs or wants, several systems have adopted emerging technologies to assist the management and innovativeness of service. Kandampully (2000) further asserted that businesses couldn't avoid the impact of technology in the service industry. Today, self-service innovation and development has attracted the attention of many companies, organizations, and scholars (Cunningham, Young, & Gerlach, 2009). Many self-service technologies (SSTs), such as ATMs, multimedia kiosks, and self-checkout systems, are closely related to our daily lives, and are widely used in service industries (Lovelock, Wirtz, Keh, & Lu, 2005). Bitner, Brown, and Meuter (2000) pointed out that there are three characteristics of SSTs: (1) provide customized service; (2) support service recovery; and (3) create surprising experiences. However, technology is not a panacea for a variety of service problems. When dealing with technologies, customers must cope with technology paradoxes, such as control vs. chaos or new vs. obsolete (Mick & Foyrnier, 1998).

In addition, the service encounter is the "moment of truth" (Normann, 1984). There is a positive relationship between service encounter and customer satisfaction (Bitner, Booms, & Tetreault, 1990). Due to technology applications have increased, the focus of service encounter has shifted over the past few decades from an emphasis on face-to-face service to attention to SSTs (Sundbo, 1997). Moreover, the new service-centered paradigm postulates that value is co-created by customers through service interaction experience in a relational exchange (Patrício, Fisk, & Cunha, 2008). In fact, customers in self-services are treated as co-producers such that their participation would affect the service output directly and indirectly (Meuter, Ostrom, Roundtree, & Bitner, 2000). In general, a service firm could adopt different design strategies and customized services to provide unique services (Mossberg, 2007). In recent years, service design has emerged as a professional field (Vogel, 2009). Mager and Sung (2011) embraced the notion that "service design looks at the experience by focusing on the full customer journey, including the experiences before and after the service encounters" (p. 1). Basically, a firm or an organization should deeply understand the customer in order to design a good service encounter during the service design process. Therefore, this study aims to understand the customer's service encounters and propose several service design advices of SSTs.

2 LITERATURE REVIEW

2.1 Self-service technologies

Alcock and Millard (2006) defined self-service as "…any technological mediated interaction or transaction with a company where the only humans involved in the experience are the customers themselves (p. 70)." Furthermore, SSTs was defined as "technological interfaces that enable customers to produce a service independent of direct service employee involvement" (Meuter et al., 2000, p. 50). In recent years, researchers (Bitner et al., 2000; Dabholkar, 1996; Zhu, Wymer, & Chen, 2002) point out that technology plays an important role in service delivery. Furthermore, for tangible benefits of the applications of SSTs, the targets can be roughly separated into two aspects, service providers and service receivers (Lovelock et al., 2005). First of all, with regard to service providers, SSTs can improve efficiency and accuracy of service delivery, provide customized services, save costs, increase productivity, improve competitiveness, expand market share, and enhance brand image (Meuter et al., 2000). With regard to service receivers, SSTs can save time and costs; increase control; and provide efficient, flexible, and convenient service without face-to-face contact (Curran, Meuter, & Surprenant, 2005). Currently, technology-based self-service can provide not only consistency in service process and highly stabile service quality but also personal and customized service contents.

In fact, SSTs could be classified into several categories. Meuter et al. (2000) classified types of SSTs according to two dimensions: interface and type. On the basis of this matrix, this study further added mobile service to the interface dimensions, as shown in Table 1. Moreover, Meuter et al. (2000) suggested that researchers should attempt to draw comparisons across the different types of SSTs represented by the matrix. Today, Slack and Rowley (2002) asserted that kiosks are high related with daily live; they located in public space, such as shopping malls, airports, railways stations, and they service customers like agents. In this study, we explore service encounters from three different types (customer service, transaction, self-help) of interactive kiosk services, such as the KTV system, the ticket vending machine, and the city guide kiosk.

