On the Service Design of the Restaurant Queuing System in the Business Circle

JI Hao and JANG Wansok*

Wuhan University of Technology, China
* Corresponding author: jihao@whut.edu.cn

With the rapid development of China’s economy, people's living standards have stepped on their way of continuous improvement, and the number of dining out also increases continuously. Therefore, the restaurant-queuing problem in commercial circle has become a specific social phenomenon. The paper aims at studying restaurant queuing system of commercial circle from the perspective of service design to figure out the problems in current restaurant queuing system, complaints and demands from users through conducted research and contextual inquiry, and collect statistics for studying user’s experience and analysing system function and affordability so as to draw the service blueprint of queuing system in commercial circle. Furthermore, suggestions on solution of various problems in restaurant queuing will be provided in order to better arrange business space, restaurant resources and users’ time.

Keywords: Service Design; Restaurant Queuing; Business Circle; System

Introduction
The economic model has gradually transformed from agricultural and industrial economy into servicing mode with the acceleration of economic globalization. Product demands focusing mainly on function have turned to concentrate on customers’ experience and service received. At present, restaurant industry comes to be a basic service industry. Along with the increasing living standard, a large proportion of citizens eat out more frequently in China, this condition gives rise to a typical social phenomenon nowadays, namely there are lots of customers jostling in front of popular restaurants and waiting for seats for having lunch or dinner, this phenomenon also triggers a series of problems. In terms of service provider, improper queuing system and low-efficiency services cause loss...
of customers and damage for brand reputation. Considering of customers’ experience, queuing for a long time not only wastes time but also negatively affects dining experience. Regarding of public space in commercial circle, lots of people queuing in the location may give rise to space jam which is inconvenient for people to exit and incurs possibility of property loss etc.

**Literature review**

Service design has been gradually applied to the field of commercial and public services, through the integration of resources, redesign service model, re-allocation of service processes, etc., so as to establish and implement a high-quality service model, which creates greater business profits and brand value. At present, most of the research in this area is associated with management, sociology and other disciplines. The research on the combination of queuing system and service design has relatively attracted less attention from the academic field. Based on the research method of service design and the theoretical research of queuing system in catering business, this paper analyses the restaurant queuing system in commercial circle.

**Restaurant queuing system**

Restaurant queuing has become a typical social phenomenon in china, giving rise to a lot of problems. Profound research has been conducted on restaurant queuing problem. Dai Wei-qi (2006) put forward a series of problems related to separate operation in the field of business management, service quality deterioration and insufficient implement in restaurant queuing management have come into existence. Shi Ying (2002) analysed the existing problems regarding of restaurant queuing management from three aspects: waiting time of customers, length of the queue and service capacity utilization ratio. Wang Huan-yu (2007) thought that restaurant managers should arrange necessary services orientated to expected number of customers and settle down arrival time to ensure needful reception capacity. Han Ya-juan and Xie Hui (2012) established a queuing model with loss queuing model in different waiting area and queuing model with customer exiting in waiting area, and therefore provided a theoretical basis for effective queuing management.

These studies have brought up some problems and reasons for queuing in restaurants. But they did not consider the full range of services from the perspective of users to give full service experience. Meanwhile, with the development of Internet and technology, the current situation of restaurant queuing system has changed. In this paper, we focus on the restaurant queuing service system in the mobile Internet era.

**Service Design**

Service design refers to a holistic approach under the intention of helping to develop and provide high-quality services, contributing to acquisition of comprehensive and empathic understanding on users’ needs. Shocstack (1985) proposed concept of “service interaction” and pointed out the importance of tangible and intangible service, that is, face-to-face interaction between providers and receivers as well as service interaction between customers and hardware facilities, physical environment in the process of offering services. Loverlock (2004) stressed all factors like service staff, service facilities, service environment and other personnel in every link affecting the service experience of
customers and their perception and recognition towards enterprise culture. Yoo, Arnold and Frankwick (2012) and other scholars insisted that interaction among customers also delivers an impact on the whole service experience during service. Zhang Fang (2015) presented the composition of restaurant service encounter factors under the background of mobile Internet, and analysed the relationship between customer experience value and behavioural intention.

In the restaurant queuing system, there are interface encounter, physical environment encounter, personnel encounter and other encounters. Based on the comprehensive service encounter in the system, this paper explores methods and suggestions for improving the queuing system.

