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**SERVICE INNOVATION DESIGN TOWARDS TICKETING
SYSTEM AT SUNGAI NIBONG TERMINAL**

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Abstract

Service innovation design associated with the method of design for improvement and ease of service provided can immediately benefits to the user of a service. At present, the development of new technological advances is growing exponentially and Malaysia as a developing country will not want to miss. This project is to study the express bus ticketing system at Sungai Nibong Express Bus Terminal, Penang. The project will find ways to provide a service that can satisfy users by involving new electronic device. Based on a survey it leads to designing a tool that facilitate users' communication and be able to solve the problems faced by the users such as purchasing the tickets and or any information related to bus schedule. In addition, the purpose of this project is also to identify user needs and provide new experience to the users at Sungai Nibong bus terminal. Users are all from different age groups, cultures and backgrounds. The main goal of this project is to design a communication device to assist users in purchasing express bus tickets more easily. The design will enhance the user experience at Sungai Nibong bus terminal to buy tickets, provide comfort and facilitate user regardless locals or foreign users.

Keywords: Service design, product design, design management, servicescapes.

INTRODUCTION

The definition of service design as mentioned by Hollin (2006), is that a service provider can gain advantage by applying design techniques when creating and improving their services. Service design can be both tangible and intangible. It can involve products or artefacts and other things including communication, environment and behaviors. The words design has it extensive meaning, it is not limited to appearance or function but also includes design process and the usage of products or services told by Nakashima (2010). Service innovation design is most influential terms to be used instead. The study is aiming to establish principles and methods before come out with a new strategy in designing a service in Malaysia. Case study is focusing on the strategic way of producing excellent service design at Sungai Nibong Bus Terminal, Penang.

The first objective is to identify the problems of the express bus ticketing system in Sungai Nibong, Penang.

- i. To analyze the data and information obtained. Observation and a survey shall be conducted to understand the problems that exist. All data and information shall be collected and to be analysed the advantages and disadvantages of the existing express bus ticketing system.
- ii. To design a communication device to facilitate and provide comfortable to the user and provide a better experience to users. Design concept should be able to solve problems that are identified and can help management to a better service.

PROBLEM STATEMENT

Based on observation at Sungai Nibong Bus Terminal, there are the issues and problem that can be identified:

Table 1 Problem Statement

Issues	Observation
No information board	Users do not know the schedule and the ticket prices.
	There are users who do not know which bus to go to their destination.
	Boarding platform and the bus plate number.
User experience	User feel uncomfortable when raided and were repeatedly and pressured by some ticket agents that waiting at the parking space and asking their destination.
	There is a sense of doubt and fear when raided so.
	To avoid being duped by "ticket maggots".
Ticket counter	Too many users are confused and do not know the ticket counter which offers bus to their destination.
	Mixed ticket counter, users get another bus ticket at different ticket counter.
e-ticketing	There are buses that offer online ticket purchasing system where users can continue to buy bus tickets online but users are not familiar or don't know how to use the system.
	Users do not have credit card or online banking.
ATM machine	No ATM machine service at the bus terminal and it's difficult when the user does not have enough money. Conveniences.
	Each ticket counter takes cash payments only.
Money changer	No foreign exchange in the services and it is difficult for foreigners to purchase a ticket without Malaysian ringgit (RM) currency.

METHODOLOGY

For this study, the approach used is a qualitative and quantitative analysis. Through the research questions, some information from the data can be collected and used as a reference.

Table 2 Qualitative and Quantitative

Quantitative	Qualitative
Experimental	Participatory observation
Surveys, structured interviews, structured observation	Open interviews
Group data	Diversity study of documents and artifacts

Instrumentation

After the study was conducted, it gives a better understanding of the problems faced by users who use express bus service, user experience and other related problems. Moreover, this study will encourage in designing an interactive communication devices while it has an attractive design and user friendly display screen. This will lead the screen and physical interface to a positive improvement and giving new experience to the users.

