Examining Attitude towards Chatbots:
A Survey of Retail Bank Customers in an Emerging Market

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ABSTRACT

This study has been undertaken on the basis of self-determination theory, unified theory of acceptance and use of technology, and the theory of planned behaviour. The study examines the attitude and intention of retail bank customers towards chatbots. The findings show that self-determination/motivation, performance expectancy, social influence, and facilitating conditions positively influence the attitude of customers while attitude drives intention to use chatbots. A cross-sectional survey research design was adopted to collect data from 414 customers of retail banks in an emerging market. Structural equation modelling procedure was performed to test the hypothesized relationships.

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1.   Introduction

In the current context, service providers have resorted to the increased use of self-service technology for customer facilitation and delivery of services. Chatbots have been deployed by service providers to provide conversational output in response to questions, and if commanded, can sometimes also execute various tasks (Rajobelina and Ricard, 2021). As a form of self-service technology, chatbots can reduce response times to customer queries by 30% and deal with 80% of routine questions leading to hugs savings for firms (Adamopolou and Moussiades, 2020). The financial industry has taken the lead in the use of AI technology including chatbots and many banks have adopted chatbots to provide better customer services (Mou and Xu, 2017). Previous studies on chatbots in the financial industry have mainly focused on technical aspects of chatbots or customer perspectives on chatbots adoption or use (Jang et al., 2021).

The literature on chatbots do not provide conclusive evidence on their usability from the consumer's point of view. While some studies have shown that consumers are satisfied with service rendered by chatbots (e.g. Chung et al., 2020), others have concluded that consumers experience discomfort with chatbots owing to lack of personal touch and empathy (Ashfaq et al. 2020). However, recent advances in self-service technologies used in chatbots suggest that they are being enhanced with greater capabilities of interacting with humans and fulfilling needs of consumers in a better manner (Grewal et al., 2020). Given the advances in technology coupled with the growing intent of financial services industry to promote the use of chatbots, it can be said that consumers could be more motivated to use them in the current context. Therefore, the objective of the current study is to investigate the consumers' attitude and intention to use chatbots in the context of retail banking industry in an emerging market. The motivation for using new self-service technology can be attributed to intrinsic factors as espoused by self-determination theory (Zhou, 2016). Further, unified theory of acceptance and use of technology (UTAUT) suggests that performance expectancy, effort expectancy, social influence and facilitating conditions are external factors that influence consumers' attitude towards new technologies (Venkatesh et al., 2011). The theory of planned behaviour suggests that attitude has an influence on intention to use new technologies like chatbots. The findings of the current study show that self-determination, performance expectancy, social influence and facilitating conditions positively influence consumers' attitude towards chatbots while attitude influences the intention to use them. Furthermore, the current study has focused on retail bank customers in India (an emerging market) and thereby contributes to the growing need for studies on customer behaviour in emerging markets. The remainder of this paper is structured as follows. The next section provides the theoretical background and the development of the hypotheses. This is followed by the methodology and the data analysis. The paper concludes with a discussion on the theoretical contributions, managerial implications and suggestions for future research.

2.   Conceptual background and hypotheses development

A chatbot is a computer programme that mimics human conversation using natural language capabilities; chatbots commonly act as virtual assistants on the Internet (Fryer et al., 2019). Chatbots can help customers through online searches and information retrieval, provide navigational support for product knowledge and help customers with their decisions through recommendations. Further, customers get access to accurate information along with guidance on current trends and help with customization (Chung et al., 2020). It has been mentioned that chatbots lead to time efficiency, reduced costs and enhanced customer experience (Adam et al., 2021). While the benefits offered by chatbots have been well appreciated, studies have also shown that new technologies can also baffle users leading to scepticism and failures (Grewal et al., 2020). When customers have poor experience with use of chatbots, it can lead to frustration (Huang et al., 2021). However, given the obvious advantages offered by chatbots, it is logical that consumers will be motivated to use them. The objective of this study is to investigate the impact of consumers' motivation to use chatbots on the attitude and intention. In doing so, the study relies on well-established theoretical frameworks – self determination theory and the unified theory of acceptance and use of technology (UTAUT). Banks have made extensive use of chatbots for various interactions with customers that include relationship management, sales, investment analysis and recommendations (Eren, 2021).