**Research on related products under mobile Internet context**

Along with progress and development of the Internet and technology, more and more restaurant queuing products comes into existence in the market, mainly classified into three categories: the first is based on mobile applications, focusing on mobile applications and public number; The second category is related to intelligent hardware products. The former, with great flexibility in time and place, can be used for ordering, waiting in anytime, anywhere while the latter has a greater limitation under comparison. The third refers to a product combining mobile applications and smart hardware, can be operated through phone applications to fulfill the function of waiting for a number of restaurant, and such product is very popular in the current market.

Comparative analysis of three hot products in the market will be conducted (Table 1). "Public remark" is based on its advantage of huge restaurant information resources, and diverse restaurant queuing functions, but only available to some cooperative restaurants, but with low utilization rate and unable to provide accurate queuing time. Haidilao, well-known for its service quality, has researched and developed brand application combined with all services of queuing, takeout, meal order and base retail, available for providing queuing details of different restaurants for the convenience of customers on choosing the right dining room, and offering snacks, beverages and entertainment equipment and other services in the process queuing, but without real-time queuing reminder that makes customers easier to be informed of the number and results in time waste; the waiting area is usually set outside the store surrounded with public environment and queuing in such space may bring about space jam to a certain extent inside the market. "Enjoy the Delicious without Waiting" combines three platforms of WeChat public number, mobile applications and intelligent hardware, with function of queuing, food reservation, reservation and others. It is a more mature product currently, but still confined to functional products, without taking other factors into consideration in the whole service system process, such as: waiting area environment, recreation during waiting time and so on.
<table>
<thead>
<tr>
<th>Product</th>
<th>Relying platform</th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public remark</td>
<td>• APP</td>
<td>• Own huge resources and information of restaurants</td>
<td>• Confine to some restaurants at low utilization rate;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Gather group-buying, paying, remarking and others.</td>
<td>• Unable to provide accurate queuing time.</td>
</tr>
<tr>
<td>Haidilao</td>
<td>• APP</td>
<td>• Provide queuing details for different restaurants;</td>
<td>• Provide no real-time reminder.</td>
</tr>
<tr>
<td></td>
<td>• Offline hardware</td>
<td>• Good offline service, provide snacks, beverages and recreation facilities</td>
<td>• The usually outside waiting area with deficient environment may affect market space.</td>
</tr>
<tr>
<td>Enjoy the Delicious without Waiting</td>
<td>• APP</td>
<td>• Good flexibility with combination of online and offline;</td>
<td>• Lack the consideration of other factors in the whole queuing service such as environment of waiting area, pastime way;</td>
</tr>
<tr>
<td></td>
<td>• WeChat Subscription • Offline hardware</td>
<td>• Use in WeChat public number, Do not need to download other apps again;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Remind queuing time automatically.</td>
<td></td>
</tr>
</tbody>
</table>

**Research methods**

This study applies methods and tools of service design to explode the status quo of the restaurant queuing in commercial field and the experience of users in the service experience process, followed by analysis on the function and affordability of the restaurant queuing system, finally service elements of the restaurant queuing system will be summarized. The research contents of each stage are explained as follow:

The first stage refers to the dining problem. Through questionnaire survey, this paper firstly discusses existing problems and users’ behaviours in the restaurant queuing system based on the customer’s perspective. Through contextual inquiry and interview, customers (service recipients) and servicers (service provider) will be observed and interviewed in the process queuing, and provide in-depth suggestions and analysis on user demands for restaurant queuing system.

The second stage is related to the analysis of demand. Target user groups are divided and typical personas are established by reference from the previous research. Furthermore, customer behaviour and emotional experience are analysed through drawing of map on customer experience process, which understands user needs, complaints and design opportunities.

The third stage is associated with functional analysis. Combined with user needs in the design research, the basic functions and auxiliary functions of the restaurant queuing system are analysed to determine the fundamental function points of the system, and the
whole function of the system is subcategorized into several sub-functions according to the logical order from main to secondary.

The fourth stage involves the practice of generating system availability and service elements. Based on the functional analysis, the function-activity interaction matrix is used to obtain the system affordability which can meet the users of functional requirements and behavioural habits. Through application of service blueprint tool, the user’s behaviour corresponds to the function of the system, so as to get the service touch-points in the service before, service, service after, which generate service elements.

Service design research on restaurant queuing system
In order to inquire into the deep reason for restaurant queuing and complaints or demands from users, this design survey adopts approaches for combining questionnaire survey, contextual inquiry with interview.