Table 1. Types and examples of SSTs

Interface / Type	Interactive voice response	Online / Internet	Interactive Kiosks	Video / CD	App / Mobile
Customer service	· Telephone banking · Order status	· Package tracking · Account information	· ATMs · KTV	N. A.	· Meal order
Transaction	· Telephone banking · Prescription refills	· Retail purchasing · Financial transactions	· Ticket vending machine · Car rental	N. A.	· Ticket booking · Financial transactions
Self-help	· Information telephone lines	· Internet information search · Distance learning	· Blood pressure machine · Tourist information	· Tax preparation software · Television training	· Healthy training · Map · Learning course

Source: Revised from Meuter et al. (2000).

2.2 Service encounter with SSTs

The service encounter is the moment of interaction between a customer and a service company (Bitner et al., 2000; Beech & Chadwick, 2005). Parasuraman (1996) proposed a "pyramid model" to extend the "triangle model," as shown in Figure 1. For the triangle model, on the right side of the triangle is called "external marketing," and it means the service firm makes the promise to the customer; on the left side of the triangle is named "internal marketing," and the firm trains employees and provide them resource to enable them deliver customers a satisfactory service; on the bottom of the triangle is called "interactive marketing" which is the service encounter occurred between employees / technology and customers, service encounters not only deliver satisfactory services to show the promise or deliver dissatisfactory service to break the promise. However, the pyramid model presents technology as the very important fourth end point. The service encounter with SSTs means a "piece of technology" is added the moment of interaction between customers and service companies (Henten, 2012). Shostack (1985) proposed three types of services encounters, which are remote encounters, phone encounters, and face-to-face encounters. Customers experience one or multiple service encounters in once. Mudie and Cottam (1999) further modified service encounters to three types, including remote encounters, indirect personal encounters, and direct personal encounters. For instance, ATMs and vending machines are remote encounters, telephone banking and order status are indirect personal encounters, and foodservice staffs and ticket windows are direct personal encounters. Therefore, in order to understand customers' satisfaction and dissatisfaction with service encounters of SSTs, this study investigated three different types of kiosk services with remote service encounters and proposed several proposals to improve their service encounters of SSTs.

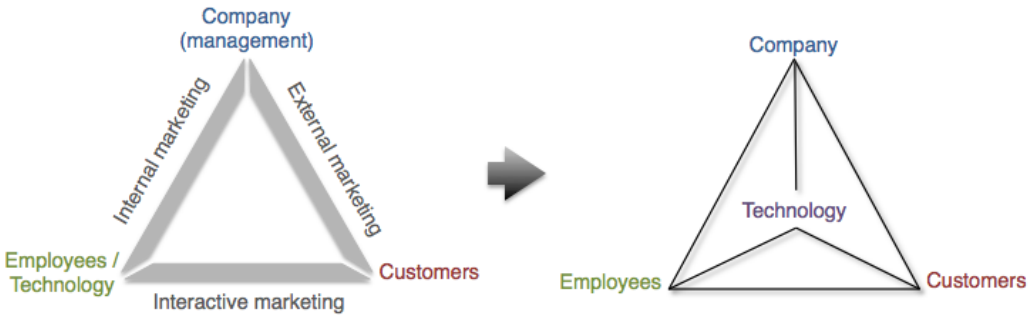

Figure 1. Service encounter triangle (Parasuraman, 1996)

3 METHODS

3.1 Critical incident technique

The interview survey instrument used in this study was a semi-structured questionnaire based on critical incident technique (CIT). The CIT is a qualitative interview procedure that facilitates the investigation of significant occurrences (events, incidents, processes, or issues) identified by the respondent, and the outcomes in terms of perceived effects (Chell, 1998). The objective is to gain understanding of the incident from the perspective of the individual, taking into account cognitive, affective, and behavioral elements (Chell, 1998). Moreover, the CIT method can provide a rich set of data (Gabbott & Hogg, 1996). However, CIT is a naturally retrospective research method; thus, respondent stories reported in incidents can be misinterpreted or misunderstood (Edvardsson, 1992; Gabbott & Hogg, 1996). Similarly, the CIT method may result in other undesirable biases, such as consistency factors or memory lapses (Singh & Wilkes, 1996). Therefore, researchers interviewed the participants after they had availed of the service almost immediately, and provided gifts to encourage them to describe the situations in sufficient detail.