Self-determination theory is a motivational theory that explains how humans achieve their goals or perform activities according to their psychological responses resulting in different forms of motivation (Leung and Matanda, 2013). The self-determination theory's applications in various studies related to use of technology suggests that experience of using new technology (including feeling of challenge) reinforces intrinsic motivation by affecting perceived competence (Deci and Ryan, 2000). Therefore, this theory has been referred with regard to chatbots in the current study. Self-determination theory is represented through autonomy (consumers will act according to their need for psychological freedom), competence (consumers will act in accordance with effectiveness of their pursuits), and relatedness (consumers desire to be connected with others) (Gilal et al., 2019). It is observed that the covid induced pandemic has resulted in consumers taking extra efforts to undertake banking through contactless options and studies on use of self-service technology have focused more on usefulness and ease of use. Chatbots offer flexibility and convenience whereby consumers get a sense of control over the service process (Guan et al., 2021).

The Theory of Planned Behaviour and Theory of Reasoned Action suggests that humans evaluate the consequences of performing a particular behaviour which is called attitude. In the context of the current study, attitude is the users' positive or negative feeling regarding use of chatbots while using banking services (Kasilingam, 2020). Consumer behaviour which is not highly regulated by intrinsic motivations (e.g. exercise of choice) can be referred to as autonomous or self-determined (Leung and Matanda, 2013). On the other hand, when behaviours are regulated through coercion, the motivation is not self-determined. Modern chatbots have conversational interfaces that tend to simulate human conversations and there is an increase in human-like qualities in chatbots whereby they are friendly and helpful (Murtarelli et al., 2021). The improvements in chatbots should result in consumers finding their usage offering greater autonomy and enable self-determination for users. Further, since chatbots are embedded

with AI (Artificial Intelligence), it can help consumers achieve their goals and therefore it is argued that consumers will have a positive attitude towards chatbots.

H1: Self-determination/motivation will positive influence attitude

Studies related to the consumer acceptance of technology have used the UTAUT theory. The constructs comprising the UTAUT model are – performance expectancy, effort expectancy, social influence and facilitating conditions. Performance expectancy is the degree to which a consumer believes that using the new technology contributes to better performance while effort expectancy is concerned with the ease of use (Gansser and Reich, 2021). Social influence is the degree to which the consumer perceives that important others (e.g. family, friends, colleagues etc.) in their life believe that they should be using the specific technology while facilitating conditions refers to the consumers belief of the resources and support available for performing the task (Patil et al., 2020).

Consumers using chatbots can avail high speed of service along with a vast variety of information that may not otherwise by readily gained through interaction with human customer service agents (Chung et al., 2020). Further, chatbots can offer tailored information systems whereby consumers can get responses that match their specific needs and also offer ease of use through a user centric approach (Kreps, 2017). Chatbots offer greater convenience for consumers whereby they can interact with chatbots using natural conversational languages. Therefore, this study proposes that:

H2: Performance expectancy will positively influence attitude

H3: Effort expectancy will positively influence attitude

While consumers have been known to have concerns related to trustworthiness, risk and privacy with regard to chatbots, studies have shown that assurance offered by members in their social circles helped them overcome the concerns (Vimalkumar et al., 2021). The word-of-mouth shared by chatbot users with others in their social circles have a positive influence on other consumers (Mukerjee, 2020). Further, studies have shown that in recent times, chatbots have found widespread usage in various industries and particularly in banking (Eren, 2021). Banks have taken special efforts to promote digitalization among consumers including educating them through how-to-use videos on social media sites. On the other hand, banks have taken several steps to assure customers about the safety measured adopted by them whereby the perceived risk has been reduced (Jeon et al., 2020). Therefore, it can be said that social influence will result in a positive attitude.