Questionnaire Survey
The survey was conducted in the way of online webpage survey from “questionnaire star”, with a total of 198 questionnaires downloaded, including 172 valid questionnaires. The questionnaire is divided into two parts. The first part lies in the basic information of the respondents, including gender, age, occupation and monthly income. The second part covers the queuing system of the restaurant, such as queuing time, number of meals, factors and so on.

The questionnaire survey data shows that the proportion of men and women participating in this questionnaire is basically balanced (male 48.23%, female 51.77%). And the targeted users are divided into three groups according to differences in occupation and age: students, workers, middle-aged. Specific findings are as follow:

- Students (30.81%) eat in restaurants 5-10 times (40.12%) in a month, most of whom are willing to wait in line for meals, can accept a relatively long queuing time. But they also believe that unpredictable queuing time (74.42%) is the biggest problem. They usually use mobile applications (83.72%) to kill time while waiting for a meal or stroll around the shops.
- Workers (41.63%) also eat in restaurants frequently, and decide whether to wait in line for meals depending on purposes for having meal. And most people choose to spend the time waiting in queue by chatting with their peers (32.4 percent) on cell phones / tablets (66.13 percent).
- With less frequency compared with students and workers, most elderly (11.61%) are unwilling to wait for meals (72.44%) and eat about less than 5 times a month in the restaurant. Most of them think that a good waiting environment (57.98%) is an important factor to decide whether to wait or not. During the waiting, they mainly chat with their companions (58.42%), followed by the choice of reading some magazines provided by the restaurants (30.2%).

From the above findings, the customers of different ages and occupations share similarities and differences in behaviours, demands, waiting psychology.
- User group. Based on the above data, the main consumer groups in the restaurant are students and workers. They have meal in restaurants with a higher frequency and are able to accept the restaurant line-up.

- Waiting for demand. Depending on the purpose for having meal, there is also a difference in the demand for restaurant queues. Considering of the purpose of entertainment for the purpose of dining, customers can accept a longer time, and give priority to waiting environment and approaches for enjoying pastime. In order to conduct business negotiations and make order for daily work meal, customers generally book earlier, and cannot accept a long queue. In this case, they pay attention to the efficiency of the queue and quality of service.

- Waiting behaviours. During the queuing period, different age groups choose different ways for waiting in line. Most of students and workers prefer to play mobile phones / iPad or stroll around the shops to spend waiting time, while the elderly is in favour of spending time for queuing through reading magazines and books in waiting area.

**Contextual inquiry and interview**

Contextual inquiry and interview are conducted to further explore user’s behaviour and psychology in the process of queuing. The research time is respectively at dinner peak time during holidays and festivals and lunch peak time in working days with research locations orientated for popular restaurants inside the Jiedaokou, Hanjie, Guanggu business circle of Wuhan city. Seven typical users are selected for contextual interview, referring to respectively: two undergraduates, two company employees, one retiree and two restaurant waiters. The interview lasts about 20-30 minutes on average. Meanwhile, the approach of using video and recording equipment is applied to record the research after the permission of interviewee. The survey results are concluded as follow:

- Dinner purpose decides whether to wait up in line or not, for example: under the purpose of tasting in a famous restaurant, they’ll keep on waiting regardless of queuing time, environment, etc., but they are unlikely to queue for meals when having lunch on working days.

- Waiting area environment is also regarded as an important factor for users to decide whether to wait or not. Clean and comfortable waiting area environment is inclined to make users more willing to queue for meals; it’s best to provide some infrastructure and entertainment equipment, such as: charging sockets, wireless networks, magazines and books, computers and so on.

- Select the ways for enjoying pastime according to the waiting time during the queuing. For example: stroll around stores with more than half an hour waiting; chat with friends, play phone and so on when the waiting time is less than 20 minutes.

- Most users choose to use the app of "Enjoy the Delicious without Waiting" and other mobile applications before taking the number for queuing, but the real-time data may be inaccurate, leading to arrival at the restaurant ahead or the problem of still queuing for a long time or restarting another round of waiting after having passed the turn.
Restaurant servers mentioned that many problems have appeared in the peak hour of queuing for meals: Firstly, it’s difficult to arrange the table orderly with the influx of many customers, and sometimes there are some mistakes among queuing systems of different platforms, all of which easily lead to misunderstanding among customers; Secondly, the correlation between queuing time and customer’s dining time, in other words, the former’s dinning time basically determines the queuing time of the next customer; Thirdly, there is dilemma for a large number of customers returning over the number; Fourthly, various service quality for different customers may cause the contradiction among customers and conflicts between customers and service personnel.

