



Faculty of Applied and Creative Arts

**SERVICE DESIGN IN PHARMACY DEPARTMENT OF MALAYSIAN  
GOVERNMENT HOSPITAL**

**POH WAN TING**

**Bachelor of Applied Arts with Honours**

**(Design Technology)**

**2018**

**SERVICE DESIGN IN PHARMACY DEPARTMENT OF MALAYSIAN  
GOVERNMENT HOSPITAL**

POH WAN TING

This project is submitted in partial fulfillment of  
The requirements for the degree of Bachelor of Applied Arts with Honours  
(Design Technology)

Faculty of Applied and Creative Arts  
UNIVERSITI MALAYSIA SARAWAK

2018

UNIVERSITI MALAYSIA SARAWAK

Grade: \_\_\_\_\_

Please tick (✓)

Final Year Project Report

Masters

PhD

**DECLARATION OF ORIGINAL WORK**

This declaration is made on the Friday of June 2018.

**Student's Declaration:**

I **POH WAN TINGI (54981)** from **FACULTY OF APPLIED AND CREATIVE ARTS** Shereby declare that the work entitled ***SERVICE DESIGN IN PHARMACY DEPARMENT OF MALAYSIAN GOVERNMENT HOSPITAL*** is my original work. I have not copied from any other students' work or from any other sources except where due reference or acknowledgement is made explicitly in the text, nor has any part been written for me by another person.

\_\_\_\_\_

Date Submitted

\_\_\_\_\_

POH WAN TING (54981)

**Supervisor's Declaration:**

I **ASSOCIATE DR. FARIDAH BINTI SAHARI** hereby certifies that the work entitled ***SERVICE DESIGN IN PHARMACY DEPARMENT OF MALAYSIAN GOVERNMENT HOSPITAL*** prepared by the above named student, and was submitted to the "FACULTY" as a \* partial/full fulfillment for the conferment of **BACHELOR OF APPLIED ARTS WITH HONOURS (DESIGN TECHNOLOGY)**, and the aforementioned work, to the best of my knowledge, is the said student's work.

Received for examination by: \_\_\_\_\_

Date: \_\_\_\_\_

(DR. FARIDAH BINTI SAHARI)

I declare that Project/Thesis is classified as (Please tick (√) :

**CONFIDENTIAL** (Contains confidential information under the Official Secret Act 1972)\*

**RESTRICTED** (Contains restricted information as specified by the organization where

research was done)\*

**OPEN ACCESS**

### Validation of Project/Thesis

I therefore duly affirm with free consent and willingly declare that this said Project/Thesis shall be placed officially in the Centre for Academic Information Services with the abiding interest and rights as follows:

- This Project/Thesis is the sole legal property of University Malaysia Sarawak (UNIMAS).
- The Centre for Academic Information Services has the lawful right to make copies for the purpose of academic and research only and not for other purpose.
- The Centre for Academic Information Services has the lawful right to digitalise the content for the Local Content Database.
- The Centre for Academic Information Services has the lawful right to make copies of the Project/Thesis for academic exchange between Higher Learning Institute.
- No dispute or any claim shall arise from the student itself neither third party on this Project/Thesis once it becomes the sole property of UNIMAS.
- This Project/Thesis or any material, data and information related to it shall not be distributed, published or disclosed to any party by the student except with UNIMAS permission.

Student signature \_\_\_\_\_

Supervisor signature: \_\_\_\_\_

(Date: \_\_\_\_\_ )

(Date: \_\_\_\_\_ )

Current Address:

NO 2, JALAN NJM 2/2 TMN NUSA JAYA MAS SKUDAI 81300 JOHOR BAHRU JOHOR.

Notes: \* If the Project/Thesis is **CONFIDENTIAL** or **RESTRICTED**, please attach together as annexure a letter from the organisation with the period and reasons of confidentiality and restriction.

[The instrument is duly prepared by The Centre for Academic Information Services]

This project entitled **‘SERVICE DESIGN IN PHARMACY DEPARTMENT OF MALAYSIAN GOVERNMENT HOSPITAL’** was prepared by **POH WAN TING** and submitted to the Faculty of Applied Creative Arts in partial fulfillment of the requirements for a Bachelor of Applied Arts with Honours (**Design Technology**).