3.2 Objective setting

In this study, we investigate three types service with SSTs, as shown in Table 2. This study selected them according to three criteria: 1) representing different types of the services, 2) providing interaction via a touch screen of kiosk services, and 3) offering easy-to-use services.

The first one is the KTV system. Since 1990s, KTV, the Karaoke store has become the most popular leisure activity in Taiwan. There are one or two kiosks in each KTV boxes, which provide searching, ordering and singing service for the customers. Figure 2 shows a customer journey of the KTV system. At the pre-service stage, the customer enters the box and sees the KTV system. At the during-service stage, the customer searches for songs or singers, checks them, and order songs. At the post-service stage, the customer reviews the information, sings songs and has fun in the KTV box. Therefore, this study chose the KTV system for evaluating the customer service with SSTs.

The second type we examined the ticket vending machines utilized by the Taiwan High Speed Rail (THSR). In fact, THSR not only provides personal ticket windows to offer direct personal encounters for conducting business, but also offers SST-based mechanisms for selling tickets. Some of these SSTs include ticket vending machines at train stations, kiosks in convenience stores, a website for online booking, and applications available on mobile phones. In this case, we specifically evaluated the ticket vending machine that THSR employed at train stations, Figure 3 shows a customer journey map. At the pre-service stage, the customer follows directions to find the ticket vending machine in the train station. At the during-service stage, the customer selects the ticket sort and time, pays for it with cash or a credit card, and gets the ticket and change. At the post-service stage, the customer takes the ticket to enter the platform. This study chose the ticket vending machine at train stations to evaluate the transaction with SSTs.

The last one is the city guide kiosk. Due to the emergence of tourism, many scenic spots use SSTs to provide tourist guild services. In Taipei, the city guide kiosk has established a visitor information center and several mass transit stations. It enables users to find several parts of the city easily and assist the customer in navigating traffic, seeking out entertainment, and procuring additional information via the touch screen. Figure 4 shows a customer journey map of the city guide kiosk.

Table 2. Three types of services with SSTs

Service	the KTV system	the ticket vending machine	the city guide kiosk
Type	customer service	transaction	self-help
Illustration			
Content	· song require · pop song charts	· train · timetable	· map guide · tourism information
Interface	· touch screen	· touch screen and keyboard	· touch screen
Location	· store	· train station	. visitor Information Center . mass rapid transit station