Design Process

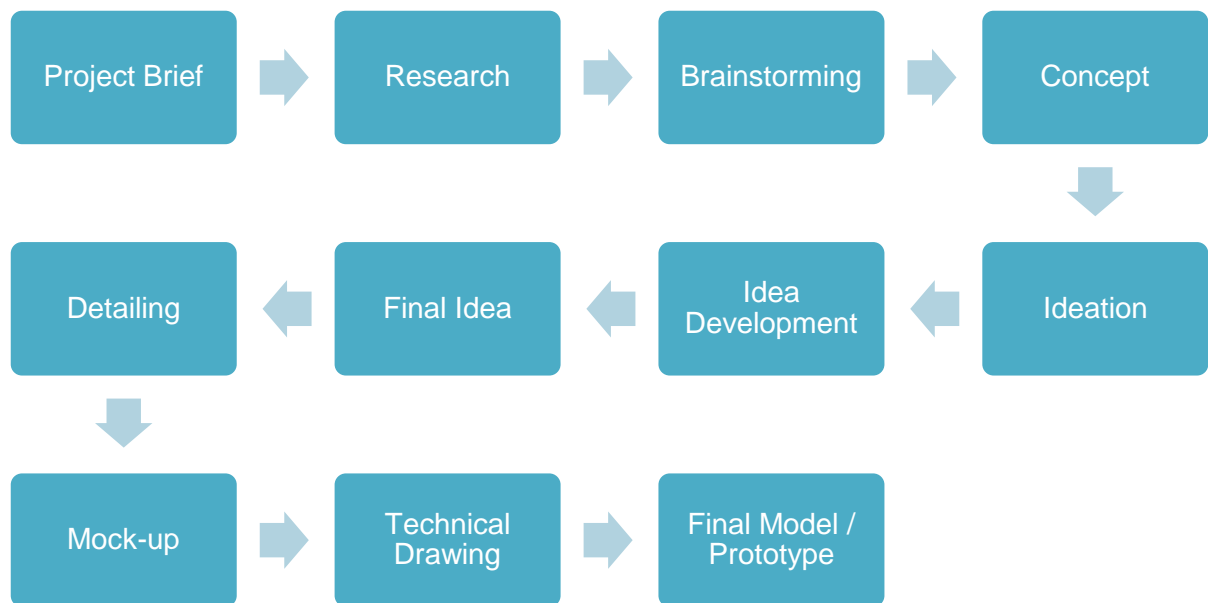


Figure 1: Design Process

Figure 1 shows a flow chart of the design process. After going through three initial processes of project briefs, research and brainstorming, the next step is to find an appropriate concept for the design and subsequent to the ideation, development of ideas and detailing. After finalising ideas then the details have to be made before building a mock-up to see any possible changes and improvement for the final model. Technical drawings must be prepared for the production of the final model or prototype.

Service Blueprint

Service blueprint of existing express bus ticketing system :

