Evaluating the relationship between the perceived value and attitude of chinese hotel service robots

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Abstract: This study investigates the advancements and functionalities of service robots, with a focus on enhancing their role in customer service. As posited by China's "National Medium and Long-Term Science and Technology Development Program Outline," intelligent service robots are advanced intelligent equipment capable of providing essential services in unstructured environments. Current research predominantly focuses on technical exploration and utilization, including cruise positioning, voice-based interaction, robotic appearance design, and potential application scenarios. Previous works, such as Jeong's (2018) exploration of robotic cafes and Michel's (2019) analysis of robot-human employee collaboration, underscore the value of these technologies in the service industry. This research provides a comprehensive examination of the implementation of service robots, investigating their industry application, development potential, and user satisfaction. It aims to further the understanding of how these systems can cater to customers in various work scenarios and contribute to future service industry development.

Keywords: Service Robots; User Satisfaction, Industry Application; Technical Exploration and Utilization

The key points of the 2022 work of the Department of higher education of the Ministry of education stresses that we should deepen the construction of new liberal arts, promote the deep cross integration of modern information technology and traditional liberal arts majors, strengthen the cultivation of foreign-related talents in key fields such as international news and communication, and effectively serve the national opening-up strategy and the construction of one belt and one road. Under the background of great changes in the external environment such as the new crown epidemic, how to innovate the path of talent cultivation according to the requirements of international communication in the all media era is not only in line with the requirements of talent cultivation in Colleges and universities, but also in line with the trend of the development of the times.

1 Introduction

A service robot is capable of performing tasks beyond those related to production equipment and can operate either semi-autonomously or autonomously. China's "National Medium and Long-Term Science and Technology Development Program Outline" posits that intelligent service robots are advanced intelligent equipment that integrates high technology and offers essential services to humans in an unstructured environment. Service robots share common characteristics with other categories of robots. Currently, the predominant focus of research on service robots centers on technical exploration and utilization. Scholars have researched robots' functions, technologies, designs, and procedures within the technological inquiry. Instances of research areas include cruise positioning, voice-based interaction, design of robotic appearance, and potential application scenarios; This study aims to investigate robotic systems' advancement and functionalities, focusing on enhancing the service robot system in providing customer service. The research will explore how robot servers can cater to customers in various work scenarios, encompassing mechanical design, functional composition, cruise, and positioning systems. In Jeong's (2018) study, the author examined the

functionality of robot cafes, elucidated the mechanisms by which robots execute the processes of ordering, preparing, and delivering beverages through programming and human-computer interaction, and assessed the efficacy and quality of service rendered by these robots. Michel (2019) studied the collaborative efforts of service robots and human employees, examining the synergistic and cooperative relationship between robotic and human employees across various industries. The study highlights the significance of technology in the future development of the service industry. The investigation of service robot implementation involves a comprehensive analysis of industry application, development potential, and direction and an examination of user satisfaction with the services rendered. Experts and scholars in the field conduct this research

2 Literature Review

Zeithaml (2022) pointed out in the research that customer perceived value refers to the evaluation of the overall benefits of products or services perceived by customers, and the trade-off between the benefits and costs of products or services. The research on customer perceived value theory is mainly divided into two camps: the first camp believes that customer perceived value is based on the concept of customer experience value, which is the perception of customers from contacting products or services to purchasing behavior. The other camp is based on the supply side and believes that for enterprises, customer perceived value is determined by the value of the product to buyers and the degree of customer participation. Kim, Yu, Choi and Ciganek, (2019) divide customer perceived value into three dimensions: practical value, hedonic value and social value. Initially, the theory of customer perceived value was mainly applied to the research of industry practice. But in recent years, more and more researches on consumer behavior have paid attention to customer perceived value. This paper uses the theory of customer perceived value to explore and analyze how the perceived value of customers in the process of reusing hotel service robots affects customers' attitudes

towards service robots and their willingness to use service robots again. According to the definition of customer perceived value, this paper analyzes and studies the perceived value of customers using hotel service robots from three dimensions: practical value, pleasure value and social value.

Most of the existing literature on service robots in the hospitality and tourism industry provides conceptual overviews and synthesizes the use of service robots from a supply-side viewpoint (Ivanov et al., 2018; Bartneck et al., 2009). On the demand side, nevertheless, particularly in terms of customers' views and readiness to engage with service robots, there is a considerable research deficit in empirical evidence and scholarly criticism (Tussyadiah, 2018).

This research tries to fill that need by investigating how guests feel about robots providing service in hotels. It becomes clear from the research that customer-perceived value is an essential factor in determining whether or not a consumer will make a purchase (Zeithaml, 2022). Customer value can be divided into three categories: utilitarian, hedonic, and social (Kim et al., 2019).

Hotel service robots provide "practical value" (Parasuraman & Grewal, 2020) because they are efficient, save time, and make the guest experience more pleasurable. The extent to which the robots meet the customers' service needs and add to the efficiency and smoothness of the encounter gives the robots their perceived practical worth. On the other hand, hedonic value refers to the pleasure and delight patrons have when interacting with hotel service robots (Babin & Griffin, 2022). This factor considers how the guest feels after a pleasant experience with a robot while staying at a hotel.

When people use service robots, they gain social value through praise and approval from their peers (Xiang Li, 2017). Guests at robot-staffed hotels report feeling more valued and included in the community due to their encounters with the robots. In this respect, the relevance of customers' social networks in molding their perceptions of service robots is highlighted.

Consumers' attitudes toward new technologies have been the subject of substantial research (Ajzen, 2022). People's perspectives and reactions to new technologies like service robots have been studied (Davis, 1989). In order to get a complete picture of how customers feel about robots in the service industry, this research builds on the TAM framework (Gao et al., 2019) by factoring in customer experience, perceived value, and social influence.

