Cross-Channel Service Experiences of Meal Ordering Services:

Evidence from the fast-food industry in Taiwan

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Abstract: Website-based and mobile-based services have become more important over the past decade. However, the characteristics of different cross-channel services are still unknown and cross-channel service experiences of meal ordering service has not yet been fully explored. Therefore, this study aimed to explore the different cross-channel service experiences between website-based and mobile-based meal ordering services. In doing so, this study first drew customer journey maps. Secondly, this study employed the critical incident technology (CIT) method to collect a total of 529 critical incidents from 60 young people. Thirdly, this study categorized these incidents into four major service experience dimensions, such as platform interaction, reliability, supporting service, and individual perception. Finally, this study adopted the service gap model to analyze 289 dissatisfactory incidents, and to compare the difference of service experiences between website-based and mobile-based meal ordering services. This study found that the major dimension of the most satisfactory incidents of both of website-based and mobile-based services is platform interaction, while the major dimension of the most dissatisfactory incidents of these two types of services are different. As for the service gap, the results indicated that the design and standard gap received the highest percentage for both of two types of meal ordering services.

Key words: Cross-channel, meal ordering, critical incident technology, service gap

1. Introduction

Since combining different channels to provide services has become a future trend [1], cross-channel service issues have gathered great importance in recent years. In fact, using different service channels in different service stages have already been wildly applied in customers' daily lives [2]. Take meal ordering services for example, customer can make orders online and then pick up their meals at a physical store, and one complete service is offered via two channels, an online channel and offline channel. Compared to single channel services, cross-channel services can provide a variety of services to meet the complex needs of customers [1]. Montoya-Weiss, Voss, and Grewal (2003) pointed out that well-integrated cross-channel services will enhance the pleasant experiences of customers [3]. Hence, more and more industries are applying diverse service channels, regardless in financial, insurance, medical, communications, education, or food and beverage industries [3].

With the rapid growth of extensive service channels in recent years, many customers have gradually accepted cross-channel services [4]. In the fast-food industry, Parkan (1987) found that speed and quality of meal delivery are the key elements of fast-food restaurant evaluation [5]. Thus, many fast-food restaurant owners have applied

self-ordering systems as cross-channel services to pre-make the meal and reduce waiting time in physical stores. Up to this point, however, many studies within cross-channel services have been done on the retail industry [6, 7] rather than the fast-food industry. Furthermore, past studies have been done in this field to explore strategy, customer behavior and loyalty aspects [1], but there are limited studies on service experiences and emotional issues. Patrício, Fisk, and Cunha (2008) pointed out that failed service experiences will appear in many multi-channel service industries, if they are not well designed to meet the needs of customers [8]. Therefore, this study focuses on cross-channel meal ordering services in Taiwan's fast-food industry (hereinafter referred to as **M** company, which was one of the top three fast-food industries in Taiwan). The main purposes of this study are: 1) to explore the most satisfying and most dissatisfying service experiences within cross-channel meal ordering services; 2) to explore different customer service experiences between the different types of cross-channel meal ordering services; 3) to provide suggestions for improving service experiences of cross-channel meal ordering services in the future via service gaps analyses.

2. Literature Review

2.1 Cross-Channel Services

Chereddi, Kyasanur and Vaidya (2006) defined service channel as an encounter where enterprises can manage customer relationships through employees, technology, or both [9]. In addition, different channels have different characteristics according to abilities and performances [1], and customers often utilize different channels for different purposes [2]. Secondly, there are various types of service channel classifications. For marketing logic, Bolton, Lemon, and Verhoef (2004) classified service channels into six types which include mass media, direct marketing, the Internet, personal selling, intermediaries and word of mouth [10]. Osterwalder and Pigneur (2009) further classified channels into five types which consist of sales force, web sales, own stores, partner stores, and wholesalers [11]. In fact, past studies have explored service channel issues based on the classification of online channel and offline channels [6, 7, 12]. Therefore, this study will adopt this classification.

For cross-channel service industries, there are two common modes for customer to make orders and receive products or services, including "order online then pick up in-store" and "order in-store then make home delivery" [6]. In the past few decades, the majority of cross-channel service issues have been found in multi-channel research. Most of them explore cooperation, extension, and synergy between different service channels [13]. In fact, cross-channel service synergy is vital for industries with an increasing number of competitive channels [7]. Furthermore, mutual effects can exist between service channels; for instance, offline channel service satisfaction will affect online channel service satisfaction [14]. The interactions between customers and channels will also be affected by the customer's previous experiences with specific channels [15]. Therefore, different customer experiences in channel using are likely to interfere with the fluency of interaction processes.

