

Research on the Influence of Customer Perception on the Willingness of Customers and Robots to Create Value -- Taking Attitude as the Intermediary Variable

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Keywords: Willingness to create value together, Service robot, Perceived security, Perceptive function, Perceived privacy, Perceived novelty, Attitude

Abstract: With the development of science and technology, the application of service robot in tourism service industry is increasing day by day. The process of service robot interacting with customers in service and the impact of customer perception on the willingness of customers and robots to create value need to be studied. Based on the value co creation theory, this study explores the impact of customers' perceived security, perceived function, perceived privacy and perceived novelty on customers' willingness to create value with robots, and tests the mediating variables of customers' attitude towards hotel service robots. This study uses the method of online questionnaire to test the association. The test results are as follows: (1) customers' perceived security, perceived function, perceived privacy and perceived novelty will have a more positive attitude towards the hotel service robot; (2) the more positive customers' attitude towards the hotel service robot, the stronger customers' value co creativity towards the hotel service robot.

1. Introduction

With the continuous expansion of the application of artificial intelligence technology and the continuous support of the government for the service robot policy, intelligent service has become an important trend in tourism. The three-year action plan for promoting the development of a new generation of artificial intelligence industry (2018-2020) released by the Ministry of industry and information technology in December 2017 points out that by 2020, breakthroughs will be made in key technologies such as environment perception, natural interaction, autonomous learning and human-computer cooperation of intelligent service robots. Intelligent home service robot and intelligent public service robot realize mass production and application, realize prototype production, complete technology and function experiments, and realize more than 20 application demonstrations. For example, the smart hotel launched by Alibaba Group in 2018 - feizhubuke hotel will have robot delivery and meal delivery services. "Smart tourism", "smart hotel" and "unmanned restaurant" have gradually appeared in the vision of mass tourism. In the current service robots applied in the tourism market, the perceived security, perceived function, perceived privacy and perceived novelty perceived by customers in the service process are the key factors for customers to favor communication and interaction.

Therefore, this study takes the questionnaire survey as the survey method, constructs the model on the model studied by Ingrid y. Lin, and combined with the value co creation theory, further explores the co creation value intention of customers to the hotel service robot service with attitude as the intermediary variable, and reveals the value co creation wish of customers to the hotel service robot. The specific research includes whether the perceived security, perceived function, perceived privacy and perceived novelty perceived by hotel customers can affect customers' attitude towards hotel service robots; Whether the customer's attitude towards the hotel service robot can affect the customer's value. This study promotes the empirical research of hotel service robot in service situation to a certain extent, and enriches the application of value co creation theory in human-computer interaction. The research conclusion has practical significance on how to promote human-computer cooperation and value co creation and how to develop the hotel industry.

2. Research Background

2.1 Domestic Research

Domestic research mainly analyzes the current situation and existing problems of robot service in human-computer interaction from the current situation of hotel robot service. Qu Yunfei, Guo Xue and others believe that compared with traditional hotels, intelligent hotels are dominated by machine operation, lack of humanity and service awareness, and guests cannot feel the warmth of hotel service ^[1]; Liang Shaohua believes that the humanized and personalized service demand of the hotel is the bottleneck that the hotel robot is difficult to break through ^[2]. Wang JieFei believes that in terms of human-computer direct communication, in terms of customer experience perception, its wisdom is still in the primary stage, and there are problems such as equipment practicability and ease of use to be improved ^[3]. It shows that the human-computer interaction in the domestic hotel industry is not very coordinated. Have problems such as lack of emotion and function.

By combing the corresponding literature, we can find that there is almost no research on the value co creation of human-computer interaction in China. Most of the research only stays at the surface phenomena and problems, and does not explore the internal influencing factors.

2.2 Foreign Research

Foreign research on human-computer interaction in hotels is more comprehensive. Human robot interaction in the service scenario, like other actors, service robots can not become value creators alone. They often act as a resource integrator connecting enterprises and customers and participate in the network system of value co creation ^[15]. David and Maja believe that human robot interaction theory is used to explain the complex relationship between human and robot^[6]. Murphy believes that human-computer interaction theory is an indispensable method to find the influencing factors between human behavior and robot performance ^[7]. Yadong pan et al. Proved that in the public space of the hotel, individuals can follow up the interaction very quickly, and can distinguish the guest's attitude towards the robot in a short time according to different interaction methods. In work, interaction design plays an important role ^[8]. Therefore, human-computer interaction has become a specific way to realize the willingness of customers and service robots to create value together.

Based on the value co creation theory and the model studied by Ingrid y. Lin and others, this study will further explore the customers' co creation value intention for the hotel service robot service in the aspects of perceived security, perceived function, perceived privacy and perceived novelty, and reveal the customers' value co creation desire for the hotel service robot.

3. Theoretical Basis and Research Design

Based on the theory of value co creation, this study modifies and supplements Ingrid y. Lin's model to explore the influencing factors of customers' co creation of service robot value in domestic hotel industry.

3.1 Perceived Security

Perceived security may accelerate the acceptance of robot hotels that provide non-contact services, which is conducive to maintaining social distance and reducing infectious anxiety between people ^[9]. It shows that if people perceive threats due to perceived security, they will change their attitude towards robot hotels. And the attitude towards Hotel robots is positive.

