Original Article

The Impact of AI Chatbot on Long-Term Relationships between Customers and Hotels

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Abstract: This article studies the critical determinants toward AI Chatbot (anonymity, convenience, and problem-solving) on quality communication and long-term relationships between customers and hotels. The article employs correlation analysis and structural equation modeling (SEM) to analyze the data collected in the structured questionnaire survey in Vietnam. Empirical results indicate that three chatbot dimensions have a significantly positive impact on communication quality. Problem-solving is found to be the highest influence on both communication quality and long-term relationship. Meanwhile, anonymity and convenience were revealed to have indirect effects on long-term relationship through communication quality. The findings provide an enhanced understanding of how AI Chatbot influences customer expericence with hotel' Chatbot. This paper also contributes several implications for firms post COVID-19 pandemic.

Keyword: AI Chatbot, communication quality, long-term relationship, hospitality industry.

1. Introduction

Following Winkler and Sollner's (2018) findings, AI Chatbot reduces costs, enhances customers' satisfaction through real-time interaction, and anticipates customer questions and provide adequately information they requrie. Fourth, chatbot automatically analizes information to understand customer requirement which return increase service quality. Chatbots have greatly enhanced the firms' capabilities in text and voice dialogue due to advancements (Araujo, 2018). Google, Facebook as well as Microsoft are preparing for the circumtances that chatbot will be popular technology for any industry (Følstad & Brandtzæg, 2017) because it

has ability to answer consumers' queries instantly. Therefore, chatbots "are expected to irreversibly both our private and professional interactions tomorrow" (Daniel et al., 2018, p.1).

Chatbot implementation is increasingly well-defined subject of research in different contexts. Previous research on chatbot adoption is in tourism and hospitality firms (Ivanov & Webster, 2019, Buhalis & Cheng, 2020). Unfortunately, regarding the chatbot on hotel, there is the unclear question in studying its impact on communication quality and customers' willingness to pay for hotel services. As the spread of the Covid-19 pandemic, social distance becomes the good choice for each country in the world to save lives of people and provide time for firms to innovate their process (Baber, 2021; Chi, 2021). Social distance has been investigated in learning (Ahmed et al., 2021). However, the research on the association among Chatbot-based AI, social distance, and customer behaviors is not been discussed.

Vietnam is selected as an empirical context to investigate the influence of chatbot on hotel visit intention. Vietnam has been recognized as an attractive destination for the inbound and domestic journeys. However, Vietnamese hotels have firstly faced a crisis of competition in the same segment market with foreign hotels. Until the pandemic broke out, they have faced a bigger challenge when a series of hotels had to close because there were no tourists. To overcome these challenges and to reduce intermediary costs as well as bring services to customers at the lowest prices, some Vietnamese hotels have adopted AI-based chatbots. Against this background, this study develops a new framework investigating the impact of chatbot-based AI on guests' willingness to pay for hotel services.

2. Literature review

According to Locker (1995), high quality of customer communication addressed by customers' needs for interaction, problem-solving, and customization. Customization help hotel providers adapt to customers' references

and in turn establish long-term relationships with customers (Chakrabarty et al., 2014) which allows efficient and accurate information through communication (Haas & Kenning, 2014). Enjoyment interaction encourages further intention to use services. Muntinga et al. (2011) showed that guests will be satisfied if they use e-service agents for having related information. Kang and Lee (2015) confirmed that customization contributes guest opportunity to facilitate a better fit between guest's preferences and hotel services. Given that one of chatbot dimension is customization, it is important for hoteliers to understand how chatbot customization influences the communication quality with their guests and guests' willingness to pay for hotel service. Therefore, this study proposes the hypotheses:

H1a: Customization has positively impact communication quality.

H1b: Customization has positively impact long-term relationship.

