

Evaluation on Students' Service Design Concepts using the Principles of Service Innovation and Design Process

Ahmad Zuhairi Abdul Majid*

School of The Arts, Universiti Sains Malaysia

zuhairi.majid@usm.my

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Abstract:

This paper is a review on service innovation and design education in Malaysia specifically for Product Design programme at School of The Arts, Universiti Sains Malaysia. With new design thinking, principles and methods for services design and development will change the value of designers in education and creative industries that are suitable for the next generation. Since 2012, we have started to adapt some of the basic methods and exploring new ideas in developing new services or servicescapes for health services and point of sales enhancement. This paper shows some of the successful design developed by the students. All selected design developments were chosen from their design reports which have been assessed over the last several years since 2014. A compilation of research and development of each selected work shall be presented and also can be compared through design positioning and matrixes. Therefore, this review can be seen as significance to the service industries that shall give more opportunities for young designers to contribute. The real benefit from service innovation education is to encourage sustainability in human lifestyle. To achieve something that is less stressful, good communication between human, responsible design and satisfaction in every aspect of life that relate to services, especially the people-processing type of service. Ultimately, the professional practice of service innovation will be recognized in Malaysia.

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1. INTRODUCTION

The review is to show how students can achieve their understanding and design thinking towards issues on service innovation design. Designers' contribution to the services industry is crucial to promoting the country's economic growth although product development is still needed for the nation. In Malaysia, Service sector plays an important part alongside the manufacturing sector in the country's development growth. Findings from various countries show that more than 60 percent gross income are coming from service sectors [1]. For example, the ratio of intangible investment to

GDP has risen in Japan and in most other developed countries like USA, UK, Germany, France and Italy [2]. The service sector has played an important role in the growth and development process of the Malaysian economy. Within one short generation, a dramatic shift happened in how we buy things, interact with companies, do our jobs and communicate with each other just because of the pervasive digital technology [3]. It is the best example of technology that can change people or users in their everyday life. Furthermore, with the rapid advancement of technology and renowned as the industry revolution 4.0 then of course a range of

sophisticated equipment and devices emerged in tandem with the development of new services. The internet of things will be a must for whatever product or service development. Time and information are so precious that consumers wanting for fast delivery and say no to something slow in performance. There are many types of services can be found on the internet, but not all service offerings can be done online. Here in Malaysia we are now facing another phenomenon of human development which is towards self-actualization. Consumers tend to look more into social needs and emotional needs as referred to Maslow's hierarchy of needs [4]. This paper also discusses how students can use research bases in designing final year projects to complement the undergraduate curriculum program.

2. LITERATURE REVIEW

Service design is a profession concerned with improving the experience that customers receive from a service provider. Service design can be both tangible and intangible, involving artefacts and other things including communication, environment, and behaviours. Consistency, easy to use and strategically must be applied in order to winning the customers [5]. The word 'design' is commonly used as a noun or a verb. As a verb it refers to a plan for the construction of an object or a system. Traditionally, the understanding of the word 'design' is of 'a plan or drawing produced to show the look and function or workings of a building, garment or other object before it is built or made' [6]. Design also is the thought process comprising the creation of an entity [7]. The researcher admires his thought that design is the mental synapse that instantly sees the potential connection between problem and possibility. Another suggestion is that when design involves, decisions must be made in respect of colour, styling, durability, reliability, materials, cost of manufacture and so on [8]. While 'service' combines with the word 'design' it means a process that creates an offering to the recipients.

As we all know that IBM had started dealing with Service Science and exchange of information to develop a curriculum in cooperation with 35 universities in the United States [9]. Behind this background IBM promotes Service Science following the old success experience of establishing Computer Sciences. But most of all 42 subjects were not related to service at the first introduction of service science curriculum at University California, Berkeley [10]. They were more related to knowledge and technique of management for manufacturing industry that can be adapted for services sector. A principle had been established that which we agreed upon the five basic principles of service design thinking. User-centred, co-creative, sequencing, evidencing and holistic are the main principles to be followed [11]. Service design is a system for visualizing, enabling services to be given proper position and weight in the market entity [12]. It has been agreed for decades that innovation can play a role in the development of service industries [13]. The theory of reverse product cycle that would also be used in the improvement of user industries such as services has been introduced. Subsequently, service positioning strategy on service businesses was familiarized and hope that guidance by marketing on how to construct service processes for positioning purposes will complete the strategy [14].