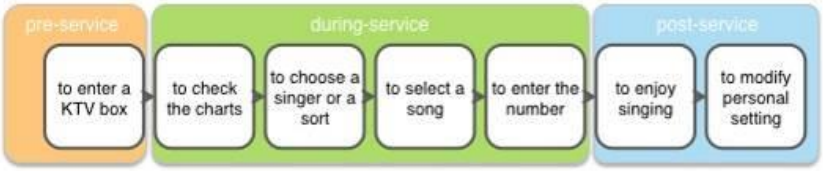

Figure 2. The customer journey map of the KTV system

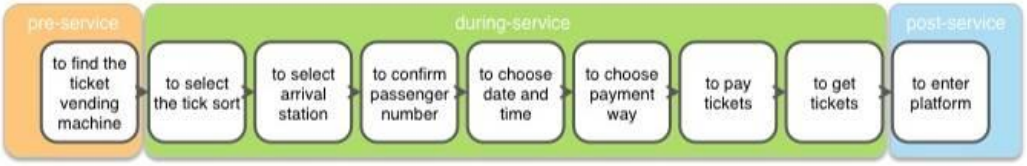

Figure 3. The customer journey map of the ticket vending machine

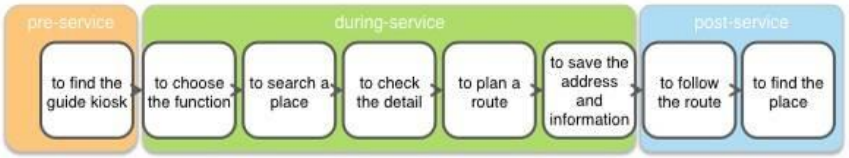

Figure 4. The customer journey map of the city guide kiosk

At the pre-service stage, the customer leaves the platform and sees the city guide kiosk. At the during-service stage, the customer searches for a place, checks details regarding it, and downloads the information. At the post-service stage, the customer follows the information downloaded in their mobile phone to arrive at a destination. Hence, we chose the city guide kiosk to evaluate the self-help with SSTs.

3.3 The CIT questionnaire

Data were collected from a random sample with a questionnaire that was delivered to all customers after availing a kiosk service. The semi-structured questionnaire was divided into two sections. The first section contained questions relating to the demographic characteristics of the participant but no names were collected, thus retaining the privacy of the participants. This information was incorporated in order to investigate whether socio-demographic characteristics were significant in influencing the customers' attitudes toward the various types of services with SSTs. The second part allowed them to express their most satisfactory and dissatisfactory service encounters freely and openly.

3.4 Analyses

On the basis of events with which participants were most dissatisfied (Meuter et al., 2000), this study developed a hierarchy of service encounters to succinctly categorize critical incidents (see Table 3). Specifically, three types of satisfactory service encounters and seven types of dissatisfactory service encounters emerged from the interview data. These satisfactory service encounters were classified into three broad levels: *function* level, *benefit* level, and *usability* level. Three types of services failure levels (solved intensified need, better than the alternative, and did its job) were originally cited by Meuter et al. (2000). Furthermore, satisfactory service encounters related to benefit further divided into six categories. To discover more information of SSTs, this study further proposed usability level as a category. In total, the final taxonomy was comprised of 3 levels (function level, benefit level, and usability level) containing 12 types of satisfactory service encounters.

On the other hand, these dissatisfactory service encounters were classified into three broad levels: service failure level, design issue level, and interaction issue level. Four types of services failure levels (technology failure, process failure, poor design, and customer-driven failure) were originally cited by Meuter et al. (2000). Furthermore, dissatisfactory service encounters related to poor design further divided into two categories on the basis of the design issue level. To facilitate the provision of suggestions related to SSTs design advances, this study further proposed interaction issues as a category of service

Table 3. Distributive construction of service encounters

Attributes	Description
S1 Solved intensified need	Because of these characteristics, the SST is often available to help the customer immediately solves a problem.
S2 Better than the alternative	The customer perceives that the SST is a better channel than the interpersonal service delivery.
S2A Easy to use	The SST is easier to use than the interpersonal service delivery.
S2A1 Advanced technology	The technology performed in such a way that the user is happy with the encounter.
S2A2 Smooth service process	The service process leads the customer to use the SST easily.
S2A3 Nice interface	The interface guides the customer to use the SST easily.
S2B Avoid service personnel	The SST enables them to perform the service without having to interact with anyone.
S2C Saved time	The SST performs more quickly or efficiently than other channel does.
S2D Convenient hours	The SST enables the customer to use the service anytime when they want to use.
S2E Right location	The service firm offers the SST in the right location that is easy to reach for the customer.
S2F Saved money	SST enables the customer to save money or offer service with discount.
S3 Did its job	SST doing what it is intended to do.
D1 Technology failure	There is a breakdown of delivery caused the customer interacts with the technology.
D2 Process failure	There is a breakdown or failure in the process after the customer–technology interaction occurred.
D3 Poor design	These are aspects of the service built into the system such that any customer using the SST would be confronted with the same issue
D3A Technology design problem	SST is functioning as designed, but the technology performed in such a way that the user was unhappy with the encounter.
D3B Service design problem	The SST interface and the function are designed but there was some service aspect that the customer did not like.
D3B1 Interface problem	The interface causes the customer to face failure.
D3B2 Operation problem	The usage of SST is too complex and hard for the customer.
D3B3 Payment problem	The payment approach makes the customer anxious.
D4 Customer-driven failure	Because of the customer's actions, there are some failures of the SST.
D5 Poor content	The content of service provides insufficient information for the customer.
D6 Lack of maintain	The service firm does not regularly maintain the system of SST.
D7 Wrong location	The service firm offered the SST in the right location that is hard to reach for the customer.
D8 Short of machines	The service firm offered a little number of SST.