2.2 Web-Based and Mobile-Based Meal Ordering Services

Dube-Rioux, Schmitt and Leclerc (1989) divided the purchase journey of restaurant service into three phases, including the pre-process phase, in-process phase and post-process phase [16]. This study will adjust the journey to meet the characteristic of takeout services in fast-food restaurants and define the range of meal ordering services of customers purchasing meals as the pre-process and in-process phases. As for the website-based and mobile-based meal ordering services, the pre-process phase often includes *selecting the meal* via online channels,

and the in-process phase includes *paying the bill* and *picking up the meal* via offline channels. To better understand the current cross-channel meal ordering services experience offered by **M** company, this study determined the customer journeys of each service by observation and internal employee interviews.

2.3 Service Experience and Service Gaps

Shaw and Ivens (2002) pointed out that service experiences refer to performance that occurs during encounters with different channels at different times within multiple service channels [17]. Otto and Ritchie (1995) defined service experiences as the most intuitive emotional decision when customers receive services [18]. From the service perspective, every channel can bring unique affordances and constraints to users. Several studies have examined the enhancing and inhibitory effects of single channel and cross-channel services applications on customer behavior [19]. Previous studies also considered that exploring customer behavior in cross-channel services can help in strategic planning [2]. Indeed, bad service experiences will damage cross-channel service benefits, even if the additional online channels can reduce costs, and increase satisfaction [20].

Designers can examine real problems of services and improve them in order to develop new service experiences through exploring the gaps between the expectations of customers and the actual service received by customers. Actually, the gap analysis model proposed by Parasuraman, Zeithaml and Berry (1985) [21], was widely applied in many research fields and industries due to its through explanation of service failure points. Basically, there are five service gaps, including: Gap 1, knowledge gap; Gap 2, design and standard gap; Gap 3, performance gap; Gap 4, communication gap; and Gap 5, customer gap. The customer gap can be filled if gaps 1 to 4 have all been filled. According to this principle, this study defines gaps 1 to 4 as follows: 1) knowledge gap: dissatisfactory meal ordering service experiences due to insufficient understanding of customer needs or lack of specific service content; 2) design and standard gap: dissatisfactory meal ordering service experiences due to the lack of a proper and clear design for current services, even though they already provide the service content; 3) performance gap: dissatisfactory meal ordering service experiences because the implementation of services is limited by internal and external factors, even though they are well-design; 4) communication gap: dissatisfactory meal ordering service experiences due to inconsistent information between customer and staff.

3. Methods

3.1 Critical Incident Technique (CIT)

According to the CIT method [22], this study applied semi-structured interview methods to explore the service experiences of cross-channel services from customer perspectives. During the past 30 years, the application of CIT has been widely used in service research [23]. Researchers may employ narrative, self-reported stories to discover specific events or phenomenon within the CIT process, and classify them into critical incidents [24]. The CIT method is helpful for solving practical problems owing to the combination of behavior observation and classification within the process [22]. In addition, it can also provide a large amount of information [23]. For service research, researchers use CIT as a tool to collect the most satisfactory and dissatisfactory incidents due to the projection of positive and negative service events [25]. Therefore, this study will adopt the CIT method to collect the most satisfactory and dissatisfactory service experiences.

3.2 Data Collection

A semi-structured questionnaire was employed in this investigation. The questionnaire consists of two parts, personal information for the first part and sharing service experiences for the second part. In the first part, participants filled in their name, gender, age, department, and other personal information. Additionally, in order to understand whether previous experiences will affect results, all participants also provided their past experiences in using smart devices and cross-channel meal ordering services of **M** company. In the second part, participants shared their feelings regarding their most satisfactory and dissatisfactory service experiences during cross-channel meal ordering services. Moreover, the participants can review the whole service process by a flowchart to trigger their memories during the interview.

This research invited 60 young adults to take part in the meal ordering experiment on campus. Participants filled in their information on the questionnaire first, and took part in two cross-channel meal ordering services in turn and in random order. Each cross-channel meal ordering experiment started with the same meal ordering task description, and then participants used a computer or a mobile device to place the order online, and pick up their meal in a physical store later. Finally, participants described their service experiences after they had picked up their meals. Data was collected primarily through written records of the responses. Figure 1 illustrates the execution process.

