

STUDY ON CUSTOMER SATISFACTION LEVEL REGARDING THE CONVENIENCE AND SERVICES OF SMART SOLAH DIGITAL SIGNAGE (SSDS) PRODUCT IN SELECTED MOSQUES IN MALAYSIA

Rasidah Rusman¹, Ts. Mohd Farid Rahat¹ and Fatin Nabilah Musa¹

¹ Department of Electrical Engineering, Politeknik Mersing
rasidah.rusman@gmail.com,
ujirru_aizan@yahoo.com,
fatin@tvvet.pmj.edu.my

ABSTRACT. Smart Solah Digital Signage (SSDS) is an audio-visual product, equipped with "Digital Signage" software and integrated with the prayer time application as a facility in mosques and Islamic centres. This product fills a cluster of existing ICT products that only have limited functionality and do not meet the needs of mosques. Highlighting the more modern technology functions and better meeting the targets of more effective use, then this study aims to identify customer satisfaction of SSDS products. Using a quantitative approach through the distribution of questionnaires to 32 respondents out of total 35 SSDS user in Malaysia, from selected mosques in Malaysia who have used SSDS products. Findings show that the level of satisfaction is at a satisfactory level and high and meet the specifications of user needs based on the score mean findings exceeding 3.68.

KEYWORDS: smart solah digital signage; technology

1 INTRODUCTION

In line with the advancements in multimedia technology and Malaysia's goal to progress towards the Fourth Industrial Revolution (IR 4.0), Islamic centres, Islamic corporate bodies, mosques, and are also embracing this technological wave. They want and need to display the latest information in a digital and interactive manner to facilitate accurate, engaging, and prompt information delivery from relevant authorities. At the same time, this digital display aims to incorporate prayer time reminders, regardless of whether it is in mosques, Islamic centres, or corporate entities.

Traditionally, the common methods used to disseminate information were oral communication and drawing on whiteboards or display areas for explanations. Research analysis conducted by Salleh et al. (2013) and Dighe (2003) shows that visualization is the best approach for conveying easily understandable images or concepts.

Conventional or traditional communication methods have received less acceptance. According to Cetin & Andrew-Larson (2016), Esponda-Argüero (2010), and Subramaniam et al. (2009), the use of visual applications can enhance understanding, interest, and motivation. Akram & Fang (2015) state that the use of visual aids can improve cognitive abilities and support better learning and delivery.

Hence, the Smart Solah Digital Signage (SSDS) audio-visual product was developed, offering comprehensive features and "Digital Signage" software integrated with the Solah Jam application. Our mission is to offer this product at an affordable price while developing facilities within mosques and Islamic centres in line with the current multimedia technology advancements.

2 PROBLEM STATEMENT

The digital prayer time products available in the Malaysian market have several shortcomings that need to be improved in terms of their functionalities. The majority of users of these digital prayer time products is mosques. Many of them have their own ideas on how to convey information to the residents, visitors, and congregants. However, their ideas cannot be implemented due to the lack of user-friendly features in the existing products. For example, the lack of features such as moving word information (matrix LED), customizable slide arrangements according to user preferences, and live YouTube streaming. These observations and discussions were initially based on conversations with an imam from a mosque in the Rompin district, Pahang, and some of his colleagues who are mosque imams as well. Additionally, the existing products are unable to play high-definition (HD) videos, whereas

nowadays, a lot of information and lectures utilize HD videos as a medium of communication. Furthermore, the high installation and maintenance costs of the existing products are a result of the lack of online control. This means that if there are any issues with the system, the manufacturer of the old system needs to physically come to the mosque, leading to high costs and a relatively long response time for repairs.

3 OBJECTIVES AND RESEARCH QUESTIONS

The objectives of this study are to determine the level of customer satisfaction with the convenience and services of the SSDS product in selected mosques in Malaysia.

Objectives:

- 1) Enhance the existing functions of the digital prayer time product with new user-friendly and easily manageable features.
- 2) Make the digital prayer time display more interactive to attract the public's interest in viewing information on the digital display and enable playback of high-definition (HD) videos.
- 3) Add an important function to the digital prayer time product that allows the system to be remotely controlled online, facilitating immediate technical assistance in case of system faults.

Research Questions:

- 1) Are the available digital prayer time products in the Malaysian market limited in their functionalities, leading to user dissatisfaction?
- 2) What factors contribute to the public's disinterest in viewing videos and information displayed on the digital display systems in mosques?
- 3) Why does the mosque's prayer time system take a long time to repair and incur high repair costs in case of malfunctions?