Source: Revised from Meuter et al. (2000).
Note: S= Satisfactory service encounters, D= Dissatisfactory service encounters.

failure. In total, the final taxonomy was comprised of 3 levels (service failure level, design issue level, and interaction issue level) containing 13 types of dissatisfactory service encounters. To categorize the original incidents according to the taxonomy, three reviewers familiar with SSTs and the CIT method independently coded participants' responses. The reliability of the reviewers' coding decisions was established by having the reviewers repeat the coding process five days after their initial decisions (Andersson and Stig, 1964).

4 RESULTS AND DISCUSSION

4.1 Service encounters of the KTV system

A total of 120 participants who described in detail or addressed their encounters completed the interview questions. The sample of participants was composed of a higher number of females (58%) than males (42%). Participants in the sample ranged from less than 16 to more than 65 years of age; however, the largest group of participants was between the ages of 16 and 25 years (65%). In terms of education, 47.6% of the sample had an associate's degree or an advanced college degree. The

distribution of service encounters across attributes developed by the reviewers is presented in Table 4 and 5. This resulted in a final sample of 225 incidents—136 (60%) describing satisfactory service encounters and 89 (40%) describing dissatisfactory service encounters. The most satisfactory encounter was "better than the alternative" (92%) of *function* level and "easy to use" 77% which was a result of "smooth service process" (37%) was the most important attribute of *benefit* level. "Poor design" (42%) and "technology failure" (31%) were the most dissatisfactory at the service failure level of service encounters. At the *design issues* level, "service design problem" (42%) which resulted from "operation problem" (24%) and "interface problem" (18%) of *interaction issues* level was the most important attribute. In this service, we found the most satisfactory service encounter and most dissatisfactory service encounter were high related with the design and usability and interaction of interface. Therefore, the interface interactive design should be treated as a critical aspect while the service firm designs and delivers new "customer service" of services with SSTs.

4.2 Service encounters of the ticket vending machine

A total of 154 participants who described in detail or addressed service encounters with SSTs completed the interview questions. The sample of participants was composed of equal numbers of males (50%) and females (50%). Participants in the sample ranged from less than 16 to more than 65 years of age; however, the largest group of participants was between the ages of 26 and 35 years (34%). In terms of education, 89.6% of the sample had an associate's degree or an advanced college degree.

This resulted in a final sample of 291 incidents—187 (64%) describing satisfactory service encounters and 104 (36%) describing dissatisfactory service encounters, as shown in Table 4 and 5. The result showed that "better than alternative" received the highest percentage (98%) at the *function* level of satisfactory service encounters. Furthermore, the result was caused from "easy to use" (58%) and

