



Experiences-Based Design for Overcoming Language Barriers in Healthcare Service: A Case Study

Ding-Hau Huang^(✉), Chun Ming Yang, and Gia Hue On

Department of Industrial Design, Ming Chi University of Technology, New Taipei, Taiwan

hau@mail.mcut.edu.tw

Abstract. The aim of this study is to address languages barriers and cultural barriers problems through experience-based design (EBD) approach, that may occur in healthcare settings faced by the increasing numbers of foreigners in Taiwan. This study put foreigners at the center in the service of a healthcare system, applied the modified EBD approach to understand their needs and to improve the health check service process for them. The results of this study showed that EBD approach could come out appreciate solutions to solve languages barriers and improve foreigner's health check service quality. Because of the foreign patient joined the process and co-design to figure out the solution that has potential to reduce their negative feelings.

Keywords: Experiences-based design · Language barriers · Cross cultural design

1 Introduction

Taiwan is increasing the number of foreigners who come to study or work. There were 28,000 international students in Taiwan in 2016. Taiwan government has announced plans to increase the number of international student with a goal to host 58,000 foreign students in 2019 [1]. Ministry of Labor statistics showed that foreign domestic employees increased 5.77% in 2016, nearly triple 2015's growth [2]. There were 624,758 migrant workers in 2016. Most of them came from Vietnam, Thailand, Philippines, Indonesia that their native language is not Mandarin or English [2]. It is a challenge for them who cannot understand, speak, read or write Chinese in healthcare settings that lead to stressful, uncomfortable and miscommunication. In the healthcare system, miscommunication is a problem can threat to the patient's life. When using a second language in clinician and patient communication, misunderstanding errors are increasing likely. The details of a medical conversation or treatment must be conveyed accurately to patients and clinicians. "patients may fail to comply with instructions" or "elect not to have potentially life-saving treatment" is evidence occurred when clinicians and patients use a deficiently mastered second languages [3].

According to Betancourt et al. [4], cultural barrier is another main problem that "avoid miscommunication in cross-cultural situations fosters more patient-centered

relationship”. “To improve the ability of healthcare providers and the healthcare system to affected and care for patients with diverse social and cultural backgrounds” is the target of cultural competence. Depending on patients’ culture, religion, or social situation can understand their feelings, behavior that improves an individual’s ability to understand, follow and accept clinician’s instructions. It is crucial to discern barriers of language and cultural difference for foreigners to have equitable healthcare service.

However, healthcare services are often complex, relying on interactions among multiple stakeholders. Stakeholder participation has been shown to be a beneficial component of service design, leading to innovation, a closer fit to user needs and improved service experiences [5]. Some researchers proposed the methodology for healthcare service design to understand patient experience and to ensure what is designed is related to their needs and requirements [6]. Such as experience-based design (EBD) which is kind of participatory service design approach. In many service design projects, participatory design is seen as critical to success. EBD is kind of participatory design process which is structured as a four-phase process of patients, carers and healthcare staff capturing and then understanding their lived experiences of healthcare services, working together to improve the service based on this understanding, and then measuring the effects of changes [7].

The aim of this study is to address languages barriers and cultural barriers problems through experience-based design approach, that may occur in healthcare settings faced by the increasing numbers of foreigners. This study put foreigners at the center in the service of a healthcare system, applied the modified EBD approach to understand their needs and to improve the healthcare service process for them.

2 Experience-Based Design (EBD)

EBD has four phases, capture phase, understand phase, improve phase and measure phase. In this study, we modified partial part of each phase explained as below.

In the capture phase, participants are encouraged to record their personal stories of using services, and then staff and patients participate in separate story-sharing events.

In the understand phase, participants analyse their experiences by plotting elements of their stories on customer journey maps. In this study, we used the same method. Customer Journey mapping is a diagram that illustrates the steps of customer experience products or services. It helps to conceptualize customer experience as a customer’s “journey” from the first step to the final step [7] that designers understand the customer’s actions, motivation, and barriers during the service process [8]. The data of processes and user experiences are provided by customer journey. Those small details can be uncovered that is a really great extent [7].

For the improve phase, EBD establishes a set of co-design teams each involving both patients and staff to explore and implement service improvements in different areas. In this study, we used service blueprint as a tool to identify and discuss the service problems. A blueprinting takes the viewpoint of the customer, specifically customer actions, interaction with products or services [9]. Blueprinting has evolved to include other aspects of service delivery, such as the distinction between frontstage and

backstage and the physical evidence. People can visualize and understand an entire service process by noting details of all service actions [9].

EBD recommends evaluating improvements using both subjective measures (e.g. patients' experiences) and objective outcomes (e.g. attendance rates) but does not provide an explicit process. In this study, the exporters were invited to evaluate the improvement.

