

An Analysis of Service Quality of Robots Affecting Customers Satisfaction

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Abstract: Customer satisfaction is one of the major concerns today. Covid-19 epidemic has accelerated the use of robot servers in the hospitality sector in Malaysia grows increasingly as customers are more cautious about the dangers of direct physical contact. Therefore, the intention of the study is to identify the relationship between customer satisfaction and the implication of service quality on robots within hospitality industry in Malaysia. In addition, this study uses quantitative methods by distributing questionnaires to respondents. The distribution of questionnaire to the customer in Malaysia as respondent for this study. Based on Krejcie & Morgan sample size table, 384 respondents should be involved in this study. The Statistical Packages for Social Science (SPSS) software is being utilized in this study to analyze the data obtained. The analysis consists of descriptive analysis and correlation analysis. This research will give a new perspective towards the current business world. As of that, governments can take this study as a fundamental to encourage and implement more of the of service robots in the hospitality industry throughout Malaysia.

Keywords: Service quality, Customer satisfaction, Hospitality industry, Robots

1. Introduction

The term "hospitality industry" covers a wide range of businesses and products associated with leisure and customer satisfaction. It covers a wide range of sectors that fall under this general heading, including dining establishments, theme parks, resorts, hotels, and more. Crowe (2019) stated that one of the top service industries and a crucial driver of economic growth in Malaysia's economy is the hotel, tourist, and leisure sector. When starting a business in the hospitality industry, it is utmost important for every business leader to know the factors which affect their customer's satisfaction. Davras and Caber (2019) defines customer satisfaction as the evaluation of a product or service's attributes by the customer. Service providers and managers must focus on service quality to increase profits and customer satisfaction while also enhancing service delivery to compete in global marketing (Zhou *et*

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al., 2021). This first chapter will consist of six parts the background of the study, problem statement, research question, research objective, the scope of the study and lastly significance of the study.

According to Brady and Cronin (2001), Parasuraman *et al.* (1988) introduced words to define aspects of service encounters such as reliability, responsiveness, empathy, assurance, and tangibles. As of that, this study will apply the SERVQUAL model proposed by Parasuraman *et al.* (1988) to study the factors of service quality on robots affecting the customer's satisfaction in the hospitality industry. In Malaysia particularly, automatic server robots have begun making their way into Kuala Lumpur's restaurants, even at late-night mamak chains (Free Malaysia Today, 2022). The news from the Free Malaysia Today (2022) also highlighted that the needs to implement service robots has raised following labour shortages in food and beverage (F&B) sector due to the Covid-19 pandemic. Though, in a study conducted by Chan and Vijayan (2018), they found that Malaysians are not yet prepared to adapt to and embrace this concept of a service robot. Hence, this study is conducted to understand more of the factors of service quality on robots affecting the customer's satisfaction in hospitality industry.

As this study will be conducted around the Klang Valley area, it will help the hospitality business owner in that area to understand more of their customer's satisfaction towards their service. Besides, this research will also help customers to gain a more in-depth understanding of the context of service robots, which will give them an introduction and preparation towards the new business world which will merge in the near future.

2. Literature Review

This chapter will provide evidence of a selected literature review on service quality of robots affecting customer's satisfaction in the hospitality industry of Malaysia.

2.1 Hospitality Industry

Hospitality industry is basically a business sector which provides services to the customers. Hospitality industry includes accommodation, food and beverage, airline, theme parks and much more. According to Indeed (2023), the main aim of hospitality industry is to offer the greatest services to customers in order to boost a company's good name. Impoff (2022) estimates that the hotel industry contributes 10.4% of global GDP, and that during the next ten years, that percentage will rise by another 10%. It is an industry that is vital to the economy of the entire world. In addition, the hospitality sector plays a key role in the GDP of a country and is critical for local economies. People that utilise the hospitality industry make purchases at retail businesses, dining establishments, nightclubs, and other places. Additionally, the hotel sector might be the only one to fund the development of local infrastructure (Impoff, 2022).

Impoff (2022) furtherly added that 313 million people work in the hospitality sector globally, which is 9.9% of all employment. Again, this surprisingly high percentage indicates that a significant percentage of individuals value the hospitality sector. Additionally, the economy needs these employments since individuals who are paid for their labor will spend more, thereby boosting the economy. Along with its expansion, the hospitality industry will continue to create more employment. Not only do these professions contribute significantly to the economy, but they also give those who work in the hospitality sector options for careers.