Table 4. Satisfactory service encounters of three types of services with SSTs

Satisfactory service encounters	**the KTV system**		**the ticket vending machine**		**the city guide kiosk**	
Attributes	**N**	**%**	**N**	**%**	**N**	**%**
S1 Solved intensified need	5	4	3	2	**39**	**38**
S2 Better than the alternative	**126**	**92**	**184**	**98**	**40**	**39**
S2A Easy to use	**105**	**77**	**108**	**58**	**38**	**37**
S2A1 Advanced technology	*13*	*10*	*13*	*7*	12	12
S2A2 Smooth service process	***50***	***37***	*28*	*15*	4	4
S2A3 Nice interface	*15*	*11*	*24*	*13*	15	15
Other	*27*	*22*	*43*	*23*	7	7
S2B Avoid service personnel	*0*	*0*	1	1	1	1
S2C Saved time	21	15	**68**	**36**	1	1
S2D Convenient hours	0	0	3	2	0	0
S2E Right location	0	0	4	2	**0**	**0**
S3 Did its job	5	4	0	0	23	23
Total	**136**	**100**	**187**	**100**	**102**	**100**

Table 5. Dissatisfactory service encounters of three types of services with SSTs

Satisfactory service encounters	**the KTV system**		**the ticket vending machine**		**the city guide kiosk**	
Attributes	**N**	**%**	**N**	**%**	**N**	**%**
D1 Technology failure	**28**	**31**	12	12	**34**	**32**
D2 Process failure			4	4	**0**	**0**
D3 Poor design	**37**	**42**	**68**	**65**	**37**	**35**
D3A Technology design problem	0	0	4	4	3	2
D3B Service design problem	**37**	**42**	**64**	**62**	**34**	**32**
D3B1 Interface problem	**16**	**18**	*10*	*10*	**25**	**24**
D3B2 Operation problem	**21**	**24**	*8*	*8*	9	9
D3B3 Payment problem	0	0	***43***	***41***	0	0
Other	0	0	*3*	*3*	0	0
D4 Customer-driven failure	2	2	4	4	1	1
D5 Poor content	19	21	8	8	**31**	**30**
D6 Lack of maintain	1	1	0	0	1	1
D7 Wrong location	0	0	1	1	0	0
D8 Short of machines	2	2	7	7	1	1
Total	**89**	**100**	**104**	**100**	**105**	**100**

"saved time" (36%) at *benefit* level. The results were shown that the customer perceived SSTs provide more convenient and time-saved way than ticket windows. The most dissatisfactory service encounter was "poor design" (65%) at *service failures* level, "service design problem" (62%) at *design issues* level, especially originated in "payment problem" (41%) at *interaction issues* level. In this service, we found the most dissatisfactory service encounter was high related with the design of payment. Therefore, the payment approach design should be treated as a critical issue while the service firm designs and delivers new "transaction" of services with SSTs.

4.3 Service encounters of the city guide kiosk

A total of 104 participants who described in detail or addressed service encounters completed the interview questions. The sample of participants was composed of slightly more number of males (53%) than females (47%). Participants in the sample ranged from less than 16 to more than 65 years of age; however, the largest group of participants was between the ages of 16 and 25 years (54%). A total of 54% of the sample had an associate's degree or an advanced college degree.

The distribution of service encounters is presented in Table 4 and 5. This resulted in a final sample of 206 incidents—102 (49%) describing satisfactory service encounters and 105 (51%) describing dissatisfactory service encounters. The majority of satisfactory service encounters were "better than the alternative" (39%) and "solved intensified need" (38%) at *function* level. For the *benefit* level, "easy to use" (37%) of satisfactory service encounters resulted of "nice interface" (15%) and "advanced technology" (12%) at *usability* level. The majority of dissatisfactory service encounters was "technology failure" (32%), "poor design" (35%), and "poor content" (30%) at *service failures* level. And the "service design problem" (32%) at *design issues* level and "interface problem" (24%) at *interaction* level were the main problems." In this service, this study found the most dissatisfactory service encounter was high related with usability and interaction of interface. Therefore, the interface interactive design should be treated as a critical aspect while the service firm designs and delivers new "self-help" of services with SSTs.