H4: Social influence will positively influence attitude

The widespread of adoption of smartphones and easy access to the internet in emerging nations like India have ensured that ready facilitation is available for consumers intending to use chatbots (Shankar and Narang, 2020). Previously, consumers were dependent on humans for obtaining information pertaining to banking but chatbots have resulted in easy access to the right information such as checking of accounts, asset transfers and inquiries regarding loans through suitable processes (Jang et al., 2021). On the other hand, chatbots have also become more agreeable, extroverted, and conscious while dealing with humans (Mou and Xu, 2017). Therefore, it can be argued that facilitating conditions for use of chatbots have become more conducive. Therefore, the following hypothesis is proposed:

H5: Facilitating conditions will positively influence attitude

An attitude provides a reason for developing an intention to act in a certain manner since the consumer believes that it will lead to valued outcomes. Intention is a function of the strength of an attitude (Nel and Boshoff, 2021). The linkage between attitude and intention is based on a reasoned process and the positive influence of attitude on intention will suggest a habitual use of chatbots. The advantages offered by chatbots (e.g. time saving, efficiency in searching for the desired information, personalized recommendations) suggest that customers possessing a positive attitude towards chatbots are likely to nurture the intention to use it on a regular basis. The positive influence of attitude on intention has been established through several studies undertaken on adoption of technology (e.g. Deb and David, 2014) and the current study also tests the relationship in the context of chatbots.

H6: Attitude will positively influence intention to use

3. Methodology

Setting and sample

A cross sectional survey research design was adopted to test the hypothesized relationships. Figure 1 represents the conceptual model that was proposed to test the hypothesized relationships. The retail customers of commercial banks in India provided the context for the study. The demographic profile of India shows that the majority of people fall below the age of 25 and studies have shown that younger people prefer using chatbots while interacting with service providers (Rojas-Mendez *et al.*, 2017). Further, studies have shown that younger consumers are more interested in using chatbots (Rese et al., 2020). The demographic information about the samples is given in Table 1. The questionnaire was floated online, and the majority of respondents were young (below 25 years of age) conforming to the demographic profile of India's population.

Measures

The measures for the constructs were adapted from the extant literature to the context of banking and financial services. The adapted items were shown to a group of marketing experts from the banking domain to assess the face and content validity. The items for self-determination/motivation were adapted from Sweeney *et al.* (2014), the items for performance expectancy, effort expectancy, social influence and facilitating conditions were adapted from Venkatesh *et al.* (2011), the items for attitude and intention to use were adapted from Kim et al. (2018) The responses were obtained using a seven-point Likert-type scale anchored by 1: Strongly disagree and 7: Strongly agree. The link to the online questionnaire was sent out to 1000 people through social media and 201 completed responses were received resulting in a response rate of 20 percent.

4. Data analysis and results

Measurement validity and reliability

The fit indices of the measurement model (Figure 1) were: χ^2 = 262.43, p < 0.001; CMIN /DF = 1.848; GFI = .936; TLI = .982; IFI = .985; CFI = .985, NFI = .967, RMSEA = .045.

Therefore, it can be said that the data fits the measurement models reasonably well (Byrne, 2016). The CFA results are summarised in Table II. The factor loadings, scale composite reliability and average variance extracted (AVE) for the constructs SD/Motivation, PE, EE, SI, FC, A and I exceeded the threshold level of 0.5. The AVE for each

of the constructs was greater than 0.50, as indicated in Table II. The scale composite reliability of each of the constructs was greater than 0.70. Thus, the constructs fulfil the convergent validity criteria (Byrne, 2016). The square root of the AVE was greater than the correlation between the constructs as given in Table III for the measurement model. Therefore, the constructs fulfil the discriminant validity criteria (Voorhees *et al.*, 2016).

Common method variance (CMV), which refers to variance that can be attributed to the measurement model (Podsakoff *et al.*, 2003), may exist since both the independent and the dependent variables have been measured through the same survey method. Following the guidelines offered by Podsakoff *et al.* (2003), the design of the survey questionnaire was reviewed by experts in marketing with experience in the banking domain. The questionnaire was designed in such a way that the independent and dependent variables were separated in order to deal with CMV (Fuller *et al.*, 2015). The Harman's one factor test was conducted for common method variance, as suggested by Fuller *et al.* (2015). The one factor accounted for variance of 38.71 percent, which is less than 50 percent; hence, common method variance is not a matter of concern in this study (Fuller *et al.*, 2015).

Structural model

The structural model for testing the hypothesized relationships (see Figure 1) showed a good fit to the data with all fit indices deemed acceptable (Byrne, 2016). Table IV presents the estimated path coefficients of the structural model and the results of the hypothesis tests. Except effort expectancy, other paths are significant whereby it is evident that self-determination/motivation, performance expectancy, social influence, and facilitating conditions positively influence attitude towards chatbots. Further, attitude positively influences intention to use chatbots which is a finding in line with the theory of planned behaviour's tenets.