Moreover, the hospitality sector is where locals unwind, celebrate significant events, and take part in all the small, memorable experiences. In addition, with more families having both parents working long hours, the hospitality sector has grown increasingly crucial in terms of necessities like having a hot supper at the end of the day. 53.8% of millennial Americans' food spending are now spent on eating out (Impoff, 2022). Besides, hospitality industry has become a very important aspect for every traveler. When embarking on a journey, it is crucial for travelers to know that they will have access to food and housing when they reach their destination. When someone is on vacation, having access to

entertainment and activities when they arrive at their location allows them to make the most of their time away and create lasting memories (Impoff, 2022).

According to former prime minister, Datuk Seri Ismail Sabri Yaakob's early 2022 announcement, Malaysia is working on the National Robot Roadmap (NRR) to increase national productivity by expanding the use of robot technology. Ismail Sabri claims that the goal is to reduce dependency on foreign labor and the flow of foreign currency (Sunway Medical Centre, 2022). Moreover, the local automation and robotics development company Techcapital Resources (T-Robot), which was founded, has played a vital role in assisting local small and medium-sized businesses (SMEs) to survive the pandemic and post-Covid-19. According to a Bernama article, the government intends to raise robot usage from 55 units per 10,000 workers in 2019 to 195 units per 10,000 workers by 2030 under the blueprint (Bernama, 2022).

2.2 Service Robot

A service robot is one type of robot that works and behaves like a person and is extremely interactive. These robots can perform tasks that people occasionally are not willing to perform, such as cleaning tasks, some risky jobs, and domestic duties like dishwashing and laundry. Service robots are programmed to carry out all tasks automatically depending on the algorithms they have been instructed on. Service robots are known for their capacity to carry out tasks and make decisions similar to humans. Helping people in a very reasonable way is one of the main goals of service robots (Joseph, 2022).

As service robots can interact socially with customers like human employees do, their capacity to satisfy customers' social-emotional and relational requirements is crucial to how customers will react to and see service robots (Wirtz *et al.*, 2018). Tung and Au (2018) looked at online hotel reviews to evaluate how guests interacted with robots and discovered that many reviewers made comments about the physical embodiment and social involvement of service robots. Customers are more likely to anticipate receiving higher-quality care from service robots that resemble humans (Lin & Mattila, 2021). Interestingly, it has been discovered that when service robots resemble people, consumers want them to act like humans.

On the other hand, a different body of literature on hospitality contends that the human-likeness of service robots has little or minimal consequences, confirming the idea of the uncanny valley (Mori, MacDorman, & Kageki, 2012). Customers frequently believe that human-like service robots lack interpersonal skills when compared to human staff members, despite the fact that interpersonal skills are one of the major factors influencing customer satisfaction with service encounters in the hotel sector (Choi *et al.*, 2020). As a result, when a service failure happens, customers are less likely to accept an apology from a service robot than from a human employee (Hu *et al.*, 2021).

2.3 Independent Variables

(a) Tangibility

Physical items that can be touched, seen, or felt are referred to as tangible goods. A few examples of tangible goods are food, furniture, computers, clothes, and books. These goods may be physically moved, kept, and sold, and inspection is frequently used to determine their quality (Klokkenga, 2022). In a study by Fang *et al.* (2021), it was revealed that in an offline context, tangible is one of the crucial elements that contributes to customer satisfaction when compared to the online contexts. According to Marinkovi *et al.* (2013), in an offline context, the CTA should concentrate on having up-to-date technology, appealing office décor, and qualified professional business counsellors. Moreover, the findings by Ahmad *et al.* (2019) suggested that tangible factors significantly increase tourists' satisfaction with the small-medium-size hotels (SMSHs) industry in the United Arab Emirates. In a related study, 234 hotel guests on Turkey's west coast were polled by Akbaba (2006).

Tangibles were shown to be the most crucial indicator of visitors' overall satisfaction with services. Similar to this, Bhanugopan (2004) used the SERVQUAL approach in the Papua New Guinean hospitality industry. The findings demonstrated that the vast majority of perceived attributes were connected to tangible components. Besides, in a study by Rocah *et al.* (2017) discovered that two crucial factors which are tangibles and assurance were highly valued by participants. The importance of the workplace and staff's physical look is reflected in the ranking of tangibles. This paradigm shows how patients feel about healthcare, where they depend on providers to provide the finest care available in a welcoming environment. According to this study, the patients considered the building's physical features to be a top priority that needed special attention to deliver superior dental care. Finally, Tetteh and Boachie (2021) highlights that smart and decent dress code of the bank employees will help to improve bank service quality.