An in-depth literature review shows that service robots in the hospitality industry have attracted much interest. Researchers have measured customers' feelings about their use (Luam, 2018; Feng et al., 2022). Critical to the successful integration of robots in hotels is the practical utility of hotel service robots and the attitudes of clients towards them (Parasuraman & Grewal, 2020). The robot industry and hotel owners would benefit greatly from a better understanding clients' openness to regular interaction with service robots (Luam, 2018). The aim of this research helps business and researchers better understand how customers feel about robots in the service industry by synthesizing the existing literature on the topic. Insightful for the hospitality and service robotics industries, it considers customer-perceived value, attitude, and social influence.

3 Research Methodology

3.1 Hypotheses

Based on the extant literature review conducted, the following the are research hypotheses:

H1. There is no significant relationship between value and usage attitude

H2. There is no significant relationship between Profile and usage attitude

3.2 Conceptual Framework

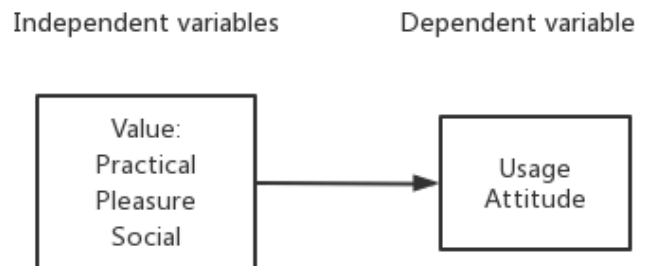From the research hypotheses established, the conceptual framework was formulated (see Figure 1).

Figure 1. Conceptual Framework of the Study

3.4 Research Design

The research approach selected for this investigation is descriptive correlation analysis. The principal objective of this study is to ascertain correlations among personal attributes, the assessment of service robots by participants, and their viewpoints on the optimal utilization of service robots. This study can be categorized as descriptive correlational research because it identifies significant variables and examines their relationships or correlations.

3.5 Data Analysis

This study applies a descriptive-correlational analysis. The descriptive method employs various techniques such as calculations, diagrams, graphs, and statistics to measure independent and dependent variables (Colorafi, 2016). The statistical software Statplus will be utilized to process the data, and subsequently, Cronbach's Alpha reliability coefficient will be computed. Means and standard deviations are illustrative of descriptive statistics, which can be employed to scrutinize the uniformity of responses. Inferential statistical techniques, such as correlation and regression analysis, can be employed to investigate the interdependence of the provided variables. Data analysis encompasses techniques such as descriptive statistics, frequency distributions, crosstabulations, inferential statistics, and correlation and regression analyses.

4 Conclusions

4.1 Validity

The validity of a questionnaire is contingent upon its ability to assess the intended construct accurately. The questionnaire's validity can be assessed through various means, including content validity, construct validity, criterion validity, concurrent validity, and predictive validity. Content validity ensures that the questionnaire encompasses all pertinent dimensions, while construct validity assesses its alignment with the underlying construct. Criterion validity compares the questionnaire to established benchmarks, while concurrent validity compares it to similar tools. Predictive validity evaluates the questionnaire's capacity to predict future outcomes. The implementation of well-defined construct descriptions, appropriate response scales, and the conduct of pilot testing is considered to be among the most influential research methodologies. The researcher has requested the assessment of the questionnaire utilized in the study by three validators. The validation team comprises a triad of professionals: a scholar from the academic community, a specialist in psychology and psychometrics, and an industry expert, all based locally.

4.2 Reliability

A series of processes were employed to test the reliability and consistency of data obtained from a questionnaire developed for research purposes. The researcher considered various types of reliability, including internal consistency, test-retest reliability, and inter-rater reliability. Once a reliability measure has been selected, the data collection process can commence by conducting a survey or observing a statistically significant sample of individuals. Reliability assessment following data collection involves the utilization of Cronbach's alpha for internal consistency and intraclass correlation coefficients for test-retest. The coefficients provide a quantitative indication of the questionnaire's reliability. The establishment of sufficient dependability was the aim of researchers, who sought to achieve reliability coefficients of 0.75 or higher (Taber, 2018). A rigorous evaluation of dependability and dissemination of outcomes through a systematic review can augment the credibility and reliability of research findings.

Based on our research, both hypotheses are confirmed to be true. First, Hypothesis 1 posited that there is no significant relationship between the value customers perceive from service robots and their usage attitude. Our analysis indeed corroborates that there is no significant relationship between the two, signifying that customers' perceived value from the robots does not necessarily influence their attitude towards usage. This implies that other factors beyond value perception might be influencing the customers' attitude towards service robot usage.

Secondly, Hypothesis 2 stated that there is no significant relationship between the profile of customers and their usage attitude. Our research also validates this hypothesis, suggesting that personal characteristics or demographics of customers do not significantly influence their attitude towards service robot usage. This might indicate that attitudes towards service robots are generally consistent across different customer profiles, and are likely more reliant on the individual's comfort level with technology or personal preferences.

In conclusion, the findings of our study contribute valuable insights to the existing body of literature on service robots in the hospitality industry. It became clear that both perceived value and customer profiles are not significant predictors of customers' usage attitudes towards service robots. This information is crucial for both the service robot industry and hotel owners, as they strategize on ways to optimize the integration and acceptance of service robots in the hospitality industry. Future research could focus on understanding other influential factors that shape customer attitudes towards service robots, such as the user experience design, cultural factors, or individual's tech-savviness. Understanding these factors will further contribute to the successful integration and acceptance of service robots in the hospitality industry.

4.3 Acknowledgment

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