4 LITERATURE REVIEW

The literature review focuses on customer satisfaction model and service quality model. Oliver (1997) asserts that there is a distinct difference between satisfaction and quality. Satisfaction is defined as an immediate response to consumption, whereas quality exists before and after consumption as an enduring signal of product or service excellence.

4.1 Customer Satisfaction Model

Study of Kahar (2008) defines customer satisfaction in business terms as meeting customer expectations or satisfying customers and creating customer loyalty towards the services offered by an organization. Ramli et al. (2009) state that there are various measurement instruments to assess service quality and meet customer satisfaction. There are five dimensions most valued by customers in achieving satisfaction with a particular service: reliability, assurance, physical evidence, empathy, and responsiveness.

To assist service providers in understanding customer expectations and perceptions, as well as continuous quality assessment, according to Ruzaihan (2020), each dimension of assessment includes physical facilities, equipment conditions, and the ability to perform services correctly and efficiently. This helps instil trust and confidence in customers.

4.2 Service Quality Model

According to Gotzamani & Tsiotras (2002) and Singels et al. (2001), an organization that emphasizes quality in its services aims to improve internal operations, enhance communication between internal and external parties through clear job responsibilities, raise awareness of quality issues, and increase productivity. This, in turn, leads to increased customer satisfaction and their trust in the company's products.

Perception of service quality is the customer's perception of receiving the expected quality and can be considered as the customer's evaluative judgment in the form of attitudes, as studied by Rahman et al. (2001). According to Abdullah & Rozaria (2009), the extent to which an organization can achieve quality standards depends on the customers' perception of the service or the suggested product.

5 METHODOLOGY

5.1 Study Design

This study employs a quantitative research approach and utilizes a survey method to examine customer satisfaction regarding the facilities and services of SSDS products.

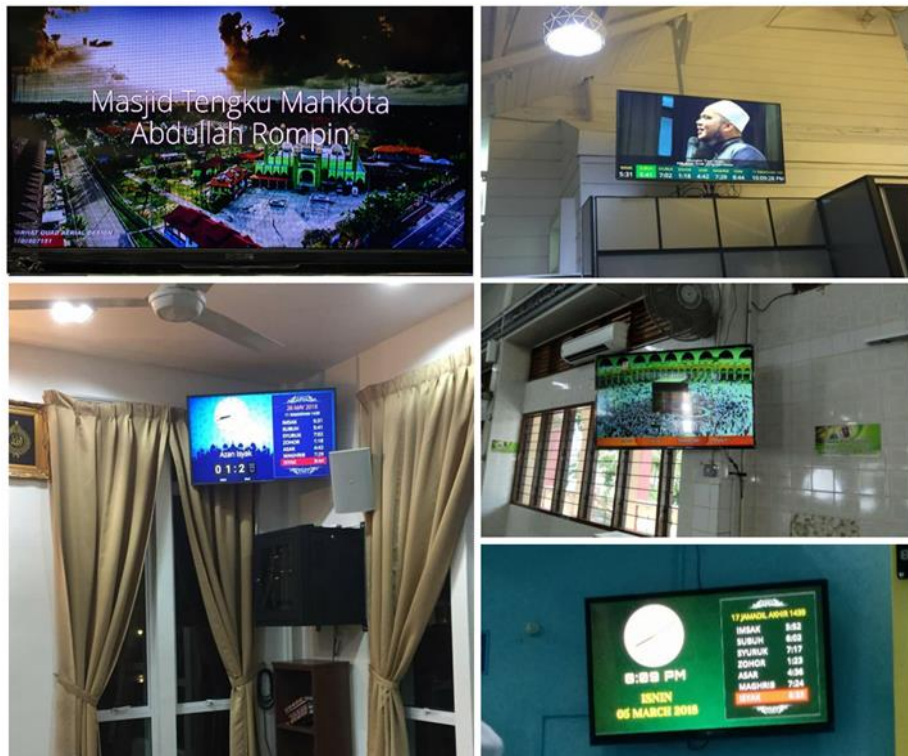


Figure 1 : Photos of Smart Solah Digital Signage (SSDS) product

5.2 Sampling

The sampling will consist of customers of SSDS products across the country who are currently using the product. A total of 32 representatives from mosques and government departments will be selected out of the total of 35 customers in Malaysia who have provided feedback, excluding Kedah and Perlis, which currently do not have SDSS users. According to Krejcie and Morgan (1970), if the study population is 35 people, the required sample size is 32 individuals.