**Personas**

The above design research concludes that there is a certain correlation between different age groups, occupational characteristics and user’s psychology and behaviours of queuing. Therefore, based on different age and occupation, three user’s personas will be established, namely: Anna (Figure 1), college students, frequently going shopping and having parties with friends in business circle, so the choice of eating in restaurants is more preferable in most cases. Jack (Figure 2), a company employee working around business district, usually has lunch in nearby restaurant without the need for queuing. But when having a party with colleagues and friends, he generally makes a reservation or takes the waiting number by calling or on the app, or queues timely; Susan (Figure 3), one of the retirees, occasionally dinners together with the family and friends outside, focusing on the restaurant environment, including dining environment and waiting area environment.

**Anna**

Age: 22 years old  
Identity: college students  
Hobbies: travel, shopping, sports  
Personality: Optimistic, friendly

**Character description:**

As a college student, I usually go shopping, watch movies, take part in party with friends in the after-school leisure time, so with the frequency of eating in business circle. Besides, as a food lovers, I often ask students to eat in restaurant with high marks online and good reputation, under which we don’t care so much about queuing, because we’re aware of the queuing thing when eating in famous one. At this time, we generally will be in shopping malls, and go back to restaurant until it is close to our queuing number.

*Figure 1 Persona 1-Anna*
Figure 2  Persona 2-Jack

Jack
Age: 34 years old
Identity: Company staff
Hobbies: travel, swimming, reading
Personality: humorous, gentle, steady

Character description:
With usually a relatively fixed working time of limited rest time at noon, I will have lunch in restaurant with less waiting time or no queuing during working day. Occasionally, when having meal together with my colleagues, I generally make a reservation by phone or take the waiting number ahead of time on app, and go directly to the restaurant to eat after getting off work, greatly reducing queuing time. During waiting, I generally chat with colleagues or play phone in waiting area.

Figure 3  Persona 3-Susan

Susan
Age: 62 years old
Identity: retiree
Hobbies: chatting, dancing, jogging
Personality: easygoing, kind, wise

Character description:
As a retiree, I have a lot of things to do in my leisure time, such as reading newspapers, practicing calligraphy, raising grandson at home. When I go out shopping with families and have dinner outside occasionally, I generally choose a comfortable, clean restaurant, and want to waiting for meals in a quiet and comfortable space even in a row number.

Research on Customer Journey
The preliminary contextual inquiry records customers’ behaviour in the process of queuing, and explores the whole experience of the target users before, in, and after
service based on the arranged personas (figure 4). In the meantime, the following complaints from the customer journey map are generalized:

- Before service, it’s difficult for the user to choose proper restaurants and find the exact location through the large amount of or incomplete information;
- In the process of receiving services, without knowing the waiting time after having received the card No., therefore it’s hard to choose the approach for enjoying pastime during queuing, long time of waiting could gradually trigger customers’ negative emotion, especially in poor waiting environment that’s prone to incur annoyed feelings, even cause conflicts between customers and service staff, and among customers. Moreover, in the absence of reminding the precise time, the user can easily pass the turn while waiting, leading to re-queuing after returning to the restaurant.
- After service, due to the excessive number of customers, service personnel may not be able to serve the new customers, making some customers receive the feeling that they are treated with no hospitality, and they are unable to order; and in some cases, the slow speed of serving meal gives users a negative impression on service quality.

**Figure 4  Customer Journey Map**

**Function Analysis of Service System**
Analysis of user’s experience focuses on exploring their behaviours, while functional analysis focuses on defining the system boundary. The following functional system diagram (Figure 5) is created based on the analysis of basic and auxiliary functions of restaurant queuing service system. It can be seen from the figure that the row number, the first-level function, in the restaurant queuing service system is considered as the core function of the system. In order to give users a good queuing experience, it’s preferable, in the theory, to provide users with necessary restaurant information, specific information
about the tables, comfortable waiting environment and guidance for service staff after the queuing in second-level auxiliary function.

In addition, it’s also suggested to refine the functional framework in second-level function, before and in service, offer detailed information of restaurant introduction, per capita consumption, dish features, user comments and others for users to be informed and choose proper restaurants. In service, it’s better to provide real-time waiting time and table info to have users known of the instant queuing situation; provide comfortable waiting environment, and configure appropriate infrastructure, such as: charging place, wireless network, and game equipment and so on. After the queue, the practice of providing thoughtful services to guide users seating successfully is recommended.