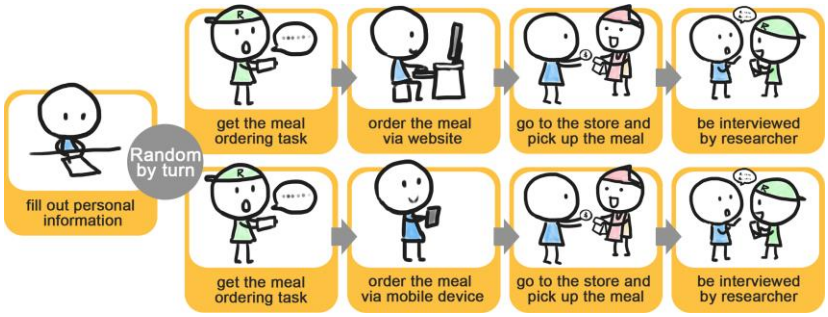

Figure.1 The CIT execution process

3.3 Sample Characteristics

The participants in the study were 60 young adults between 22 to 27 years old; 27 of the participants were male and 33 were female, and 40 of the 60 participants had their own smart devices (67%). The 60 participants involved in this study can also be further categorized by their previous experiences with the two cross-channel meal ordering services of **M** company. For website-based meal ordering services, 8% had used it before, 45% had heard about it but had never used it, and 47% had never heard about this service. For mobile-based meal ordering services, 12% had used it before, 33% had heard about it but had never used it, and 55% had never heard about this service.

3.4 Classification of Satisfactory and Dissatisfactory Incidents

Table 1 illustrates the final classification system, including 19 sub-categories and 4 service dimensions with their definitions and examples. This classification system mainly referenced the research of online and offline channels by Holloway and Beatty (2008) and the research of online encounters by Sweeney and Lapp (2004) [24, 26]. The classification process includes initial classification of satisfactory and dissatisfactory incidents by three researchers and the second round was implemented after one week. Finally, the three researchers compared the six classifications and judged the final results.

Table 1. Definitions and examples of service dimensions

Service Dimensions	Definitions	Sub-categories	Examples
A Platform interaction	Include all elements of the consumer's experience at the meal ordering website (except for supporting service).	A1 Information quality A2 Navigation A3 Purchase process design A4 Ease of use A5 Production tracking A6 Information updates A7 Price of offerings	Satisfactory incident: *"The interface was designed very well, so I could find the meal quickly."* Dissatisfactory incident: *"The ordering system provided a code for me, but they asked for my name when I went to pick up my order."*
B Reliability	Customer received what they thought they ordered based on the display and descriptions shown on the web-based platform; and/or delivery of the right meal at the right price in good condition within the right time.	B1 Timeliness of delivery B2 Order accuracy B3 Meal delivery condition B4 Technological system stability B5 Billing accuracy B6 Meal quality	Satisfactory incident: *"It is convenient to pre-order, pick up the meal without waiting, and it is also faster than order in the store."* Dissatisfactory incident: *"They forgot to pre-make my order."*
C Supporting services	Helpful, responsive service that responds to customer inquiries and returns/complaints quickly during or after the sale.	C1 Personal service C2 Web service C3 Servicescape design	Satisfactory incident: *"The website provided an assistance phone number under the interface."* Dissatisfactory incident: *"I needed to search for the clerk to pick up my order."*
D Individual perception	The customer's individual perception of security and privacy during the service process; and/or individual experiences with the ordering service.	D1 Security D2 Privacy D3 Personal experience	Satisfactory incident: *"Since I understood the meal ordering APP before using website ordering, I knew the process and it felt easy to use."* Dissatisfactory incident: *"I felt worried about my personal information."*

Source: Holloway & Beatty (2008); Sweeney & Lapp (2004)

4. Results

4.1 Cross-Channel Meal Ordering Services of M Company

M company provides four kinds of cross-channel meal ordering services, including a call center, a self-service kiosk, website, and APP. Due to their future development potential, we focused on website and APP. Accordingly, the customer journey maps of website-based and mobile-based cross-channel meal ordering services are defined as the following figures (see Fig. 2 and Fig. 3) by observation and internal employee interviews. The main difference between the two customer journeys is the timing for filling out personal information. For the website-based customer journey, the users filled out their personal information first; for the mobile-based customer journey, the users provided their personal information at the end of the online channel phases.