Zimbardo et al. (1970) firstly showed that individuals believing their anonymity status lead to "a lowered threshold of normally restrained behavior". Following Zimbardo et al. (1970), Alonzo and Aiken (2004) also suggested that anonymity increases customer behavior in electronic communication. In context of hotel industry, anonymity perceptions are become important since an IT-related behavior poses a risk of identify by sharing sensitive information. Appel et al. (2014) and Vance et al. (2017) addressed that anonymity increase customer intention to use services. In hence, this anonymity make guests feel more comfortable (Buhalis & Sinarta, 2019). In such scenarios, this study proposes that anonymity pushes higher quality of communication between guests and hoteliers and that guests' belief about anonymity from hotel chatbots increases their actual behavior in using hotel service. In hence, the hypotheses are following:

H2a: Anonymity has positively impact communication quality.

H2b: Anonymity has positively impact guest willingness to pay for hotel service.

Chatbots allow businesses in hospitality industry to transform their operations, reduce costs, increase productivity, and enhance the reliabitliy and quality of services they provide (Ivanov, 2019). Service automation and self-service technology have widely used at hotels for checking in/out or providing information (Del Rio et al., 2016), increasing waiting times, and improving service quality (Bogicevic et al., 2017). Even through AI-basedchatbots have been introduced in hospitality later than other industries but are currently been implemented by mnay hospitality businesses because they offer cost effective solutions and improving customer service (Ivanov & Webster, 2018). The findings of Ivanov (2019) showed that Chatbots change customer understanding about service, the way of their dealing with. Drawing from these previous research, chatbot problem-solving motivates guests to use hotel services because of good communication and make them willingness to pay for hotel service. In hence, the hypotheses are following:

H4a: Problem-solving has positively impact communication quality.

H4b: Problem-solving has positively impact guest willingness to pay for hotel service.

H5: Communication quality has positively impact long-term relationship.

Social distance is considered as the degree of social-interactive separation between one group or another (Joo et al., 2018). Under the Covid-19 pandemic, social distance reduces interpersonal contact and decrease the spread of transmissions in the community (Shin & Kang, 2020) which has been seen as the exclusionary process to prevent the spread of the pandemic (Morgan, 2010). Recently, Chen et al. (2021) suggest that social distance effectively enhances a good relationship between guests and hoteliers and improve guest satisfaction. When customers are satisfied with the service, they are willingness to pay for that service for the next time (Amfor & Ali, 2020). In these perspectives, social distance is expected to enhance the relationship between communicaton quality and guest willingness to pay for hotel services. Therefore, the hypothesis is proposed:

H6: Social distance positively strengthens the relationship between hotel communication quality and long-term relationship.
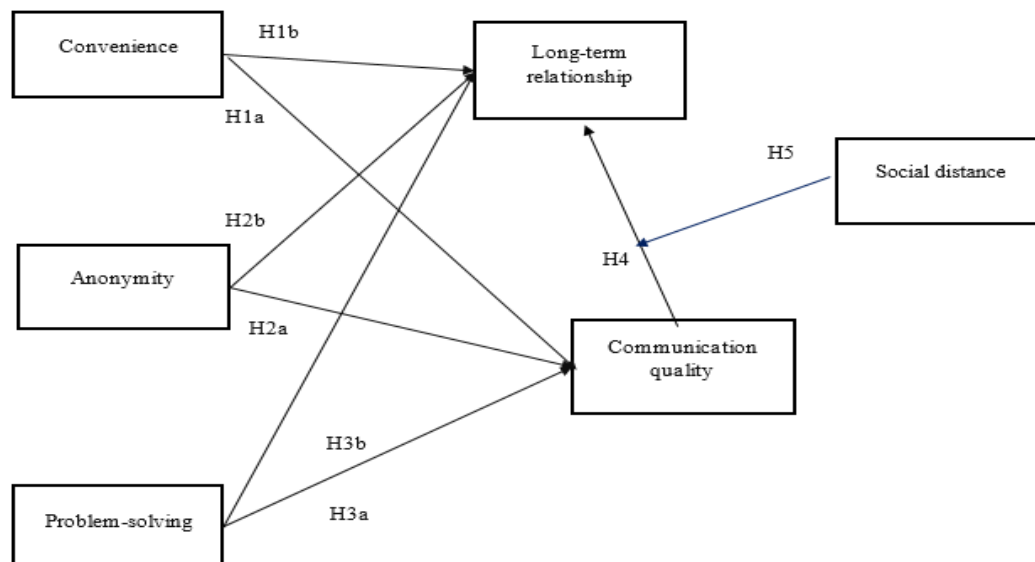

Figure: Research framework
Source: Author.