3 Foreigner Health Examination Service Case Study

The case is about general health examination service improvement for foreigners in Taiwan. The hospital is the West Garden Hospital which is placed in a crowded area and having a lot of foreigners at Taipei City. We hosted four days' workshop and went through the modified EBD process. We tried to discover the problem and improved the service experience of foreigners doing health examination in Taiwan who cannot speak and read Chinese.

3.1 Participants

There were four persons in this design team, including three graduate design students (two Vietnamese, one Taiwanese) and one Taiwanese nurse. Vietnamese participants cannot speak, read and write Mandarin; English is their second language.

3.2 Processes

Capturing Experiences. All the design team members went to the real field to experience the general health check service in West Garden Hospital. The whole examination procedure shows as Fig. 1. All participants do not speak Chinese throughout the examined process. Each person was assigned a duty. Two Taiwanese participants play a role as accompany of examinee to observe and took pictures. One Vietnamese student volunteered to be an examinee. The other Vietnamese used 5W1H and AEIOU chart to observe and wrote down everything, including time, objects, feelings (Figs. 2 and 3).



Fig. 1. The process of general medical examination.

Understanding Experiences. After field experience and observation, all participants returned to the workshop. They made the customer journey map together. Participants had to make sure the time, picture and each step matched each other and stick all



Fig. 2. Team members were observing and taking note through whole serve process (registration as an example)



Fig. 3. Team members were taking photo for environment and objects

documents on the board. Then, the participant who played the patient role wrote down both negative and positive feelings, thoughts when she joined the health process. Those were divided into the negative or positive area in the customer journey map. Emotion words drawn from the stories are written on Post-it notes, which are then placed in line with the identified touch point. Positive emotional reactions appear higher on the map and negative emotions lower, thus creating a visual representation of the emotional journey (Fig. 4). Clusters of negative responses indicate problems to address. Starting from this stage there were two design professors and one nursing professor joint in to facilitating the discussion (Fig. 5).

In registration, the patients were difficult to find volunteers because of the Asian appearance that looks like a local people, Taiwanese. For example, American or Indian who has a significantly different appearance with a local people, volunteers will be easy to realize and help foreigners.



Fig. 4. Understanding experiences through customer journey map.



Fig. 5. Discussion of customer journey map.

In the X-ray section, they were asked to remove shirt and bra and to wear a gown. Next, they stand in front of the X-Ray room - public area, to waiting their turn. It was very uncomfortable and shy. Otherwise, nurse directly touch the patient back to check

not bra and jewelry, without any announcements. It made the patient felt startled and resentful. One possible explanation is that the nurse rushed the patient to finish the checking and do not have time to think how to speak English with the patient. So, the nurse directly checked faster.

In the result of customer journey map showed that the patient had positive and negative feelings in each section. The patient felt extremely uncomfortable with the registration, X-ray checking, and Urine sections, especially, “do not wear a bra in public space”; “directly touch on a patient without announcement”, “take urine tube into public space”, and “difficult to find volunteer” (Fig. 6).

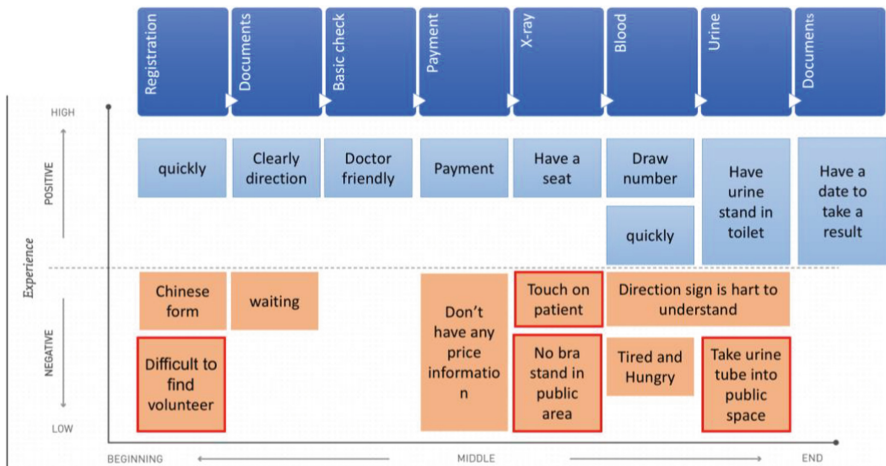


Fig. 6. The result of customer journey map.

Improving Experiences. In this step, group members define and distinction the experience between frontstage and backstage and the physical evidence. They wrote down and post notes on the Blueprinting (Fig. 7).