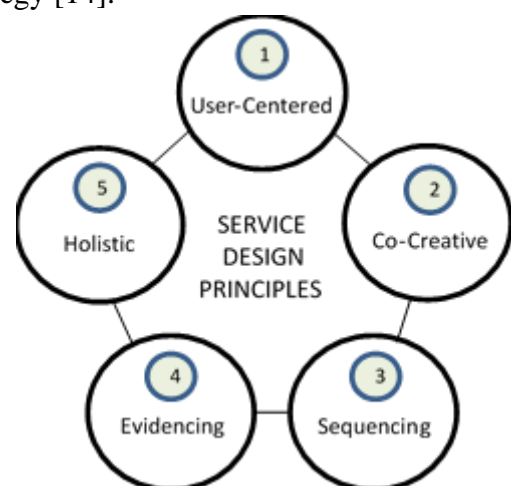


Figure 1. The 5 principles of Service Design Thinking discussed by [11]

3. METHODOLOGY

This paper is reviewing some of the selected projects done by final year students from product design programme. Students are required to follow the principles of service design thinking and other related to the principles such as services

capas and service blueprints. When comes to servicescape proposals the student have to follow the product design process as usual. Below in table 1 are the project descriptions and pictures of the selected final projects.

Table 1. Projects done by product design students of School of the Arts, Universiti Sains Malaysia

		
<p>Project 1: Redesign an easy-access patient lifter which can be easily operated any adult helpers. It is a product that supports the healthcare services.</p>	<p>Project 2: A water transport service in Penang Island, Malaysia. A redesign of a ferry transport service that give more attractive value and spatial arrangement of the interior.</p>	<p>Project 3: An emergency rescue transport design for healthcare services. This paramedic rescue unit will give immediate respond during heavy traffic condition.</p>
		
<p>Project 4: A part of tourism services in Penang, Malaysia. A redesign of trishaw service which carry tourists to interesting heritage places in town.</p>	<p>Project 5: Futuristic ambulance design that cater for remote area such as a place where all the indigenous people or the native inhabitant.</p>	<p>Project 6: A ticketing kiosk design for public transport service in Penang, Malaysia. An Interactive kiosk assists in purchasing express bus tickets.</p>

Project 1 has some facts from the interviews and observation done. It shows that there were some statistics of caregivers who suffer lower back pain and shoulder pain during manual patient lifting. 25% of caregivers have lower back pain and 20% suffer with shoulder pain while 50% of caregivers had both lower back and shoulder pain. There are 40 caregivers at 4 different home for the aged in Penang participated in this research. 75% of respondents were using manual lifting while only 25% using existing patient lifter. From the interview, 85% of the respondent agreed that patient lifter is helpful.

Project 2 has its main objective which was to solve the problem of servicescape for ferry transport service in Penang Island. The research was focused on servicescape aspects by covering the fire safety system and analyzing the security system during fire situation. Design consideration was also focused on how to create new system on emergency. From a survey done on 70 respondents among passengers shows that 72% were not satisfied with the safety precautions and information on board. As a result, the student decided to make a proper safety guide and information together with the interior layout and exterior look for better service.

Project 3 is a proposal of an emergency rescue unit with motorcycle as part of servicescape for emergency healthcare service. From the interviews with emergency personnel, the student found that the proposal is viable in terms of a) able to assist emergency departments in improving service, b) able to arrive early and give immediate help, c) not involved in traffic congestion for a long time, and d) Facilitate the ambulance in transferring patients immediately. The design of the proposed motorcycle should have the correct specification regarding the equipment carried and able to overcome the main problem such as traffic congestion and can arrive early at the scene. The purpose is to make paramedic riding on a motorcycle can give early treatment to the victims of road accident.