Figure 5  Function Analysis

Affordability
Affordability refers to the specific feeling on the possible behaviours provided by the content and thing, describing connection of environmental attributes and individuals, in other words, the interaction between service environment and users in restaurant queuing service system. The paper discusses the functional affordability of restaurant queuing service system based on the function-activity interaction matrix (Table 3), here draws the following conclusions:

• Provide basic information of restaurant. When the user browse and select the restaurant, the system provides necessary basic information of the restaurant, including: Restaurant introduction, per capita consumption, specialty dishes and user evaluation. In the process of interaction, it is mainly the functional interaction between the platform that contains websites, applications or subscriptions and the customer, and the physical interaction between the customer and the service provider.

• Provide queuing time and table information. Queuing time and table information is regarded as the core element of the entire restaurant queuing system, running through most of the interaction with the service before and during the service. In
browsing the restaurant information and selected restaurant behaviour, the user needs to receive guidance from the details of the restaurant information and the specific circumstances of the queue. Those information should be provided through the software or the waiter. In the process of waiting in the queue, the system provides accurate queuing time and table information, allowing users to understand the real-time queue.

- **Provide complete waiting area environment.** In the queue, the restaurant provides a comfortable waiting environment, with sufficient service facilities and real-time alerts. One of the most important factors lies in the interaction of real-time reminder, it can be provided to users by the service staff, mobile applications and other smart hardware.

- **Provide follow-up services.** After entering the restaurant, dining environment and attentive services also affect the entire experience. It is mainly based on the physical interaction between service personnel and customers.

Table 2  Function-Activity Interaction Matrix
## Analysis of Service Encounter

Service Blueprint, defined as the diagram depicting servicing system in details, connects all the stages of business channels, related locations, user experience and procedures of offering and receiving services, along with a categorized framework which transform the network-shaped servicing strategy with systematic elements into concrete factors for service provision. Based on the previous stage of research, namely practical research, analysis on user behaviours and functional evaluation, service blueprint for queuing system in restaurants is created, as it is shown in Figure 6, in order to study the service touch-points in the process of interactions among customers, reception personnel, service personnel and support employees. In this case, profound and complete understanding on specific servicing procedures and internal cooperation among service providers can be realized. On basis of the service point points generalized before-, during- and after service, following conclusion can be drawn:

- **Before service**, contact with customers is formed mainly through APP or supporting platforms like online websites. Depending on demands for searching for restaurant information, restaurant personnel should post necessary information through APP or official websites, based on which customers receive
and browse comprehensive information and make further choices for proper ones to visit. When selecting the preferable restaurant, customers, inclined to make reservation or visit the restaurant directly, need the support from reservation system as well as restaurant employees’ reception of and feedback from information on reservation.

- During service, the important factor lies in queuing system and waiting environment. In the process, the queuing system needs to embrace diverse functions like support for users’ requisition of the waiting sequence number, real-time checking of waiting time and reminder of queuing sequence. Meanwhile, the reminder system can also be operated through communication with personnel at the reception desk. Considering of waiting environment, on one hand, comfortable and convenient infrastructure facilities need to be provided, such as waiting tables and chairs, lights, snacks etc. On the other hand, contact with other elements within business circles needs to be taken into consideration, including other business stores, entertainment facilities and so on.

- After service, from the perspective of users’ direct perception of service experience, personnel at the reception desk are mainly responsible for providing services. After finishing queuing, customers will be guided by the restaurant personnel to their seats and receive following services like making orders, serving dishes. However, it should be concentrated that mutual cooperation among restaurant personnel is another inevitable factor in the whole process of servicing.

Through transmission of user demands and behaviours in the process of queuing, service providers, both responsible for proving services directly and for offering support, offer interactive feedback to customers. In the servicing process, multiple ways for receiving services are offered through diverse channels and touch-points, including contact between customers and restaurant itself, between customers and environment, between customers and personnel providing direct services and offering indirect support, between customers and other elements, all of which build up users’ perceivable dining experience and therefore directly or indirectly affects the preference for customers to visit the restaurant again and their appreciation of the brand culture.