Received for examination by:

---

(DR. FARIDAH BINTI SAHARI)

Date:

---

## **ACKNOWLEDGEMENT**

I would like to take this opportunity to express my gratitude and appreciation to all people who guided me in completing this final year project. First of all, I would like to express my special thanks to my supervisor, Dr. Faridah binti Sahari who gave me the opportunity to completed this project on the topic Service Design in Pharmacy Department of Malaysian Government Hospital, which also thanks for her invaluable suggestion, constructive advices and guided throughout the process of completing the course of this study. I am appreciated for her precious time and efforts devoted to supervise me. The comments , suggestions and ideas has guided me to accomplishment of this project. I have learned a lot of knowledge from her in doing this project. I am greatly thankful to her support and guidance to successfully complete my final year project.

Secondly, I am kindly appreciated to my parents and friends for the support and encouragement all the time in this project. In my journey of studying an undergraduate degree in Universiti Malaysia Sarawak (UNIMAS). I would like to thanks to them for share their knowledge and suggestions in this project.

Finally, I would like to extend my sincere thankful to all the lecturers and staffs of the Faculty of Applied and Creative Arts and The Centre for Academic Information Service (CAIS) for the kind dedication and resources provided me to successfully complete this project. It would have been impossible for me to complete this project without their supports, guidance and advices.

## TABLE OF CONTENTS

<b>DECLARATION OF ORIGINAL WORK.....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>vi</b>
<b>TABLE OF CONTENTS.....</b>	<b>vii</b>
<b>LIST OF FIGURES.....</b>	<b>x</b>
<b>LIST OF TABLES.....</b>	<b>xi</b>
<b>LIST OF CHART.....</b>	<b>xii</b>
<b>ABSTRACT.....</b>	<b>xiii</b>
<b><i>ABSTRAK</i>.....</b>	<b>xiv</b>
<b>CHARPTEr ONE:INTRODUCTION.....</b>	<b>1</b>
1.0 Introduction.....	1
1.1 Problem Statement.....	2
1.2 Research Question.....	3
1.3 Objective of study.....	3
1.4 Scope of the study.....	3
1.5 Significant of the study.....	4
<b>CHAPTER TWO: LITERATURE REVIEW.....</b>	<b>5</b>
2.0 Literature Review.....	5
2.1 Factors related to the waiting time problem.....	5
2.2 Effect of Waiting Time Problem.....	6
2.3 Solution to Minimize the Non-value Process or Activities.....	6

2.4 Design Service.....	7
<b>CHAPTER THREE: METHODOLOGY.....</b>	<b>10</b>
3.1 Introduction.....	10
3.2 Qualitative Approach.....	10
Observation.....	10
Interview.....	10
Research Method.....	11
3.3 Validation and Analysis.....	12
3.4 Conclusion.....	13
<b>CHAPTER FOUR: DATA ANALYSIS.....</b>	<b>14</b>
4.1 Introduction.....	14
4.2 Interview.....	15
4.2.1 Data Collection from 10 patients.....	15
4.2.2 Data Collection from Doctors.....	18
4.3 Observation.....	21
4.4 Finding and Discussion.....	24
4.5 Process Flow of Service System.....	27
4.6 Conclusion.....	28
<b>CHAPTER FIVE:PROPOSED DESIGN.....</b>	<b>29</b>
5.0 Introduction.....	29
5.1 Design Analysis.....	31
5.2 Idea Development and Design Concept.....	32
5.3 Features and characteristics of the concepts.....	37
5.4 Validation of Design.....	40



5.5 Product Design Specifications.....	41
5.6 Details Features and Characteristics of the Final Product(Kiosk Machine).....	42
5.7 Layout Pharmacy.....	44
5.8 Technical Drawing of Final Product.....	45
5.9 Final Product(Kiosk Machine).....	46
<b>CHAPTER SIX:CONCLUSION</b> .....	47
6.0 Conclusion.....	47
<b>REFERENCES</b> .....	<b>Error! Bookmark not defined.</b>
<b>APPENDIX 1</b> .....	51
Poster.....	51
<b>APPENDIX 2</b> .....	52
Patients Interview Questions.....	52
<b>APPENDIX 3</b> .....	53
Doctors Interview Questions.....	53
<b>APPENDIX 4</b> .....	54
Pharmacists Interview Questions.....	54