(b) Reliability

Reliability refers to the ability to provide the promised service consistently and accurately. It refers to a business's capacity to uphold commitments, such as those relating to delivery, service provision, problem resolution, and price (Klokkenga, 2022). Reliability, according to Shafiq *et al.* (2019), is the second characteristic that has a positive and significant link with the dependent variable (customer satisfaction). The survey found that Malaysian Gen Y's satisfaction with the hotel business is strongly influenced by reliability. This result implies that timely delivery of promises is regarded as being extremely important for Gen Y's satisfaction with the hotel business in Malaysia. According to Narteh (2018), reliability is a major and positive predictor of customer satisfaction. Additionally, Ananda and Devesh (2018) discovered that reliability has a favourable and significant impact on customer satisfaction in their study of banks in Oman. Similar to this, Yilmaz *et al.* (2018) came to the conclusion that customer satisfaction is affected by the trust generated by the reliability of services. Moreover, reliability has been shown by Famiyeh *et al.* (2018) to significantly improve customer satisfaction. Finally, according to Grobelna and Marciszewska's (2013), reliability was one of the key criteria in customer satisfaction with service. They recommended that hotel staff should fulfil jobs as promised, address issues quickly, and provide excellent customer service to further increase tourist satisfaction.

(c) Perceived Behavior Control

Perceptions of behavioral control are based on control beliefs (Ajzen, 1991). According to Ajzen and Fishbein (2000), perceived behavioral control (PBC) refers to a person's perception of how easy or difficult it is to carry out a certain action. Behavioral control refers to a person's feeling of control over a certain behavior and is triggered when people believe they have more resources and confidence than anticipated impediments (Ajzen, 1985). Resources include things like cash, time, information, specialized skills, and reliance on others (Ajzen, 1985).

In this case, the use of e-hailing services through perceived behavioral control (PBC) can be studied through the theory of planned behavior. They have been studied by Chin, Leng, Yacob, and Vijayeswaran (2019) where Perceived Behavioral significantly has a positive relationship towards consumer intentions but some research by Ubaidillah *et al.* (2019) stated that perceived behavior control arguably has a less significant influence on consumer intentions to use e hailing services compared to attitude and subjective norms. Both of the factors show a significant relationship towards consumer intentions but not for perceived behavioral control.

(d) Responsiveness

Responsiveness refers to the ability to help customers and provide prompt service. When addressing the needs, questions, complaints, and concerns of customers, this dimension emphasizes being attentive and prompt. Customer service responsiveness may be demonstrated by the length of time customers must wait for assistance, answers to questions, or attention to issues (Klokkenga, 2022). A study by Tetteh and Boacjie (2021) demonstrate that responsiveness has a large, favorable impact on customer

satisfaction. This is also supported by Ananda and Devesh (2018) who discovered that responsiveness dimensions in SERVQUAL had a favorable and substantial impact on customer satisfaction in their study on banks in Oman. Moreover, according to the findings by Ahmad *et al.* (2019) showed that responsiveness significantly increases visitors' satisfaction with the SMSHs Industry. In a related study, 234 hotel guests on Turkey's west coast were polled by Akbaba (2006). It was shown that the responsiveness dimension was one of the most crucial variables in determining visitors' overall satisfaction with the service.

Additionally, according to Pale and Usai (2018), content related to responsiveness is the most common in negative reviews (89.03%). Yang *et al.* (2003) furtherly added that information specific to responsiveness is mentioned 30.7% of the time in customer satisfaction evaluations whereas it is mentioned 29.4% of the time in consumer dissatisfaction reviews. This is because according to Olorunniwo and Hsu (2006), customer perception of service quality is most strongly influenced by responsiveness. According to an assessment of the literature, customers seem to mostly submit poor reviews concerning service failures that are related to responsiveness. This shows that responsiveness has a strong effect on customer satisfaction.

(d) *Assurance*

Assurance describes a company's and its workers' capacity to foster a sense of trust and confidence. This element is probably going to be especially important for services that customers think are risky and/or for which they don't trust their judgement. Trust and confidence may be shown by the person who links the consumer to the company, such as the marketing division (Klokkenga, 2022). In a study by Shafiq *et al.* (2019), all of the questionnaire's independent variables are strongly correlated with the dependent variable (customer satisfaction), with assurance having the greatest correlation ($r=0.714$) compared to the other independent variables. As a summary, the study concluded that as long as the staff members are knowledgeable about the services the hotel provides, the level of service quality will rise and the staff members will exhibit better levels of assurance, both of which will help to raise the level of satisfaction.