4.4 A comparison among three types of services with SSTs

This study further compared customer dissatisfaction with service encounters in these three types of services. First of all, the result shows that the majority of participants are youth and those with higher education. Second, this study found that "better than alternative" received the highest percentage at the *function* level of satisfactory service encounters. Third, "poor design" was the common dissatisfaction at *service failures* level of service encounter (see Table 6). Fourth, "service design problem" was the most important issue at the *design problem* level. Finally, there was some deviation among them at the *interaction* issue level. "Optional problem" was cited as the most important issue for the KTV system (24%), "Payment problem" was cited as the most important for the ticket vending machine (41%), and "interface problem" was cited as the most important problem for the city guide kiosk (25%).

This study further generated some service design solutions. First, for the KTV system, customers were most dissatisfied with the system operation. Because the value of this type of kiosk (customer service) is the help customer use the service easily and efficiently. Therefore, service encounters of customer service kiosks should provide a stable system that customers can easily access. Second, for the ticket vending machine, customers were most dissatisfied with the payment portion. The value of this type of kiosk (transaction) is the exchange of money for tickets. So it is necessary to consider the security, convenience, and flexibility of payment features in the design of an SST geared towards facilitating monetary transactions. Third, with respect to the city guide kiosk, customers were most dissatisfied with the usability. The value of this type of kiosk (self-help) is based on the process through which information is delivered to customers. Therefore, to maximize the extent to which SSTs promote self-reliance on the part of customers, service firms should provide not only ample information, but a user-friendly design interface (Gerber & Martin, 2012).

Table 6. A Comparison of dissatisfactory service encounters of three types of services with SSTs.

Service	**the KTV system**	**the ticket vending machine**	**the city guide kiosk**
Type	**customer service**	**transaction**	**self-help**
Service failure	poor design		
Design issue	service design problem		
Interface issue	operational problem	payment problem	interface problem

5 CONCLUSIONS AND SUGGESTIONS

5.1 Conclusions and recommendations

In this study, this study has identified several service encounters from different types of services with SSTs. These results could provide insight for firms or organizations that currently offer or plan to offer an SST to deliver service. This study found that "better than alternative" received the highest percentage at the *function* level of satisfactory service encounters, and "poor design" received the highest percentage at the *service failures* level of dissatisfactory service encounters. Moreover, "service design problem" was the common problem at the *design issue* level for all of the three types of services with SSTs. Most notably, "operational problem" was the most dissatisfactory service encounter for the KTV system, "payment problem" was the most dissatisfactory service encounter for a vending machine, while "interface problem" was for the city guide kiosk at the *interaction issue* level. Despite similarities like this one, there were also some problems that were unique to each service firm's SSTs. As the results, each firm should clarify the value of its SST at first. And then each every stakeholder should be involved in the design process to design a whole experience together (Fullerton, 2009). Actually, customers are treated as not only a co-designers to help service firms design an interface that they are used to operate and show their requirements for the SSTs, but a co-producers to offer service by themselves in SSTs. Finally, although a kiosk is a valuable approach for customers, it is important to provide choices or channels because not all customers will be interested in the kiosk. Therefore, service firms should maintain consistent service characteristics throughout different devices.

5.2 Limitations and suggestions

This study was exploratory, and thus, was not without limitations. There were varied characteristics of three types of SSTs, more additional researches are required to learn the implications of SSTs. Some participants may polish their descriptions of service encounters to show themselves in a more positive light. If this was the case, the results presented here have inherent bias. Since only kiosk was investigated, the findings of this study may not be applicable to other kind of interface, such as interactive voice response, online service, and app service. Currently, evolving technology enables enhanced services to be offered through new forms and channels (Saraswat, 2009). As the result, the execution and cooptation relationship between different multi-channels becomes an important issue (Neslin et al., 2006). Furthermore, the relation between customer involvement with SSTs and pleasure value is also established (Ho, Lee, Sung, 2012). Therefore, how does a service firm design pleasant SSTs to minimize customers' anxiety with technology or new service interface? Much insight in these issues will help service firms to increase usage of their SSTs and succeed in an increasingly competitive marketplace.

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