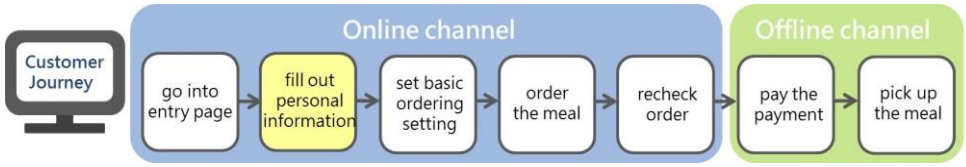

Figure.2 A customer journey map of the website-based cross-channel meal ordering service

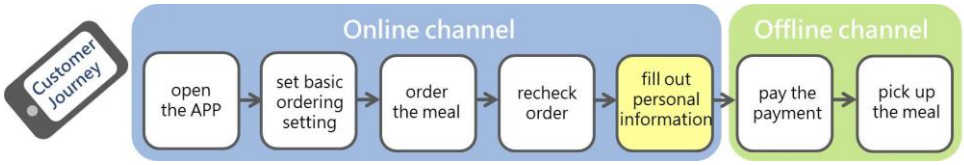

Figure.3 A customer journey map of the mobile-based cross-channel meal ordering service

4.2 Critical Incidents of Two Cross-Channel Meal Ordering Services

The study finally found 529 critical incidents of the cross-channel meal ordering services which consist of 240 satisfactory incidents and 289 dissatisfactory incidents. This study will further describe the details among each cross-channel meal ordering service.

Table 2. Critical incidents of the cross-channel meal ordering services

Service Dimension/Categories	Website-based				Mobile-based			
	Satisfactory		Dissatisfactory		Satisfactory		Dissatisfactory	
	number	%	number	%	number	%	number	%
A Platform interaction								
A1 Information quality	2	1.7	6	4.6	6	4.8	18	11.4
A2 Navigation	11	9.5	18	13.7	2	1.6	15	9.5
A3 Purchase process design	13	11.2	20	15.3	28	22.6	21	13.3
A4 Ease of use	20	17.2	27	*20.6	30	*24.2	26	*16.5
A5 Production tracking	0	0.0	2	1.5	0	0.0	3	1.9
A6 Information updates	0	0.0	3	2.3	0	0.0	1	0.6
A7 Price of offerings	2	1.7	3	2.3	1	0.8	1	0.6
subtotal, dimension 1	*48*	**41.4*	*79*	**60.3*	*67*	**54.0*	*85*	**53.8*
B Reliability								
B1 Timeliness of delivery	27	*23.3	7	5.3	23	18.5	8	5.1
B2 Order accuracy	2	1.7	0	0.0	0	0.0	3	1.9
B3 Meal delivery condition	12	10.3	8	6.1	15	12.1	15	9.5
B4 Technological system stability	1	0.9	7	5.3	1	0.8	6	3.8
B5 Billing accuracy	0	0.0	0	0.0	0	0.0	1	0.6
B6 Meal quality	4	3.4	1	0.8	3	2.4	1	0.6
subtotal, dimension 2	*46*	*39.7*	*23*	*17.6*	*42*	*33.9*	*34*	*21.5*
C Supporting services								
C1 Personal service	13	11.2	6	4.6	12	9.7	9	5.7
C2 Web service	1	0.9	5	3.8	0	0.0	0	0.0
C3 Servicescape design	1	0.9	14	10.7	0	0.0	20	12.7
subtotal, dimension 3	*15*	*12.9*	*25*	*19.1*	*12*	*9.7*	*29*	*18.4*
D Individual perception								
D1 Security	0	0.0	1	0.8	0	0.0	0	0.0
D2 Privacy	1	0.9	0	0.0	0	0.0	1	0.6
D3 Personal experience	6	5.2	3	2.3	3	2.4	9	5.7
subtotal, dimension 4	*7*	*6.0*	*4*	*3.1*	*3*	*2.4*	*10*	*6.3*
Total	**116**	100%	**131**	100%	**124**	100%	**158**	100%

Note: * : the highest percentage of each service types.