Moreover, in a finding by Ali *et al.* (2018), all hospital service criteria, including the assurance component, were met with greater than average consumer satisfaction. In the study, the assurance dimension of "I can depend on the doctor/nurse," patients expressed the highest levels of satisfaction. Additionally, in the study by Hasin *et al.* (2001), several factors with the attribute of assurance were found to be significant. These include quick response, treatment explanation, courtesy service from the doctor and nurses, courtesy service from the finance staff, courtesy service from the pharmacy staff, courtesy service from the receptionist, and courtesy of the patient handling officers. Besides, in research by Fang *et al.* (2021) emphasizes that it is crucial to safeguard individual privacy and secure corporate transactions which related to assurance component in order to preserve and raise consumer satisfaction.

(e) *Empathy*

Empathy signifies that the company treats every one of its customers with the respect and consideration they deserve. Empathy is an added benefit that increases customer loyalty and wins over the trust and confidence of the customer. In this highly competitive sector, firms must make every effort to meet the rising demands of their customers. Customer dissatisfaction will force them to shop somewhere otherwise (Klokkenga, 2022). In a study by Shafiq *et al.* (2019), it was found that empathy dimension strongly correlates to customer satisfaction. Moreover, according to Ezeh *et al.* (2019), empathy has a considerable impact on the satisfaction of customers with the quality of hotel services. The important effect of empathy is supported by findings from previous research (Riel *et al.*, 2004; Marinkovi *et al.*, 2013) and is consistent with the idea that customer satisfaction depends on empathy (Marinkovi *et al.*, 2013). Ladhari's (2009) finding shows that the most powerful element impacting customer satisfaction is empathy.

In addition, according to research by Karatepe (2011), female customers of retail banks in Northern Cyprus report feeling the effects of empathy on satisfaction at a higher rate than male customers. On the other hand, Suki (2014) discovered that the empathy dimension is the most important predictor of tourist satisfaction for male visitors than for female tourists. Besides, in research by Ali et al (2018), the empathy dimension of "Doctors are never too busy to respond to my request," patients expressed the highest levels of satisfaction. Moreover, the findings indicate that practically all hospital service criteria, including the empathy component, were met with greater than average consumer satisfaction. In their study, Yavas *et al.* (1997) emphasized the need for empathy in order to satisfy customers.

2.4 Dependent Variable

(a) *Customers Satisfaction*

Customer satisfaction, in the words of Kotler *et al.* (2021), is "a person's feelings of pleasure or disappointment that result from comparing the perceived performance (or outcome) of a product or service with expectations" (p. 448). Alternatively, Islam *et al.* (2020) define customer satisfaction as "The gap between prepurchase expectation and disconfirmation" (pp. 1754-2731). In one of the most recent studies on 318 e-channel users conducted in Nigeria, Ighomereho *et al.* (2022) found that the SERVQUAL dimensions of website appearance, usability simplicity, reliability, security, personalization, fulfilment, and responsiveness are positively connected with customer satisfaction. Additionally, the first hypothesis, which sought to determine whether there is a positive association between service quality and customer satisfaction, proved correct in research by Alzaydi, Z (2023). This demonstrates that Saudi banks are committed to providing excellent banking services to its satisfied customers and that there is a strong link between customer satisfaction and the quality of the services Saudi banks provide to their customers (Alzaydi, 2023). This was confirmed by research, which contends that managers and service providers must concentrate on service quality in order to boost revenue and customer satisfaction and to compete in international markets (Meesala and Paul, 2018).

According to Kant and Jaiswal (2017), better service quality is explicitly linked to a number of performance outcomes, including customer satisfaction. Moreover, Amin and Isa (2008) stated that a fluid transaction system, strong personnel conduct, high service competency, and client confidentiality were significant determinants in customer satisfaction. Teeroovengadum (2022) also discovered that prompt order processing, the security of financial records, and thorough service information enhance the trustworthiness of the banking sector since they result in higher customer satisfaction. Besides, Cabral and Marques (2022) performed research to determine how innovation might affect consumer satisfaction, especially in the hotel business. According to the findings, 58.5% of the guests were completely satisfied with their time spent at the hotel. According to Kotler *et al.* (1998), a customer is satisfied when he gets what he expects, hence it can be claimed that the hotel satisfies the majority of the customer's expectations. Next, research by Chatterjee *et al.* (2022) used closed-ended survey questions to quantify service quality aspects and their significance for customer satisfaction. As a result, value for money, comfort in seating arrangements, and cabin staff behaviour are found to be more strongly related to customer satisfaction. Chatterjee *et al.* (2022) furtherly added that the most crucial factor in determining customer satisfaction is responsiveness, which is followed by reliability, empathy, tangibles, and assurance.