Service Blueprint Of Bus Ticketing System

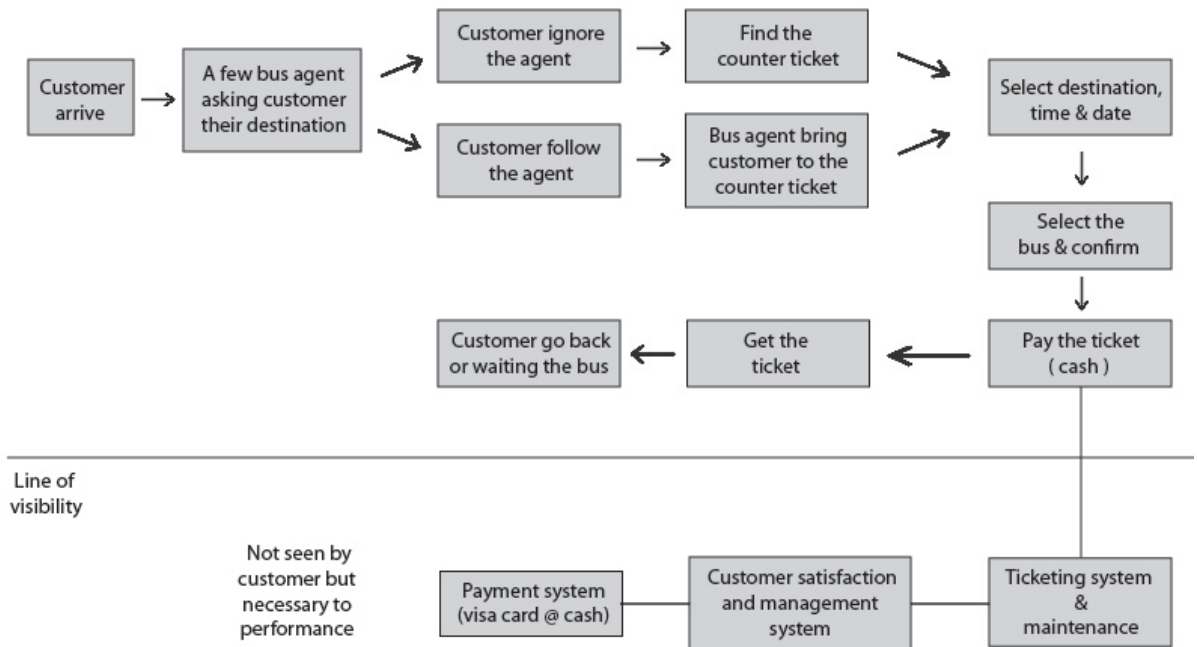


Figure 2:Flow of Existing Services

Figure 2 shows the flow of existing service blueprint express bus ticketing system at Terminal Sungai Nibong. This trend shows how the situation experienced by the users of the existing service when purchasing bus tickets. Based on this trend we can see the experiences faced by users through all the processes.

Service Blueprint Of Bus Ticketing System

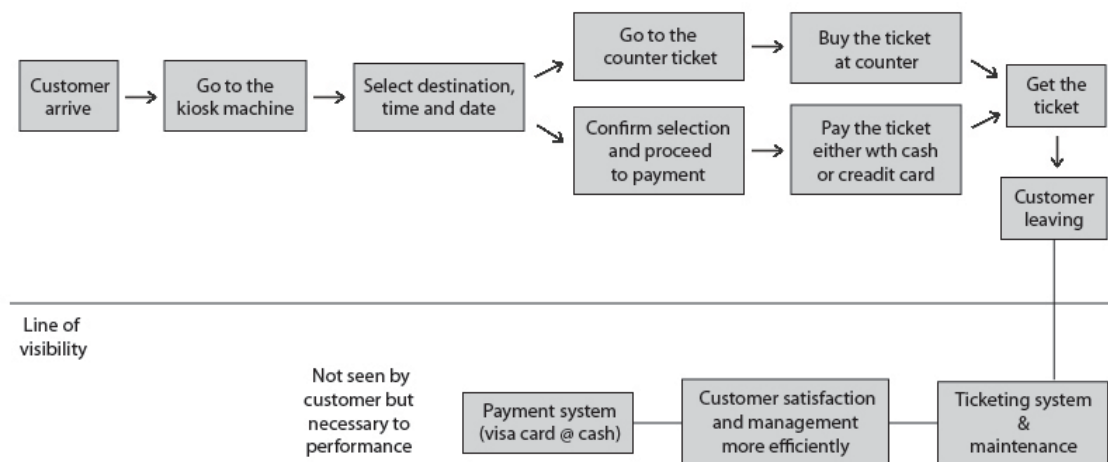


Figure 3:Flow Service Proposal

Figure 3 shows the flow of the proposed service blueprint for express bus ticketing system at Sungai Nibong bus terminal. This trend shows how the situation will be experienced by the user when purchasing tickets. Users will go through simple process with the help from a kiosk. This will increase users' level of satisfaction.

FINDING

Observation at Sungai Nibong Terminal :



Figure 4:Views of Sungai Nibong Terminal

Summary of Observations

Based on the observations at the Sungai Nibong Express Bus Terminal, the main problem can be seen where agents raided directly to the users and asking for their destination. There are also agents who ask repeatedly and seemed to force users to buy tickets from them.

This leads to inconvenience and user satisfaction will be declined. Service from ticket agent to foreign tourists also unsatisfied due to lack of fluency of English language and insisted them to buy.

From the observations it can also be seen the factors of other problems at the terminal. Among them there are no money changer for the convenience of the users to convert foreign currency, no ATM machine service and no itinerary. Thus, another way of purchasing tickets need to be offered for express buses that can solve this problem.

Survey

Based on 50 respondents, all of them had used express bus services. While there are 7% of respondents who used express bus services were less than five times a year, 45% of respondents used bus services more than once a month and 48% of the respondents were used only once a month. Questionnaire also shows that 41 out of 50 respondents knew express bus departure time by asking at the ticket counter.