4.2.1 Website-Based Cross-Channel Meal Ordering Services

Figure 4 provides the comparison chart of (dis)satisfactory service experiences within the website-based cross-channel meal ordering service. To understand the findings, we examined the ranked order of the service dimensions by outcome. The percentages of satisfactory service experiences in order are as follows: 1) platform interaction (41.4%); 2) reliability (39.7%); 3) supporting services (12.9%); and 4) individual perception (6%). The percentages of dissatisfactory service experiences in order are as follows: 1) platform interaction (60.3%); 2) supporting service (19.1%), 3) reliability (17.6%), and 4) individual perception (3.1%). Here we have two interesting findings, first, the first order of satisfactory and dissatisfactory service experiences both are platform interaction; second, the reverse order of reliability and supporting services.

We further examined the ranked order of the sub-categories by outcome. The top two satisfactory service experiences are as follows: 1) timeliness of delivery (23.3%); 2) ease of use (17.2%). The top two dissatisfactory service experiences are as follows: 1) ease of use (20.6%); 2) purchase process design (15.3%). Ease of use is the critical incident in both satisfactory and dissatisfactory service experiences. This finding indicates that differences exist in the importance of satisfactory versus dissatisfactory service experiences within website-based cross-channel meal ordering services.

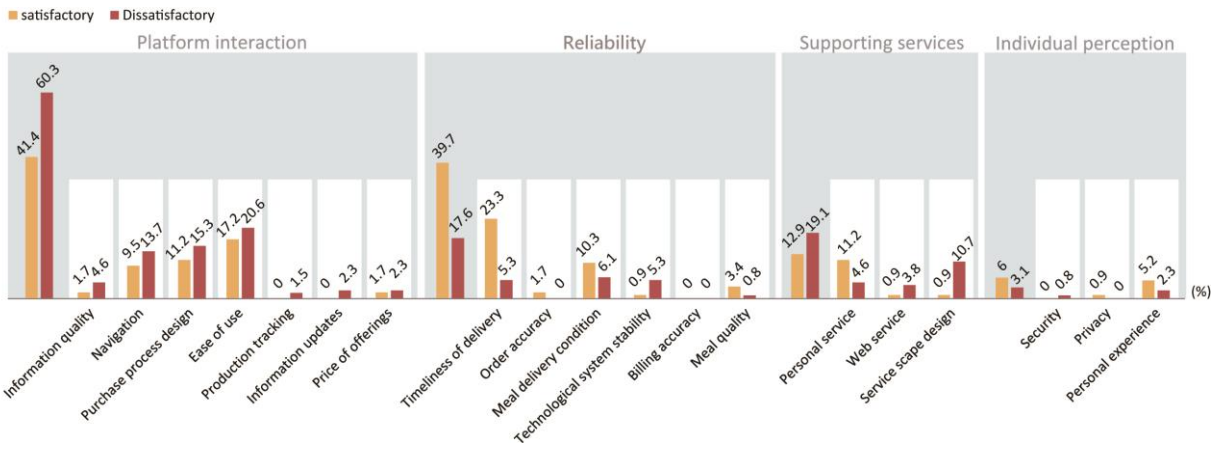

Figure.4 Distribution of critical incident percentages of the website-based cross-channel meal ordering service

4.2.2 Mobile -Based Cross-Channel Meal Ordering Services

Similarly, Figure 5 provides the comparison chart of the (dis)satisfactory service experiences within the mobile-based cross-channel meal ordering service. To comprehend the findings, we also examined the ranked order of the service dimensions by outcome. The percentages of satisfactory service experiences in order are as follows: 1) platform interaction (54%); 2) reliability (33.9%); 3) supporting service (9.7%); and 4) individual perception (2.4%). The percentages of dissatisfactory service experiences in order are as follows: 1) platform interaction (53.8%); 2) reliability (21.5%); 3) supporting service (18.4%); and 4) individual perception (6.3%). Interesting findings include the same ranking of satisfactory and dissatisfactory service experiences, and platform interaction as the most important service dimension.

We also further examined the ranked order of the sub-categories by outcome. The top two satisfactory service experiences are as follows: 1) ease of use (24.2%); and 2) purchase process design (22.6%). The top two dissatisfactory service experiences are as follows: 1) ease of use (16.5%); and 2) purchase process design (13.3%).

Ease of use and purchase process design are the critical incidents in both satisfactory and dissatisfactory service experiences. These findings indicate the same critical incidents for satisfactory versus dissatisfactory service experiences within mobile-based cross-channel meal ordering services.