Project 4, there were some facts that show the unpopularity of existing trishaw in George Town, Penang. The main objective of this project is to design a better trishaw service for tourist transportation purpose in Penang George Town UNESCO World Heritage Site. According to a report from New Straits Times, Penang iconic trishaw service a dying trade. To understand public perception towards trishaws, Penang Institute's Department of Urban Studies did a survey on 249 members of the public, both Malaysians (79%) and foreigners (21%), in George Town. However, only 17% of the respondents have ever used a trishaw in George Town. Most of the respondents which represent 83% of the respondents had never used a trishaw before. Out of these 83% of respondents, 42% of them are Malaysians. Furthermore, 71% of them have not even considered on using a trishaw in George Town, and preferred walking (18%). In addition, 15% believed that it is not necessary to use a trishaw, 10% were dissuaded from doing so since they would be exposed to the hot weather, and 9% preferred to use their personal vehicles. These results show that the trishaw is no longer a popular mode of transportation among locals and even among foreigners, with many choosing to go on foot when exploring George Town. With these facts the student was trying to make the trishaw back in service by redesigning the vehicle. Issues like safety and aesthetic also play role in engaging to customers.

Project 5 has its first objective that is to identify the problems faced by ambulance drivers when receiving emergency calls from patients in indigenous areas and the final objective is to design an ambulance that can travel in a difficult terrain or roads in rural area of native inhabitant. This vehicle has futuristic values as the student imagines that could be possible to become a servicescape for emergency healthcare service in the near future.

Project 6 is a ticketing kiosk design for public transport service in Penang, Malaysia. The main

objective is to design a communication device that can facilitate and provide comfortable to the user and provide a better user experience. Design concept should be able to solve identified problems and help management for a better service. 96% of the respondents agreed that a ticketing kiosk is convenient for the users to purchase tickets using credit or debit card. 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 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.

Another important point related to the service thinking principles is the sequencing. Only two out of six projects have outlined the service blueprints. Below in Figure 1 and 2 are the two blueprints produced by students from project 4 and 6.

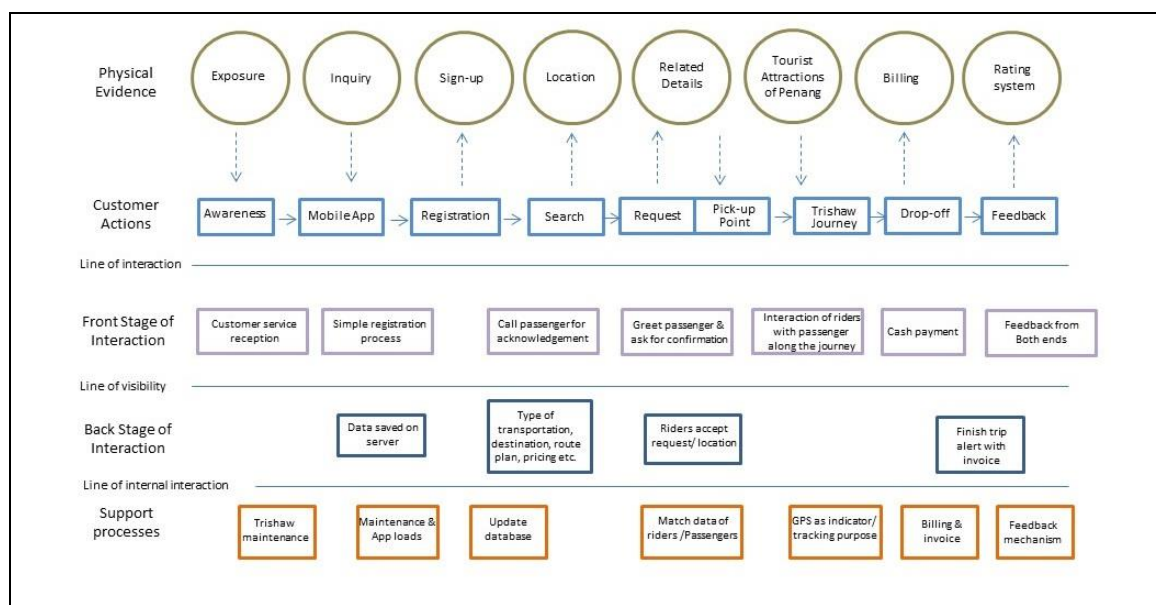


Figure 2. Blueprint of the steps taken for the trishaw operator and also the passenger