Base on the frontstage and backstage in the Blueprinting, they defined the elements could be changed or redesigned to find out the optimal solutions. After having solutions, they discussed with Professors to figure out one solution. The result of service blueprint showed a basic system of the healthcare process. Designers knew front-stage elements and back-stage elements of each section that they want to improve or redesign. Combining service blueprint with customer journey map, a folder idea was so provided with popular languages versions (English or Japan) that foreign patients can read by themselves. It helps to solve the problem, which the patient was difficult to find volunteers in the registration section.

The solution is a folder with many popular languages versions. When the foreigner patients go to registration, they can easily find the folder having their language in the registration area. This folder has a small pocket for placing the health insurance card in cover. Page 1 has information about price, instruction, and all steps of the process. Page



Fig. 7. Define problem to improving experiences through service blueprint.

2 has a hospital map and the case, putting all documents they had, and the QR code on the final page that let patients more convenient to search their information (Fig. 8).

Moreover, the health check process had 8 sections, spending more 2 h to finish. It is overlong for patients to do it (see Fig. 9). This studies redesigned the process having 6 sections (Registration, Documents, Blood and Urine check, Basic Check, X-ray and Payment Documents) (Fig. 10).

Measuring Improvements. Finally, they made a simple prototype with paper, and presentation to introduce the process they got this solution and received feedbacks and comments from nursing expert and professors.

4 Discussion

In its entirety, this is a great chance to have a deeper understanding of foreigner patient behavior and feeling when they joined in the healthcare setting. EBD suggests facilitating ‘co-design’ teams of foreigners, designers and healthcare staff to explore and implement service improvements, based on the understanding developed in earlier phases. In the capturing experience phase, all the stakeholder got together to experienced and observed the filed world could have more real story and scenario for discussion. In the understanding and improvement phase, combined customer journey map and service blue print could stronger understanding of customer experience and the customer journey in this era of increasingly complex customer behavior [10, 11]. Finally, evaluation of service improvements is shared with participants.

Limitation of this study the lack of participant groups, only Vietnamese participants. On the next program, participants should have various cultural.

The results of this study showed that EBD approach could come out appreciate solutions to solve languages barriers and foreigner’s health check service quality.



Fig. 8. The folder solution

Because of the foreign patient joining the process and also joining the workshop to figure out the solution that has potential to reduce their negative feelings. The folder solution is a simple, inexpensive that should be translated and replicated in other languages. In the future, this folder can connect to a database with QR code behind and can link to hospital's mobile app or internet to get more information.

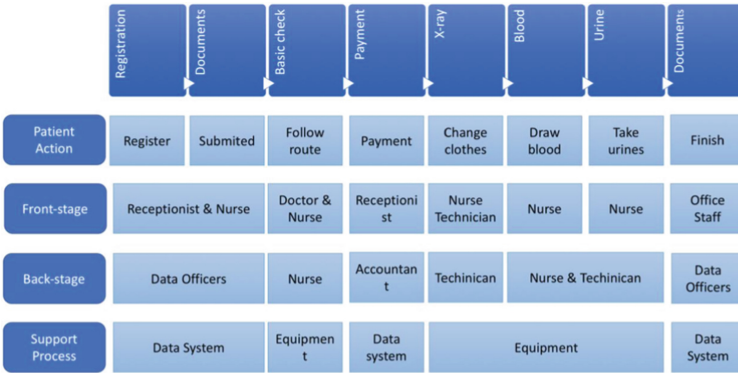


Fig. 9. The result of service blueprint

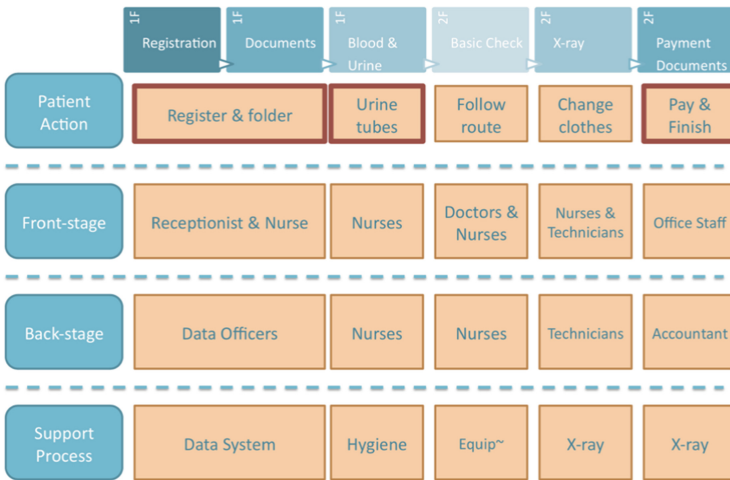


Fig. 10. The redesigned – service blueprint

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