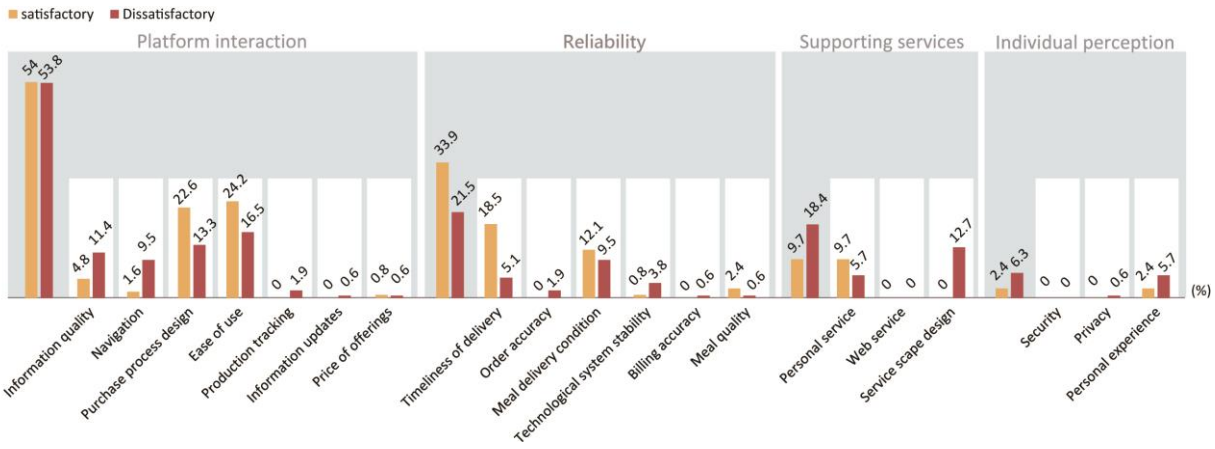

Figure.5 Distribution of critical incident percentages of the mobile-based cross-channel meal ordering service

4.2.3 A Comparison between Two Cross-Channel Services

To explore the differences in the two kinds of cross-channel services, we compared the outcomes of their (dis)satisfactory service experiences. The satisfactory service experiences are shown as Fig. 6. For the percentages of service dimensions in order, both website-based and mobile-based services in order are as follows: 1) platform interaction; 2) reliability; 3) supporting services; and 4) individual perception. For the percentages of sub-categories in order, the top two satisfactory service experiences of website-based meal ordering service are as follows: 1) timeliness of delivery (23.3%); and 2) ease of use (17.2%). The top two satisfactory service experiences of mobile-based meal ordering service are as follows: 1) ease of use (24.2%); and 2) purchase process design (22.6%). Figure 6 shows that the key incidents of each service are significantly different by sub-categories.

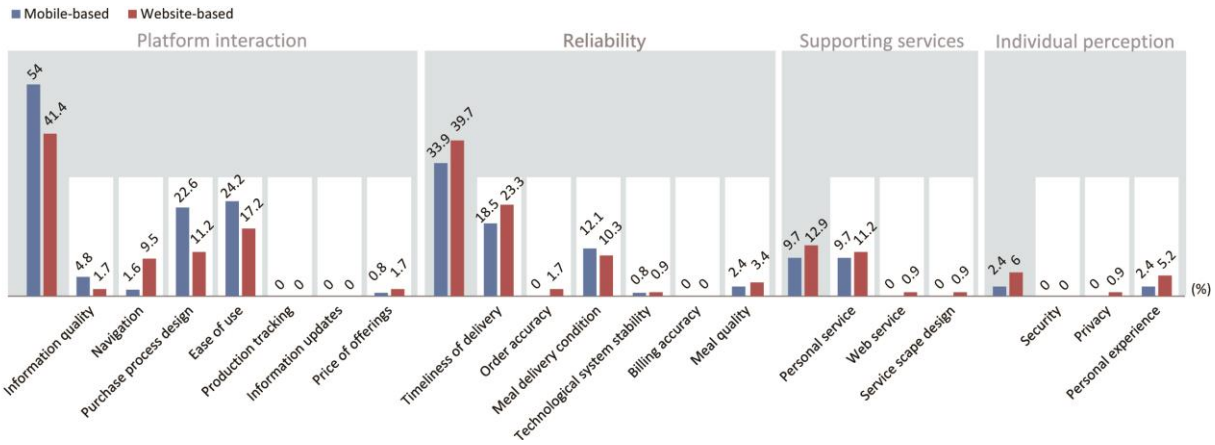

Figure.6 Distribution of satisfactory incident percentages of two cross-channel meal ordering service