From Figure 2 shows that student is expecting that Penang Trishaw Service has potential to become the mainstream among available transports in Georgetown of the UNESCO World Heritage area. Therefore, the implementation of technology and ergonomics factors on the new trishaw design and its service system are important to promote the status of trishaw to a higher level. However, in this project, 3D model was made to replace prototype of the new trishaw design due to the cost and technical problems. In the manufacturing

process, there are many things can be learned. For example, there are many restrictions in 3D Printing, some parts cannot be printed as expected in the 3D drawing. Besides that, there are some holes and slit between the joining parts. Therefore, mending process is needed to make it looks better. Furthermore, under this project, the blueprint of trishaw service system such as the charges and the routes package is being standardized for the convenience of riders and passengers.

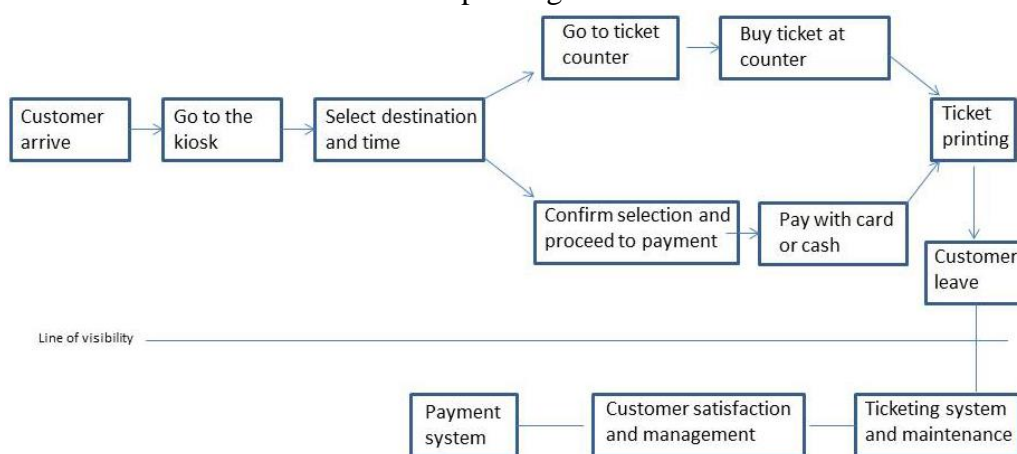
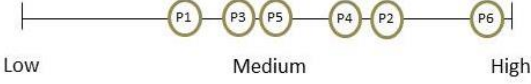
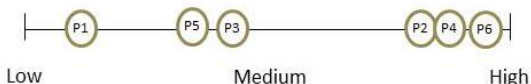

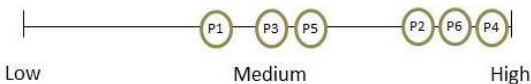


Figure 3. Blueprints of the sequencing while purchasing tickets

Figure 3 shows the flow of the proposed service blueprint for express bus ticketing system at bus terminal in Penang. The student proposed new steps to be taken and this also shows how the

situation will be experienced by the users when purchasing tickets. Users will go through simple process with the help from a kiosk. This will increase users' level of satisfaction.

Table 2. The assessment of all proposals proposed by the students

Assessment Category	Level of Importance	Explanation of Rating
1. Quality of user interfaces		P6 has user friendly interfaces that understandable. The quality of interfaces is essential. The other projects can be considered as moderate usage of interfaces.
2. Emotional appeal		Every servicescape must have the emotional appeals which bring the pleasant mood and feelings. However, the P1 is focused on functional.
3. Maintenance ability		Although maintenance and repair are not importance to users, but all project must allow providers to maintain quality standard and efficiency.
4. Service differentiation		P4 must have the highest quality of appearance otherwise no one bother to have a ride. P1, P3 and P5 are moderate but still

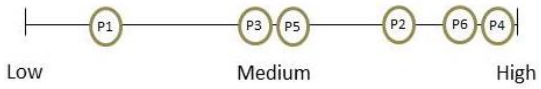
		have the difference and competitiveness.
5. Effective Sequencing		P2, P4 and P6 must have good service blueprints in order to give good service delivery. P1 are just a product that support the healthcare service.