## LIST OF FIGURES

Figure 2. 1 Innovation dispense service.....	8
Figure 2. 2 Before and After of Process Dispensing.....	9
Figure 3. 1 Phases of Research.....	11
Figure 5. 1 Design Process.....	31
Figure 5. 2 First Concept.....	32
Figure 5. 3 Second Concept.....	33
Figure 5. 4 Third Concept.....	34
Figure 5. 5 Fourth Concept.....	35
Figure 5. 6 Final Concept.....	36
Figure 5. 7 Layout of the Pharmacy.....	44
Figure 5. 8 Technical Drawing of Final Product.....	45
Figure 5. 9 Final Product of Kiosk Machine.....	46

## LIST OF TABLES

Table 3. 1 Schedule of Final Year Project 1.....	12
Table 4. 1 Data Collection from Patient Interview Session.....	15
Table 4. 2 Data Collection from Doctor Interview Session.....	18
Table 4. 3 Data Collection from Doctor Interview Session.....	19
Table 4. 4 Data Collection from Pharmacist Interview Session.....	20
Table 4. 5 Data Collection from Observation Session. ....	21
Table 4. 6 Problem and Problem Solving.....	25
Table 5. 1 Features and Characteristics of the Concept 1.....	37
Table 5. 2 Features and Characteristics of the Concept 2.....	37
Table 5. 3 Features and Characteristics of the Concept 3.....	38
Table 5. 4 Features and Characteristics of the Concept 4.....	38
Table 5. 5 Features and Characteristics of the Final Concept.....	39
Table 5. 6 Problems and Suggestion of Validation.....	40
Table 5. 7 Product Design Specifications.....	41
Table 5. 8 Details Features and Characteristics of the Final Product.....	42

## **LIST OF CHART**

Chart 4. 1 Flowchart of the Process of Service System.....	27
--	----

## **ABSTRACT**

### **SERVICE DESIGN IN PHARMACY DEPARTMENT OF MALAYSIAN GOVERNMENT HOSPITAL**

Long waiting time is a common issue in Malaysia. Thus, this study is focused on determining the method or system implemented currently to reduce long waiting time problem in hospital and the process flow from registration until medicine. It also aims to identify the reasons which contribute to the long waiting time problem in order to reduce long waiting time. In addition, qualitative methods are used to collect valuable data from users. This method will be divided into two methods which are observation and interview in a qualitative approach. The observation will be solicited information from patient waiting time experience. However, the interview method is used to collect more data from patient, pharmacist and doctor. The findings indicate that on average, patient waiting time from registration to getting medicine. Employee survey on the factors contributing to the long waiting time problem indicate the attitude of employee and their work process, management and heavy workload and supervision problems. The result has come out with a service design of a product which to solve the long waiting time problem.

## **ABSTRAK**

### **PERKHIDMATAN REKA BENTUK DI JABATAN FARMASI KERAJAAN MALAYSIA**

*Masa tunggu lama adalah salah satu isu yang biasa di Malaysia. Oleh itu, kajian ini difokuskan untuk menentukan kaedah atau sistem yang dilaksanakan pada masa ini untuk mengurangkan masalah masa menunggu yang lama di hospital dan aliran proses daripada pendaftaran sehingga pesakit mendapat ubat. Ia juga bertujuan untuk mengenal pasti faktor-faktor yang menyumbang kepada masalah masa menunggu yang lama. Di samping itu, kaedah kualitatif digunakan untuk mengumpul data yang berharga daripada pengguna. Kaedah ini akan dibahagikan kepada dua iaitu pemerhatian dan temubual dalam pendekatan kualitatif. Pemerhatian akan mendapatkan maklumat daripada pengalaman masa menunggu pesakit. Walau bagaimanapun, kaedah wawancara untuk mengumpul lebih banyak data daripada pesakit, ahli farmasi dan doktor. Penemuan menunjukkan bahawa secara purata, masa menunggu untuk pendaftaran sehingga mendapatkan ubat. Kajian selidik mengenai faktor-faktor yang menyumbang kepada masalah masa menunggu yang lama menunjukkan sikap pekerja dan proses kerja mereka, pengurusan dan beban tugas berat serta masalah pengawasan. Hasilnya telah dihasilkan dengan reka bentuk perkhidmatan produk yang menyelesaikan masalah masa menunggu yang lama.*