5.3 Research Instrument

The research instrument consists of a questionnaire set for customers of SSDS products. Feedback for the questionnaire used in this study will be collected using a 5-point Likert scale, as shown in Table 1.

- Section A: Economy,
- Section B: Function & design,
- Section C: Maintenance & service,
- Section D: Improvement

Table 1 : Survey feedback

Scale	Interpretation
1	Very Dissatisfied
2	Dissatisfied
3	Uncertain
4	Satisfied
5	Very Satisfied

6 RESULT AND DISCUSSION

Data analysis was conducted using Statistical Package for the Social Sciences (SPSS) version 22.0 on the questionnaire set for this study, which consists of 11 questions using a 5-point Likert scale.

6.1 Analysis and Discussion

This customer satisfaction study focuses on three categories: Section A (economy), Section B (function & design), and Section C (maintenance & service) for customers of SSDS products. The measurement is done using the score interpretation table, referring to Table 2. Table 2 utilizes the guidelines proposed by Landell (1997) to assess the level of inclination for each tested aspect. If the mean score obtained from data analysis falls within the range of 1.00-2.33, it indicates that the level of user satisfaction with SDSS products is very low. If the data shows a mean score between 2.34-3.67, it suggests that the level of user satisfaction is moderate. However, if the data analysis yields a mean score greater than 3.67, specifically within the range of 3.68-5.00, it clearly indicates that SDSS products are performing well and providing maximum satisfaction to users.

Table 2 : Interpretation of Minimum Scores for Likert Scale

Score range	Interpretation
1.00-2.33	Low level
2.34-3.67	Moderate level
3.68-5.00	High Level

6.2 Research Findings Analysis

Several aspects were outlined in the questionnaire in section A, which focused on the economy, including states, the pricing of SSDS products, and cost savings. The respondents who answered this questionnaire were among the committee members of mosques and . Table 3 shows the distribution of the number of respondents who completed the questionnaire from across the country, including respondents from mosques and government departments. There were 9 states that responded to the questionnaire, with Pahang having the highest percentage of respondents at 37.5%, while Melaka and Pulau Pinang had the lowest percentage of respondents at 3.1%.

Table 3 : Section A (State)

State	Frequency	Percentage %
Johor	6	18.8
Kelantan	2	6.3
Melaka	1	3.1
Negeri Sembilan	4	12.5
Pahang	12	37.5
Pulau Pinang	1	3.1
Sarawak	2	6.3
Selangor	2	6.3
Terengganu	2	6.3
Total	32	100.0

Table 4 shows that the pricing of SSDS products is considered worthwhile, with 90.6% of respondents indicating that the price of SSDS products is reasonably priced, while 9.4% of respondents mentioned that the price is expensive.

Table 4 : Section A (Price)

Offered Price	Frequency	Percentage %
Reasonable	29	90.6
Expensive	3	9.4

Table 5 indicates that the SSDS product helps save costs in terms of time, maintenance, and service, with 96.9% of respondents agreeing that the product is cost-effective, while 3.1% of respondents disagreed and stated that it is not cost-effective.

Table 5 : Section A (Cost Saving)

Cost Sacing	Frequency	Percentage %
Reasonable	31	96.9
Expensive	1	3.1
Total	32	100.0

The research instrument consists of a questionnaire set among the respondents, and the feedback for the questionnaire used in this study is based on a 5-point Likert scale. There are 6 questions from Section B and 5 questions from Section C.

Table 6 shows the respondents' responses to the questionnaire in Section B, which focuses on customer satisfaction regarding the functions and design of the SSDS product. The respondents have indicated a high and very positive level of satisfaction based on the high scores.

Table 6 : Section B (Function & Design)

Question Section B	The SSDS product has various functions that facilitate users.	Please indicate the level of suitability of the SSDS product for your organization.	The design and interactive display of the SSDS product are visually appealing and align with user preferences.	The SSDS product is easy to operate.	Video tutorials are provided to assist users of the SSDS product.	The supplied SSDS product is of high quality and the best available.
No. of Respondents	32	32	32	32	32	32
Mean Score	4.38	4.53	4.38	4.13	3.84	4.59

Table 7 displays the respondents' responses to the questionnaire in Section C, which focuses on customer satisfaction regarding Maintenance & Services. The respondents rated the aspects with high and very positive scores, indicating that technicians possess the necessary skills and knowledge to resolve issues effectively. The aspect with the lowest score is the adherence to the designated timeframe for maintenance.