Table 2 is an assessment to this service innovation project review. This assessment was adapted from the assessment of industrial design’s role [15]. Some parts were altered to suit with the service design thinking principles. From the assessment above we can see that not all projects done by the students can achieve higher rating, but the most important was the contribution to the knowledge and practice of service design thinking. The author thinks that the students have gained important knowledge and they are ready to take part in a bigger role of service design practice. This method of assessment is related to the service design thinking principles. Below are the explanations of each criterion to be used in the assessment.

1. Quality of user interfaces – The first principle is about user-centred that a service should be experienced through the customer’s eyes. The rating is to see how easy the product to be used such as the quality of appearance, feel, and mode of interaction.
2. Emotional appeal – This rating is very much related to user-centred and evidencing. Servicescape that involves in any service can be visualised and appeal is achieved through appearance, feel, sound and smell. A question like how attractive is the service or how exciting about the service will be the first probe by the users or customers.
3. Maintenance ability – In order to keep service quality at the highest value, service providers must have maintenance plan which is not concern by the customers but can be seen during delivery. Holistic thinking for the entire environment includes before and after delivery. Although it is intangible but in a physical

environment that uses physical products to deliver.

4. Service differentiation – To be competitive in providing a service, a provider must show their uniqueness and consistency with the identity. New ideas and new way of delivery shows the difference and it is predominantly from appearance. Blue Ocean Strategy can be adapted to create a market for something that did not exist before [16].
5. Effective Sequencing – This rating related to the principle and it should be visualized as a sequence of interrelated actions. Although dynamic processes will take place but the service timeline is crucial because users cannot wait too long if it is slow delivery. Every service design or innovation must provide a blueprint that represent as an effective sequencing.

4. DISCUSSION AND CONCLUSION

The author hopes that this study could spark the interest of many educators in design discipline at higher education institutes such colleges and universities in Malaysia. Although it will conflict with the existing curriculum in service marketing in most business schools in Malaysia but the researcher feels that this is different in terms of design with innovative ideas through its processes. As the researcher mentioned earlier, service innovation is about “creativity” and “service”. Contributions will likely be:

- To give preliminary knowledge in service design and development as a new stream for industrial design discipline.
- To create opportunities for other researchers to improve the processes and strategies particularly in creative innovation aspect.

- To create new way of linking education and industry by providing expertise in service design and development.

Here are some feedbacks [17] from the experts in creative industry on service design education in Malaysia. One of expert in corporate identity and branding strategy says that he agrees that if provider wants to build customer loyalty they have to bring in supplementary services or entertainment that would fill the customer with satisfaction. And one thing that he strongly disagrees is that the word service designer is not the ultimate because contribution could come from other disciplines like product designers, content designers or multimedia designers. That's what we called it co-creative.

The author asked about service design for higher education, one of prominent gallery provider in Malaysia says that colleges and universities should provide service design education but most important is to include the exposure on marketing and business trend. Generally, he satisfied with the term service design that significant to new economic transformation.

“Yes, only if the basic function works, the basic service works and if it doesn't work then it doesn't really matter providing all the emotion ...Just adding the dream society is a way you can do a lot. At least Jyske Bank has made it successful in doing that. There are elements of surprise, different from other banks.” An interview with futurist, Klaus Morgensen of Copenhagen Institute of Future Studies in 2010.

In School of the Arts, Universiti Sains Malaysia, service design and innovation education will continue on creating new ideas of providing services while focusing on the tangible artefacts that support the service. Not to ignore the term 'emotion' which means how much emotional value will receive by the customers during their visit at any service centre or business.

As an example, good ambience music can give good emotional value to customers. A service provider should look at new lifestyle to be added in new development or improvement and the effectiveness is higher when a service provider includes new trends of lifestyle contents [18]. According to [20], “Money buys, but emotional sells” [19]. To make this happen, designers must be able to create things that can have a positive effect on the customers' emotional relationship with service functions. New business paradigms are promoting livelier, lovelier, and more emotionally fulfilling products [20]. The author believes that the word 'products' must always come along with 'services' especially in design management.

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