## CHARPTEr ONE

### INTRODUCTION

#### 1.0 Introduction

The waiting time problem is common issues in hospital government. This is also the most common complaint by client. Why should patient waiting long time in hospital? Even they are make an appointment before being seen, but the patient also wait a long time from registration until collect their medicine in hospital. Pillay *et al.* (2011) stated that client wait two hours from registration to getting the prescription slip, but the contact time with medical personnel is only 15 minutes. According to Heaney *et al* (cited in Loke & Cheong, 2011) explained that ‘patient waiting time’ as the time the patient was kept waiting from the appointment time as they were only concerned with that part of the waiting which is the responsibility of the doctor. A quality appointment system is where keeps the waiting time for both client and doctor to a minimum and the patient to be seen on the day that they wish while allowing sufficient time for every consultation (Loke & Cheong, 2011).

The long waiting time may affect the satisfaction of patient. However, the factor of long waiting time come from many reasons. According to Pillay *et al.* (2011), the factors of waiting time problems including the attitude of employee and their work process, management and heavy workload, inadequate facilities and supervision problems, to be among the contributory factors to the waiting time problem. The time spent for client consultation is usually to access the laboratory investigation, treatment, diagnosis, counselor nursing care for a particular infection, disease, ailment, deleterious substance or a discomforting state (Ndukwe, 2011).

Long waiting time is not only affect the satisfaction among patient, the hospital also loses their reputation. According to Pillay *et al.* (2011), the hospital managers need to reduce the boredom faced by patients during the waiting time, at the same time to address the long waiting time problem in a scientific manner, as has been carried out other countries through simulation and modeling techniques. According to Clague *et al* (cited in Pillay *et al*, 2011),

efficiency and effectiveness of outpatient services have many dimensions, but an important aspect is waiting a long time for patient, which is the major complaint of patient.

### **System used currently**

Nowadays, technology is growing faster and applied to more business. “SMS” is one of the alternatives which provided an effectiveness way to the patient who are taking medications or make an appointment. According to the Koshy, Car, Majeed (2008 May 31), there is the potential way to utilize SMS reminders to increase the efficiency and effectiveness of health care delivery due to the mobile phone ownership increase rapidly. According to Tiina (2015), technology and eServices are seen as a means to provide an accurate overview of their process to empower patients to become more concerned. The medium through calls, SMS system, email, fax and appointment card is easy to the patient to collect their medication, report by Hab Inovasi Sektor Awam. (HISA, n.d). Thus, eService is one of the alternatives to address the waiting time problem among patients in order increase the customer’s satisfaction and meet the goals.

### **1.1 Problem Statement**

The waiting time problem in government clinic is the common complaint by client. The factors of waiting time may come from system and the employee attitude. According to Pillay *et al.* (2011), the factors of waiting time problems including the attitude of employee and their work process, management and heavy workload, inadequate facilities and supervision problems, to be among the contributory factors to the waiting time problem.

Technology is growing rapidly in many countries worldwide, so that eService become an alternative to address waiting time problem. However, due to geographical conditions, SMS and TEXT might not practical in Sabah and Sarawak. The reason contributed to under-developed rural areas which is remote location of these villages and the small community size.

Patient dissatisfaction about the long queuing in order to waiting long time for medicine receiving. However, clinic not only lose their customer, it will also get a bad reputation and dissatisfaction from client. According to Kujala *et al* (cited in Pillay *et al*, 2011), long waiting time is not only affect dissatisfaction among patient, hospital also lose



their client. Long waiting time is also non-value adding time, resources are not used to improve patients' medical condition during this period. Thus, the research is carry out the problem of long waiting time as well as minimize the time with an effectiveness design to meet the goals.