---

**Figure 6  Service Blueprint**
Conclusion
With the development of experience economy, people have become increasingly concerned about service quality and experience in their consumption. A good service experience not only brings about the rich commercial value, but also gives rise to more recognition on the whole enterprise culture and brand. As the economy and living standards improve, China, with large population, is filled with a greater proportion of people dining out. Therefore, the restaurant queuing problem has become a specific social phenomenon. Although there are related products orientated for dealing with this problem in the market, they are only confined to the product itself, ignoring the entire service encounters in restaurant queuing system. Throughout the whole service process, this study explores user’s behaviour, psychology and service encounter in service process, aiming at clarifying thoughts of deploying user’s time, restaurant resources, business space and others based on design research of restaurant queuing service system. In accordance with the interface service encounter, the space service encounter and the personnel service encounter in the system, the following design suggestions are put forward:

• Create a comprehensive, easy-to-use interface service. In the intelligent era, mobile application relies on internet platform which provides more convenient services to users. In the restaurant queuing system, it provides a comprehensive, easy to use service platform through the integration of information publishing platform before service, service queuing system, entertainment system in service, service payment and evaluation system after service.

• Provide comfortable, composite space service. In the middle of queuing, the customer may choose to wait in the waiting area or stroll around commercial shops. Therefore, on one hand, the restaurant should arrange complete, comfortable waiting environment and corresponding forms of entertainment activities according to the style and brand culture of the restaurant. On the other hand, the space of business circles containing restaurants, shops, recreational shops and exhibition need to be designed reasonably, which shunt queuing costumers to other shops and unleash economic vitality of whole commercial cycle. This helps the user to reduce the length of the perception of queuing from the psychological level, making it more relaxed and happy to spend queuing time.

• Provide considerate personnel service, create great restaurant brand image. It is essential to provide standardized service in terms of servicer’s manners and polite expressions, and train servicer’s service quality to serve customer initiatively and empathetically.

Limitations and future work
This research presents some limitations. First of all, this study, equipped with fewer samples from questionnaires and real interviews, makes the research results less representative and typical. Meanwhile, most of the research is based on the user’s perspective and lacks in-depth research on other members. Future research will expand the research sample to improve the objectivity and effectiveness of the research results. At the same time, this study will further study service system of all stakeholders, customer service personnel, service providers, business operators, in order to explore their needs in
the service system of complaints, behaviour and psychology of customers, and then
design a set of reasonable complete service system. Secondly, this paper puts forward
some design opportunity points, affordability and service elements in the restaurant
queuing system through the customer journey map, activity-function interaction matrix
and service blueprint, under the intention of providing the idea for improving the
restaurant queuing system. However, practical solutions and empirical validation are not
included within this paper. Future work will continue to study the subject, design practical
program of restaurant queuing service system, and verify the validity and feasibility.
Finally, with the development of technology and the progress of the times, the restaurant
queuing situation and user behaviour are more likely to change, accompanied with more
application of advanced technology into the system. Under this background, we need to
continuously update and iterate in the future work.

Acknowledgement
This research work is supported by “the Fundamental Research Funds for the Central
Universities” (NO.175216006). The authors also would like to thank the anonymous
reviewers for their helpful comments and suggestions on the drafts of this paper.

References
(Chen Guosheng et al., Trans.). Beijing, China: Tsinghua university press.
Dai Weiqi, & Chen Ying (2006). Study on the queuing management strategy of hotel
Fang, Z. (2015). Study on the influence of catering service contact on customer behaviour intention in
the context of mobile Internet. Zhejiang, China: Zhejiang university.
modernization,65,134-135
Han Ya-juan, & Xie Hui(2012). Study on the Necessity of Waiting Area Setting in Catering Service
Li Dong, Ming Xinguo, & Kong Fan-bin (2008). Study on Service Design . Mechanical Design and
Research, 24 (6), 6-10.
Marc Stickdorn, & Jakob Scheider (2010). This is service design thinking: basics--tools--cases.
Hoboken, New Jersey, the United States of America: John Wiley&Sons, Inc..
employee/customer interaction in service business, 243-253.
Ying S. (2002). Service Operation and Management Research. Beijing, China: Capital university of
Economics and business.
interaction. Journal of Business Research, 65 (9), 1313-1320.
Design. PACKAGING ENGINEERING, 37(16), 91-94.
About the Authors

JI Hao, female, Master candidate, School of Art and Design, Wuhan University of technology, majoring in information and interaction design.

JANG Wansok, male, Associate Professor, School of Art and Design, Wuhan University of technology, research interests: information and interaction design, human-centred design and design aesthetics.