Therefore, we assume that: H1 perceived safety is positive for customers' attitude towards robots.

3.2 Perceived Function

Visitors from countries with a large number of robots (Japan or Singapore) usually ask for robots to be more perfect in function, so they won't be surprised. However, European tourists from countries with few service robots find HRI a fascinating experience ^[12]. Most informants said service robots helped them save time. The relationship between functional elements and customer attitude and acceptance of service robot is positive. Usefulness and ease of use can directly affect users' attitudes towards new technologies ^[13]. It is said that the usefulness and ease of use of hotel robot functions have a positive impact on customers' attitude towards robots.

Therefore, we assume that: H2 the perception function of customer perception is positive for customers' attitude towards robots.

3.3 Perceived Privacy

Perceived privacy can reflect physical privacy and information privacy ^[11]. Privacy is the unique value that service robots can provide. For example, all customers said they would rather have service robots deliver sensitive objects to the room than human service agents. Confidentiality seems to be another aspect that customers attach importance to in service robots ^[10]. In order to meet the needs of users, robots must first recognize the needs of users, which means that robots may collect users' personal data, which may or may not be safe, and these data will not be accidentally or deliberately disclosed to third parties ^[10]. It shows that in terms of privacy, customers will prefer Hotel robots to serve, and their attitude towards robots will be more positive than that towards humans.

Therefore, we assume that: H3 Customer perceived privacy is positive to customers' attitude towards robots.

3.4 Perceived Novelty

Novelty value is defined as “the utility obtained from the ability of a substitute to stimulate curiosity, provide novelty and / or satisfy the desire for knowledge. Novelty value reflects the curiosity and desire of guests to experience something new or unique ^[4]. Novelty is one of the important characteristics of experience related consumption ^[5]. Most customers said they would be curious, excited and motivated to experience robots in the hotel. They further stated that they would share and “show off” their robot hotel experience with family and friends ^[9]. It shows that hotel robots will bring a sense of novelty to customers.

Therefore, we assume that: H4 the novelty of customer perception is positive for customers' attitude towards robots.

3.5 Attitude

Attitude affects one's thoughts and actions. Attitude is formed through complex psychological processes (i.e. cognition and emotion). It is a prerequisite for behavior reflection (accepting service robots or willing to sacrifice human services in exchange for robot delivery)^[9]. Therefore, it can be concluded that if customers have a positive attitude towards robots, customers are more willing to use robots to serve.

Therefore, we assume that: H5 the attitude of customers towards robots and the value of customers towards robots have a positive impact.

3.6 Intermediary Variable

Attitude is regarded as a potential mediator variable because it is known that this variable will change consumers' reactions and actions^[14].

Therefore, we assume that: H6 the customer's attitude towards the robot plays an intermediary role between the customer's perceived security, perceived function, perceived privacy and perceived novelty and the customer's willingness to create value for the robot.

4. Questionnaire Survey and Statistical Analysis

A total of 992 questionnaires were sent out from the online questionnaire star, and 992 valid questionnaires were recovered. The effective rate was 100%. There were 459 males and 533 females, of which 50.71% were aged 19-25. 69.96% were usually staying in full-service hotels when traveling, and 49.19% had stayed in Hotels with service Robots before. SPSS statistics 25 was used to continue the reliability test, mean, standard deviation, standard error and correlation analysis between variables. SPSS Amos 26 is used to analyze the confirmatory factor of the model. The confirmatory factor analysis determines the effectiveness and reliability of the indicators measuring five structures: perceived security, perceived function, perceived privacy, perceived novelty and customers' attitude towards the service robot α Values range from 0.579 to 0.814.

5. Conclusion and Discussion

5.1 Research Conclusion

The results of this study show that customers' perceived security, perceived function, perceived privacy and perceived novelty will have a positive impact on customers' attitude towards service robots. Novelty is a person's desire for new things, which is related to his attitude. It can be seen from the research results that a person feels novel about a thing, which shows that it can arouse his curiosity. The research also shows that the positive attitude of customers has a positive and direct impact on the acceptance of hotel service robots. And accepting the hotel service robot means that customers are willing to serve the robot, give up employee service and are willing to invest in the service of the service robot. This study also shows that the intermediary effect of attitude, such as the acceptance of perceived function and the acceptance of perceived novelty, can accept the all-round service of service robot through attitude, and create value with service robot.

This study is based on the model studied by Ingrid y. Lin et al. The current research results enrich this structural model. The emerging themes of several relationship models are identified,

which affect customers' preference for service robots. Therefore, this study concludes that the intermediary variable is very important in the model studied by Ingrid y. Lin and others, because it will affect customers' cognition and evaluation of hotel service robot.

This study takes the online questionnaire as the research data to explore the model of value co creation intention generated by domestic human-computer interaction, which has a certain reference significance. However, due to the single research data, the conclusion has certain limitations. In future research, we can diversify the research methods and supplement and improve the model.

5.2 Proposal

In order to make the hotel service robot develop rapidly, we should not only make customers have a positive attitude in terms of perceived security, perceived function, perceived privacy and perceived novelty, so as to make customers willing to create value with the hotel service robot. At the same time, the requirements of hotel managers for service robots are also the key to the sustainable development of hotel service robots for customers.

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