However, 9 out of 50 respondents knew that express bus travel time by checking at the website and four out of 50 respondents knew by calling the bus company. Only two out of 50 respondents were used mobile apps to know the departure time.

Meanwhile, 41 out of 50 respondents knew the destination of the buses from ticket counter, 9 out of 50 respondents were referred to the internet or the website of the bus companies and 4 out of 50 respondents asked their friends and colleagues. There are only 2 out of 50 respondents who used mobile applications to buy bus tickets. From 50 respondents, 38 were used express bus services to go back to their home town, 15 of the 50 respondents using express bus on the course of their business, 8 out of 50 respondents use the express bus services due to more economical driving arised and 11 out of 50 respondents use express bus service to go on vacation. There are 3 out of 50 respondents use express bus service on other matters.87% of 50 respondents bought tickets from the ticket counter. However, there are 7% of respondents were using e-ticketing to buy bus tickets, and only 6% of respondents bought their bus tickets through smart phone applications.

The survey also tells that 45 respondents were experienced uncomfortable situation with ticket agent interruption upon arrival at the terminal. Meanwhile, 17 out of 50 respondents had confuse situation and did not know which counter to go, 6 out of 50 respondents did not know the bus destinations, 20 out of 50 respondents did not know the departure time of the bus and 10 out of 50 respondents experienced a situation where ATM machine is needed when purchasing tickets at the bus terminal.92% of 50 respondents agreed that if the management offers another way of buying tickets for express buses by using machine kiosk to purchase tickets for express buses and also felt the service could help them. Only 8% of them just do not agree.92% of the 50 respondents felt appropriate if ticketing kiosk available at Sungai Nibong Terminal for purchasing bus tickets and only 8% of them do not agree. The purpose of this question is to look at the number of users who agree kiosk machine available in Sungai Nibong Terminal to serve as the end result of the project.

48 of the 50 respondents felt that service purchases using credit or debit cards are to be inserted into the kiosk machine. While 32 out of 50 respondents felt the service to purchase tickets with cash also is a need, 42 of 50 respondents want there is a selection of buses and destinations, 45 of 50 respondents want there is a choice of time and date of departure, 40 of 50 respondents wanted a seat selection, 43 of 50 respondents want the information platform and plate number bus and 25 of 50 respondents want reference counter if there were any problems.

Summary of Survey

Based on the results of the survey on 50 respondents in the Sungai Nibong Terminal shows users experienced some problems when it came to buying tickets for express buses. Referring to question 6, it shows the problems that occur leading to inconvenience users and decreased user satisfaction. Clarifications will also lead to a bad experience for users. Based question 7 and question 8, most users feel good if Sungai Nibong

Terminal provides kiosk machine to purchase a bus ticket which they can make their own choice to buy ticket and also they can use it easily. This is because in order to help users purchase express bus tickets more convenient, comfortable and able to provide a better experience to them in addition to solve existing problems. Question 9 is aimed to what services required by users in the purchase of a bus ticket by using kiosk machines. This is because, in order to meet user requirements in order to provide better service as well as providing a better experience for users.

In conclusion, it can be concluded that the purchase of a bus ticket kiosk machines with interesting user interface and easy to understand can help to solve existing problems. In addition, it can lead to a better service and user satisfaction.

User Interface



Figure 5:A Proposal on users screen interfaces for ticketing kiosk machine

CONCLUSION

Services innovation design can be considered as a method of designing the available problems to improve services to users. Through the data collected, the problem can be identified. The available problems also show how to overcome these problems that need to be considered. A further research has to be carried out in order to design a product that can help to improve the quality of service and gives better experiences to the consumers.

Based on the problem statement, one of the solutions is to design an interactive kiosk machine with user friendly interfaces, improving the quality of service and user experience. Thus, the concept of modern and minimalist kiosk was selected in accordance with the present era that increasingly advanced. This interactive kiosk design is different from other kiosk that available in the market. The kiosk design is thinner and using the metaphor of a bus tire to make the kiosk aesthetically interactive.

In addition, the kiosk design also takes the importance of ergonomics and standard height of Malaysian users as well as people with disabilities (PWDs) so that it can be used by all users either men, women or the disabled. It aims to provide convenience, satisfaction and better experience to the users. User interface must be impressively easy to understand. Adoption of new technology is also applied through an interactive kiosk machine that is suitable with modern design.

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