2.5 Hypotheses Development

In a finding by Chatterjee *et al.* (2022), value for money, comfort in seating arrangements, and cabin staff behaviour are found to be more strongly related to customer satisfaction and recommendation. Chatterjee *et al.* (2022) furtherly added that the most crucial factor in determining customer satisfaction is responsiveness, which is followed by reliability, empathy, tangibles, and assurance. Besides, Tetteh and Boachie (2021) found that tangibles, reliability, responsiveness, empathy and assurance had significant positive influence on customer satisfaction. This was supported by Ahmad

et al. (2019) who conducted a study to investigate customer satisfaction and service quality in small- and medium-sized hotels (SMSHs) in United Arab Emirates (UAE). They found that the five factors in the service quality dimension significantly increase tourists' satisfaction with the SMSHs industry in the United Arab Emirates. Therefore, considering these findings, the following hypothesis for this study is proposed as

H_1 = Tangibility of service robot has an effect on customer's satisfaction in hospitality industry.

H_2 = Reliability of service robot has an effect on customer's satisfaction in hospitality industry.

H_3 = Responsiveness of service robot has an effect on customer's satisfaction in hospitality industry.

H_4 = Assurance of service robot has an effect on customer's satisfaction in hospitality industry.

H_5 = Empathy of service robot has an effect on customer's satisfaction in hospitality industry.

2.6 Framework of the Study

According to the conceptual framework model, each independent variable should be examined to see if there is a relationship between them and the dependent variable. Tangibility, reliability, responsiveness, assurance, and empathy from the SERVQUAL Model are tested against customer satisfaction.

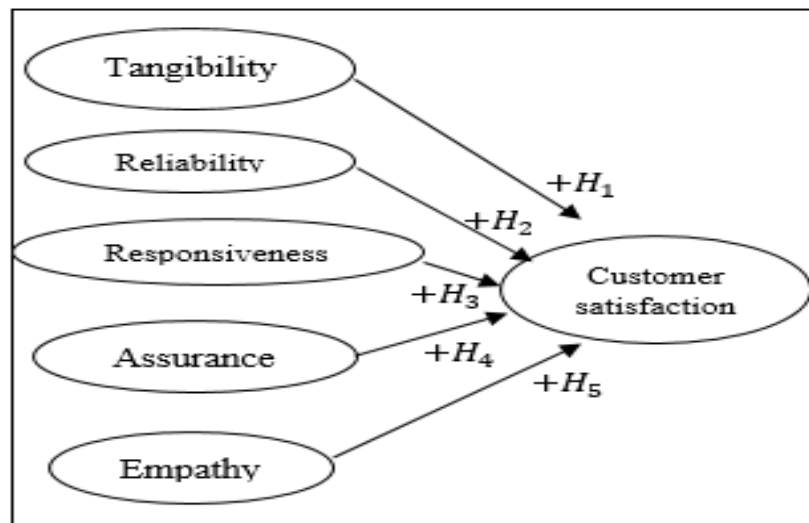


Figure 1: Research framework

3. Conclusion

In conclusion, this research purpose is to learn the service quality of robots affecting customer's satisfaction in the hospitality industry of Malaysia. From previous research, there has been a lot of study conducted in this respected field. For instances, there have been multiple articles where studying consumer intention to use service robots (Huang *et al.*, 2023), and they're also studies on consumer's acceptance of service robots (Shah *et al.*, 2023), service robot's behaviour (Soderland, 2023), generation Z consumers' revisit intentions to robotic service restaurants (Gupta & Pande, 2023) and much more. Even though there have been studies in the field of service robots, this research stated that they have been limited studies on service quality of robots affecting customer's satisfaction in the hospitality industry of Malaysia. The strength of this research is to know the effect of service robots on customer satisfaction. This research will help the business who uses service robots to understand their service quality in their business operations. Business owners who use service robots in their business operations

have the chance to know their customer's satisfaction in perceiving service robots at the same time can take the necessary actions to improve their business operations.

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