## **1.2 Research Question**

The research based on several questions:

- i. How long is the time taken for medicine collection?
- ii. How many time does it take from registration until medicine collection?
- iii. What is the process flow from registration until medicine collection?
- iv. How long does it take for each process?
- v. What are the system or media used for medicine collection currently?

## **1.3 Objective of study**

- I. To identify the process flow from registration until medicine.
- II. To investigate the method or system implemented currently.
- III. To design a system to improve the service in pharmacy which to reduce the process to become more effectiveness.
- IV. To validate the service design which can address the waiting time problem.

## **1.4 Scope of the study**

The research is focus to the government clinic in Malaysia. It will aim to patient satisfaction with the service, employee work progress during medicine which related to the waiting time and effectiveness of the design which can address the waiting time problem.

The research is no only study to the process flow, it will also aim to each process from registration to medicine receiving. In other hand, the research will be focus on what media or system used in currently.

### **1.5 Significant of the study**

The research is study on any cause of delay, service problem, employee attitude which related to the waiting time problem. Waiting time problem also happen when it taken long time for each process. Those problem is not only affect satisfaction among patient, clinic lose their patient, and patient lose their valuable time.

The design method will increase client satisfaction and reduce the problem of long waiting time with an effectiveness design to meet the goals. At the same time, it also keeps the reputation and service of the clinic. Thus, the research will be focus on waiting time problem as well as minimize the waiting time problem and to design an efficiency medicine collection system.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Literature Review

According to Stickdorn (2016), service design become more popular over the last years. Service design refer to innovating both tangible products and services which is currently used to connect people and technologies across diverse channels. According to Pillay *et al.* (2011), the literature on service quality indicates that waiting experiences are usually negative and have been shown to affect overall satisfaction among consumers with the service encounter. Nowadays, the oversea company has developed most of the clinic management system.

#### 2.1 Factors related to the waiting time problem

The waiting time problem is a general phenomenon in Malaysia. The increasing of this issues is common complaint by client. According to the Pillay *et al.* (2011), the causes of waiting time and addressed items relating to excessive work demand, work processes, staff attitude, facilities, and management. Pillay *et al.* (2011) also found that the factors of waiting time problems including the work process and attitude of employee, management and heavy workload, insufficient facilities and supervision problems. According to the Loke and Cheong (2011), some reasons for long waiting time were late patients, consultation for unscheduled cases, patients were not around when called, unavoidable emergency circumstances and uncooperative patients. Loke and Cheong (2011) also noted that factors that can affect patient waiting time include high patient orthodontist ratio, poor scheduling of appointments, healthcare provider tardiness, insufficient staff, and scant attention to punctuality and poor adherence to appointment time by patient. The factor is not only come from employee problem, the whole process flow also effects to the waiting time problem for patient. Ndukwe (2011) found that the time spent is usually to an access the diagnosis, treatment, laboratory investigation, counselor nursing care for a particular infection, disease, ailment, deleterious substance or a discomforting state. However, a total of 19 items relating to domains such as

employee attitude problems, work efficiency, late start of clinics, supervision problems, insufficient or poor facilities were contained in the employee survey (Pillay *et al*, 2011). Thus, the causes of the waiting time problem are related to many domains such as employee attitude, patient, facilities, work process, management, poor schedule and so on.

## **2.2 Effect of Waiting Time Problem**

The increasing of long waiting time problem affect dissatisfaction among patient. According to Kujala *et al*. (2011), long waiting time is not only affect dissatisfaction among patient, hospital also lose their client. Extra waiting time is also non-value adding time, resources are not used to improve patients' medical condition during this period. According to the Barlow *et al*. (cited in Pillay *et al*, 2011), argues that excessive waiting time is a lose-lose strategy in that patients lose valuable time; hospitals lose their clients and reputation and staff experience tension and stress. Bielen and Demoulin (cited in Pillay *et al*, 2011) further contend that waiting time does not only affect the service-satisfaction relationship, but also moderates on the satisfaction-loyalty relationship. They also found that satisfaction of patient waiting time include the perceived waiting time, satisfaction with the waiting environment and satisfaction with information provided in case of delays.