3. Research method

To operationalize latent constructs in the study, scales have been taken from prior literature with relevant modification in item wordings fitting the context. Four items of anonymity are respectively in conformity with the studies of Vance et al. (2017). Meanwhile, four items of problem-solving are captured from Chung et al. (2020). Convenience is captured using four items from the study of Chung et al. (2020). Long-term relationship has three components and adatped from Chi (2021). Social distance has four components from the study of Baber (2021). Finally, communication quality has five items from Chung et al. (2020). These items been measured on a five-point Likert scale ('1' - strongly disagree to '5' - strongly agree).

This research focuses on domestic tourists who had already used chatbot apps for booking room, and finding information. The data were collected using structured questionnaires that were distributed by eight trained research assistants. Regarding the sample size, we follow Horng et al. (2012) to use a 95% confidence interval and ±0.05 sampling error to calculate the required samples. As the number of domestic tourists was approximately 85 million in 2020 (Vietnam Economy, 2020), sample size is determined at least 384. Therefore, over 550 questionnaires were handed to the domestic travellers who had already used chatbot apps. 425 valid survey questionnaires were returned and completed, representing a retrieval rate of 77.27%. This response rate is good, ensuring statical validity with an appropriate 95% confidence interval and ±0.05 sampling error. In the research sample, male accounts for 48% and female accounts for 52%. The group of people under 20 accounts for 36.4%, while from 21-40 years old, accounts for 63.6%. Of the research sample, people with fulltime employed, with academic qualification of a university, with a monthly income of 1,000-1,500 USD.

Data is analysed with the help of covariance based - SEM (structural equation modelling) using AMOS 26 software. Since the data meets the conditions of a normal distribution and requisite items to response ratio (1:10), this study used SEM as a preferred and established multivariate analysis technique (Hair et al., 2010). Additionally, SEM is the preferred choice because the model involves simultaneous estimation of multiple dependent relationships (Malhotra and Dash, 2016).

4. Research results

4.1. Measurement model test-validity and reliability

Measurement model is tested following Hair et al.'s (2010) guidelines and using confirmatory factor analysis to confirm the factor structure. Reliability of the indicators is confirmed by capturing standard factor loadings ($\lambda > 0.70$). Composite reliability for the latent constructs remained significantly high (greater than 0.70) following Fornell and Larcker (1981). Further, Cronbach's alpha (α) known as the reliability coefficient was found above the designated cutoff value of 0.70 (see Table 1).

Table 1: The reliability and convergent validity

Cnstructs/ Variables	Standard loadings	Cronbach's Alpha	Composite Reliability	AVE
Anonymity	0.705-0.859	0.778	0.812	0.52
Convenience	0.687-0.816	0.793	0.864	0.56
Problem-solving	0.782-0.855	0.875	0.825	0.64
Communication quality	0.758-0.798	0.862	0.889	0.62
Long-term relationship	0.831-0.897	0.896	0.901	0.75
Social distance	0.771-0.897	0.884	0.904	0.70

Source: Author.

Regarding validity, items loading highly significantly onto corresponding constructs confirm convergent validity that is further vetted by finding the average variance extracted score above 0.60. Discriminant validity is supported by comparing the √AVE scores with the corelations between the pairs of constructs (Fornell and Larcker, 1981) (see Table 2). The measurement model fit indices indicate a good fit with χ2/df = 1.718, Goodness of fit index = 0.942, Comparative fit index = 0.941, and Root mean squared error of approximation = 0.045.

Table 2: Discriminant validity

Constructs	ANO	CON	PRO	SDI	COM	LTR
Anonymity	0.721					
Convenience	0.711	0.748				
Problem-solving	0.662	0.725	0.800			
Social distance	0.540	0.589	0.673	0.837		
Communication quality	0.461	0.557	0.534	0.598	0.787	
Long-term relationship	0.513	0.537	0.668	0.649	0.635	0.866

Note: INT-Interaction, ANO-Anonymity, CON- Convenience, PRO- Problem-solving, SDI-Social distance, COM-Communication quality, LTR- Long-term relationship.