Table 7 : Section C (Maintenance & Services)

Question Section C	Are you satisfied with the recovery time after the disruption?	The response to the given complaints is satisfactory.	Adherence to the designated timeframe for maintenance.	Technicians possess the skills and knowledge to resolve issues.	The problem-solving approach taken by technicians is effective .
No. of Respondents	32	32	32	32	32
Mean Score	4.44	4.50	4.38	4.78	4.72

7 CONCLUSION

The findings of the study indicate that the level of satisfaction with the SSDS product is generally satisfactory and high, meeting the specifications and requirements of customers. There are several suggestions from customers to further improve the marketing of the SSDS product. These suggestions include performing editing tasks for broadcast materials using remote computers, allowing them to be loaded into the mini computer and Android application. Additionally, making the product easily operable for users of all age groups and providing user manuals in the form of videos. With the results of this study, the researcher hopes that the provider of the SSDS product can plan to enhance the quality, convenience, and service of the product to be more customer friendly.

8 ACKNOWLEDGEMENTS

The authors would like to acknowledge the Jabatan Pengajian Politeknik dan Kolej Komuniti (JPPKK), Ministry of Higher Education Malaysia and Politeknik Mersing, Johor for moral support to write this paper appropriately.

REFERENCES

- Abdullah, D. N. M. A., & Rozario, F. (2009). Influence of service and product quality towards customer satisfaction: A case study at the staff cafeteria in the hotel industry. *World Academy of Science, Engineering and Technology*, 53, 185-190.
- Akram, J., & Fang, L. (2015, April). Cognitive effects of visualization on learning data structure and algorithms. In *The Third International Conference on Digital Enterprise and Information Systems (DEIS2015)* (p. 70).
- Cetin, I., & Andrews-Larson, C. (2016). Learning sorting algorithms through visualization construction. *Computer Science Education*, 26(1), 27-43.
- Dighe, A. (2003). Understanding our learners. *Educational Multimedia: A Handbook for Teacher-Developers*, 21-26.
- Esponda-Argüero, M. (2010). Techniques for visualizing data structures in algorithmic animations. *Information Visualization*, 9(1), 31-46.
- Gotzamani, K. D., & Tsiotras, G. D. (2002). The true motives behind ISO 9000 certification: their effect on the overall certification benefits and long term contribution towards TQM. *International Journal of Quality & Reliability Management*.
- Kahar, A. S. A., & Suraya, A. (2008). Model kepuasan pelanggan bagi laman web e-runcit (Doctoral dissertation, Universiti Teknologi Malaysia).
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610.
- Landell, K. (1997). *Management by menu*. London: Wilay and Sms Inc.
- Oliver, R. L. (2006). Customer satisfaction research. *The handbook of marketing research: Uses, misuses, and future advances*, 1, 569-587.
- Rahman, N. M. N. A., Alias, M. A., Shahid, S., Hamid, M. A., & Alam, S. S. (2013). Relationship between islamic human resources management (IHRM) practices and trust: An empirical study. *Journal of Industrial Engineering and Management (JIEM)*, 6(4), 1105-1123.
- Ramli, N., Chai, S.F., & Idris, F. (2009). Study of Customer Satisfaction towards Public University Library Services in Malaysia. *Journal of Management* 28: 23-43.

- Ruzaihan, M. I. H., Hashim, F., Eni, S., & Zainal, R. (2020). Service Quality Level and Customer Satisfaction of Pharmaceutical Stores in Muar, Johor. *Research in Management of Technology and Business*, 1(1), 69-79.
- Salleh, S. M., Shukur, Z., & Judi, H. M. (2013). Analysis of research in programming teaching tools: An initial review. *Procedia-Social and Behavioral Sciences*, 103, 127-135.
- Singels, J., Ruël, G., & Van De Water, H. (2001). ISO 9000 series-Certification and performance. *International Journal of Quality & Reliability Management*, 18(1), 62-75.
- Subramaniam, L. V., Roy, S., Faruque, T. A., & Negi, S. (2009, July). A survey of types of text noise and techniques to handle noisy text. In *Proceedings of The Third Workshop on Analytics for Noisy Unstructured Text Data* (pp. 115-122).