## **2.3 Solution to Minimize the Non-value Process or Activities**

The feedback is one of the solution that can improve the service quality in order to increase the satisfaction of patient. An assessment be made on patient satisfaction of Malaysian public hospitals is such an emphasis on service quality. The feedback from the customers' perspective on the level of service provided by the hospitals (Manaf, 2012). Some of the process may operate together so as to reduce patient waiting time and some of the non-value process can remove from process flow so that the activities easy to set up. According to the Kujala *et al*. (2006), the rearrangement of some process steps so that can operate parallel to each other instead of sequentially, and by reducing batch-size through faster and easier set-up. Investigate how perceived waiting time of patient and the time spent between patient and physician combine to influence satisfaction may help preserve satisfaction levels when time

and professional staff resources a tightly constrained, as is typically the case. (Camacho *et al*, 2006).

## **2.4 Design Service**

The environment or the waiting area is one of the solution to improve the service quality. This is a way to the patient and their family waiting in a comfortable area. According to the Versel (2014) nowadays, the innovation team is looking to improve waiting environment for the new surgery center. Another design team is looking to improve the guest experience has suggested a pod system that likens to a “campsite,” which is movable furniture and dividers.

Nowadays, eService play an important role in people life. According to Silva (2013), the artifact exhibited within this document show an online platform which is implementation an ePharmacare service in order to enhance the access to pharmaceutical care, and a home delivery service, improving the efficiency associated with the provision of pharmaceutical drugs and other products. The implementation of technology within services managed to have a direct effect on the relationship between employers and employees, safeguarding the responsiveness of the firm as whole and supplying specific and updated information to the decision making process.



Figure 2. 1 Innovation dispense service

*(Source from Public Sector Innovation Hub)*

The figure 2.1 shows that the before innovation, the problem such as traffic jam, patient waiting long time and parking problem in government clinic due to the longer waiting time. However, the clinic provided some of the innovation dispense service for patient which is delivery, drive-through, Email and SMS. So that patient can collect their medication without waiting.







Before		After
Prescription and taking number (15 second)		No need to register, just make an appointment (30 seconds)
Record (30 second)		Has been verified before
Taking Medication (45 Second)		
Checking labeling (4.5 minutes)		
Suspense drugs to patients (1 minute)		Suspense drugs to patient (1 minutes)
Counseling (if necessary)		Counseling (if necessary)
7 minutes	Total time taken	1.5 minutes

Figure 2. 2 Before and After of Process Dispensing

*(Source from Hospital Pakar Sultanah Fatimah, Muar, Johor)*

The implement from the content above shows that the innovation before and after medicine receiving. The figure 2.2 clearly to show a total 7 minutes before innovation. The process includes register, recorded, taking medication, checking labeling, medicine receiving and counseling (if necessary).

The medicine receiving just taken 1.5 minutes in the figure after innovation. Medication will be prepared and stored at the pharmacy so that patient can collect their medicine directly after making an appointment in 30 seconds. However, counseling will be implemented if necessary.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

The qualitative method is applied in the research. The researcher will use two methods which are observation and interview in a qualitative approach. The purpose of a qualitative approach is to gather more information and data in the government clinic at several pharmacy departments in Malaysian hospitals. This is important for the researcher to analyze the data through interview and observation.

#### **3.2 Qualitative Approach**

##### **Observation**

The researcher will use the observation method in several pharmacy departments in hospitals in Malaysia to understand how many times a patient takes to receive medicine. The observation will involve the waiting area or environment of the patient, the behavior of the patient, and what they are doing when they are waiting.

##### **Interview**

The researcher will use the interview method to collect more data from patients, pharmacists, and doctors in hospitals in Malaysia. The researcher will collect data about the waiting time and area during consultation, self-information, and effectiveness opinions through interviewing patients. Approximately 10 respondents will be accessed.

However, the researcher will interview the pharmacist in the department of receiving medicine in order to collect data about the time taken for each process from registration to receiving medicine. This is to know the steps that a patient should take from registration to receiving medicine.

The researcher will interview the doctor to collect important information about the process flow for consultation and suggestions to improve the waiting time problem. The