Next, the dissatisfactory service experiences of the two services are shown as Fig 7. There are differences that exist in the ranked order of the service dimensions. The percentages of website-based services in order are as

follows: 1) platform interaction (60.3%); 2) supporting service (19.1%); 3) reliability (17.6%); and 4) individual perception (3.1%). The percentages of mobile-based services in order are as follows: 1) platform interaction (53.8%); 2) reliability (21.5%); 3) supporting service (18.4%); and 4) individual perception (6.3%). However, the outcomes are similar in their ranked orders of each sub-category. The top two dissatisfactory service experiences of website-based meal ordering service are as follows: 1) ease of use (20.6%); and 2) purchase process design (15.3%). The top two dissatisfactory service experiences of mobile-based meal ordering service are as follows: 1) ease of use (16.5%); and 2) purchase process design (13.3%). Ease of use and purchase process design are the most critical incidents in both website-based versus mobile-based cross-channel meal ordering services.

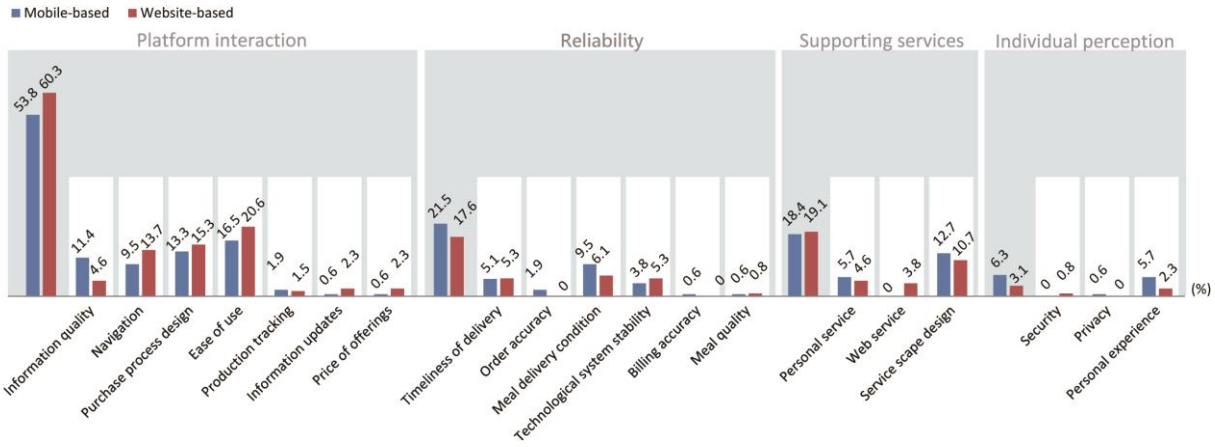

Figure.7 Distribution of dissatisfactory incident percentages of two cross-channel meal ordering service

4.3 Service Gaps Analyses

Figure 8 provides service gaps analysis of the 289 dissatisfactory service experiences, and there are 2 incidents cannot be classified into service gaps by outcomes. The percentages of service gaps order of the website-based service are as follows: 1) design and standard gap (63.1%); 2) performance gap (15.4%); 3) knowledge gaps (12.3%); and 4) communication gap (9.2%). The percentages of service gaps order of the mobile-based service are as follows: 1) design and standard gap (57.3%); 2) performance gap (19.7%); 3) knowledge gap (15.3%); and 4) communication gap (7.6%). The design and standard gap is the key dissatisfactory factor of website-based versus mobile-based cross-channel meal ordering services. Among them, solving platform interaction problems is the top priority within design and standard gap.