Source: Author.

4.2. Hypotheses testing

Theoretical model fits good to the data with χ2/df = 2.049, Goodness of fit index = 0.925, Comparative fit index = 0.921, and Root mean squared error of approximation = 0.056. These fit indices are very near to the measurement model fit indices which substantiates a good model fit. However, goodness of fit measures (e.g., χ2) has a high value for the CFA model (measurement model) because it acts as the upper bound to the SEM model (Hair et al., 2010) and confirms the theory behind the model fit through SEM. The proposed hypotheses (H1a, H2a, H3a, H3b and H4) are supported, except for H1b and H2b which are not supported (Table 3).

Table 3: Path analysis results of the baseline model

Relationships			Path Coefficient	P	Test result
H2a: Anonymity	→	Communication quality	0.305	**	Supported
H1a: Convenience	→	Communication quality	0.344	**	Supported
H3a: Problem-solving	→	Communication quality	0.428	***	Supported
H2b: Anonymity	→	Long-term relationship	0.005	0.113	Not Supported
H1b: Convenience	→	Long-term relationshipv	- 0.439	0.513	Not Supported
H3b: Problem-solving	→	Long-term relationship	0.346	**	Supported
H4: Communication quality	→	Long-term relationship	0.682	***	Supported

Note: *** < 0.001, ** < 0.01.
Source: Author.

Anonymity, convenience, and problem-solving all positively affect communication quality. Problem-solving has the highest impact (0.428) on communication quality, followed by

convenience (0.344) while anonymity has the lowest effect (0.305) than the others. Meanwhile, only problem-solving has positively direct influence on long-term relationship (0.346) while anonymity, and convenience do not have direct impact ($p > 0.05$).

4.3. The moderating role of social distance

The analysis of moderating effect of social distance was employed by using process macro in SPSS 21.0. The results show that the social distance enhances the relationship between communication quality and guests' willingness to pay for hotel service. Therefore, H6 is supported.

Table 4: Moderating role effect

Path	*β*	*t*	*p*	LLCI	ULCI	Moderation
H6: SDIxCOM → WTP	0.337	*0.280*	0.002	0.121	0.539	Yes

Source: Author.

As can be seen from Table 6, social distance has significantly positive impact on communication quality and guests' willingness to pay for hotel service (0.337).

5. Theoretical and managerial implications

This study contributes four significant contributions to literature. Firstly, convenience, anonymity, and problem-solving play important roles in making the quality of communication between hoteliers and guests. It can be concluded that hotel performance can be measured by chatbot system which focuses on convenience, anonymity, and problem-solving. Secondly, this paper finds the significantly positive impact of three dimensions of chatbot system on communication quality which in turn lead to guests' long-term relationship. Out of three dimensions, problem-solving of chatbot system plays more important role than the other two. The highlight of this study is that customers tend to pay for hotel services if their requests or problems were satisfyingly handled through chatbot system. The third highlight is that chatbot system is a good solution for hotel providers to enhance their relationship with customers under the Covid-19 pandemic. Finally, this study also finds the indirect effect of chatbot system on guests' long-term relationship. The results provide an enhanced understanding of how chatbot system influences customers' decision-making.

This paper also provides several implications for practice. First, the current study recommends that hotel providers and marketing managers focus more on service quality and information provided by chatbot services. For doing that, they have to choose chatbot providers to be suitable for the characteristics of hospitality industry. Second, hotel providers should check chatbot service with their software provider to make sure that chatbot system offers highly reliable and quick information. Thirdly, hotel providers are required to communicate with their customers about using friendly chatbot service and advertise on social media about hotel chatbot service. Finally, in the context of Covid-19 pandemic, hotel providers should train their staff to operate and manage proficiently the information system when implementing chatbot and four chatbot dimensions (interaction, anonymity, customization, and problem-solving) should be focused on.

Acknowledgments

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