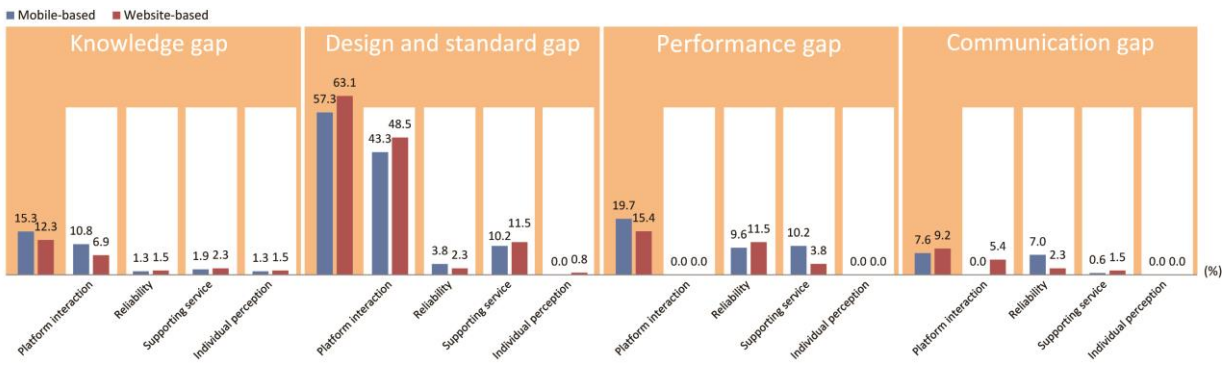

Figure.8 Distribution of service gaps of two cross-channel meal ordering service

To solve the problems of each service dimension within design and standard gap, this research presents possible solutions as Table 4. The similar suggestions of two cross-channel meal ordering services include providing graphical information, giving clear ordering process navigation, and designing more appreciable entry or icons. Take navigation for example, both website and mobile system could let user understand the complete meal ordering process via a guide line or an operating phase bar keep showing on the screen.

Table 4. Design recommendation for the platform interaction service dimension

Platform interaction	Website-based design suggestions	Mobile-based design suggestions
A1 Information quality	● to provide product figures in every meal ordering process ● to apply a graphical way to help understand the content faster	● to make interface simple ● to apply a graphical way to show meal classification
A2 Navigation	● to clearly convey and implement ordering rule and process design ● to make guidance and support services more obvious	● to provide complete process navigation ● to show a guidance outline page for first time users
A3 Purchase process design	● to provide an ordering process overview ● to rationalize the ordering process	● to avoid any user error in the ordering process
A4 Ease of use	● to optimize data input structure ● to make the entry icon more appreciable	● to improve the identifiability of the interface of the APP ● to have clear semantic expressions ● to provide trustworthy feedback
A5 Information updates	● to avoid information inconsistency ● to adjust the menu with different branches	N.A.

N.A.: Not applicable in the design and standard gap of Mobile-based meal ordering service

5. Conclusions

In comparing our research with previous studies, we focus on cross-channel service issues of the fast-food industry rather than the retail or banking industry. In this study, we employed the CIT method to collect and classify (dis)satisfactory service experiences of website-based and mobile-based cross-channel meal ordering services. It allowed us to: 1) assess our classification of the most satisfactory and most dissatisfactory service experiences within overall cross-channel ordering services, and 2) compare our findings across different cross-channel ordering services, and 3) provide suggestions according to the service gaps analysis.

Turning to the classification of the 529 critical incidents in Table 2, platform interaction is the most important service dimension of the two cross-channel services. Among these, the most satisfactory and dissatisfactory service experiences of each sub-category were different in website-based meal ordering service (timeliness of delivery; ease of use) while they were the same in mobile-based meal ordering service (both were ease of use). We further applied service gaps analysis on the dissatisfactory service experiences. The outcome indicated that design and standard gap is the key driver in both website-based and mobile-based cross-channel meal ordering services. Bitner, Zeithaml, and Gremler (2010) asserted how to ensure service design which can meet customers' needs is critical for fulfilling design and standard gap [27]. Thus, we provided several service design suggestions for each service dimension within the design and standard gaps as Table 4.

6. Limitations and Suggestions

In this study, there are several limitations during the implementation process. First, we adopted a real meal ordering services environment in order to represent more authentic service experiences for the participants. However, the uncontrollable factors of the real environment may affect service performances. Future studies should consider more controlled ways to deliver service experiences to ensure the consistency of service performance. Next, to collect large amount of information, we implemented interviews without limitations of the numbers of service experiences shared by each participant, so it became difficult to evaluate priorities through the percentages of the service experience classifications. Thus, we suggest more flexible ways to employ the CIT method in future service research. If the aim of the study is to improve current services, they should apply interviews or surveys without limitations on the numbers of incidents. If the aim of the study is to judge the priority of critical incidents, they may apply interviews or surveys within limited number of critical incidents for each person. Finally, bias may exist in our CIT classification outcomes due to the subjective judgments of the researchers. Future studies should consider more objective ways to increase the reliability of research findings.

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