5. Discussion

The domination of self-service technologies (including chatbots) in digital customer experiences has resulted in it being given top priority by service providers leading to several calls for research on this topic in relation to digital technology (Grewal et al., 2017). While studies have shown that use of chatbots does lead to user satisfaction (e.g. Eren, 2021), it has also been pointed out that chatbots have resulted in user scepticism and suffer from high failure rates (Grewal et al., 2020). On the other hand, consumers can communicate with chatbots through multiple devices that they already possess (e.g. smartphones, laptops, desktops, tablets etc.) which has led to consumers treating chatbots as their virtual digital assistants though acceptance of chatbots and usage continuance intention are still a concern for marketers (Ashfaq et al., 2020). On the other hand, chatbots are being imbued with human-like qualities that exude warmth and friendliness while modern technological advances have ensured more responsiveness and ease of use for consumers. Marketers expect to save about 30% of the $1.3 trillion spent every year on customer service inquiries through the use of chatbots (Adamopoulou and Moussiades, 2020). Therefore, whether consumers will have a positive attitude towards chatbots and nurture the intention to use them is a question that needs to be answered. The current study has made an attempt to study the impact of self-determination, performance expectancy, effort expectancy, social influence and facilitating conditions on attitude of customers towards chatbots. Further, the influence

of attitude on intention to use was also tested in line with the theory of planned behaviour.

The findings reinforce earlier research which has shown that autonomy, competence and relatedness are universal human needs that foster internalization and are volitional forms of self-determined motivation (Leung and Matanda, 2013).

The contribution of the current study is to show that self-determination / motivation among consumers results in a positive attitude towards chatbots. Further, earlier research undertaken on the basis of UTAUT has shown that the attitude of consumers towards innovations is guided by performance expectancy, social influence, and facilitating conditions (Venkatesh et al., 2011). The current study has shown that these factors have a positive influence on attitude towards chatbots. This is a significant finding for several reasons. First, previous research has thrown up mixed results on the usage experience of consumers with regard to chatbots. Second, studies have raised relevant concerns that consumers have with regard to chatbots (e.g. the possibility of manipulation of consumers) (Murtarelli et al., 2021).

Consumers interacting with chatbots appreciate human-like conversations and suitable nonverbal cues like artificial typing delays and emojis can enhance humanness in chatbots (Grimes et al., 2021). Third, while banks have been pushing for increased digitalization (including digital-only banking services), studies have shown that there is considerable consumer resistance manifested through postponement, rejection and opposition (Nel and Boshoff, 2021). Therefore, the findings of the current study offers significant contributions to the literature on chatbots.

The findings hold significant implications for marketers. It has become imperative for marketers to track the digital journeys of consumers and chatbots can be used for the entire journey to ensure increased engagement (Lemon and Verhoef, 2016). Marketers can take efforts to make human-chatbot conversations more authentic through natural language usage and even make chatbot usage enjoyable for consumers (Rese et al., 2020). Conversations that work well between humans and chatbots involve clarification being sought by chatbots showing that it can identify a trouble source and demonstrate intersubjective effort (Sheehan et al., 2020). In order to make the conversation more meaningful, conversations between humans and chatbots can be designed on the basis of individual personality traits (Shumanov and Johnson, 2021). In order to meet and fulfil the individual traits possessed by consumers, chatbots may adopt a friendly approach through empathic, warm and nurturing characteristics and become more sociable (Skjuve et al., 2021). Perceived usefulness and helpfulness have been shown as desired qualities in chatbots and marketers can consider using an online avatar (like Anna in the case of IKEA) for facilitating online interactions (Van den Broeck et al., 2019).

The current study did not find any relationship between effort expectancy and attitude suggesting that consumers tend to believe that greater effort is needed for using chatbots. Managers may take suitable efforts to make chatbot usage more effortless for consumers in future. In emerging markets like India, voice-activated commands or conversations using regional languages could help the consumers make better use of chatbots. In line with the tenets of the theory of planned behaviour, the current study also finds that attitude leads to usage intention for chatbot users. Therefore, marketers need to take suitable efforts to get consumers develop a positive attitude towards chatbots since there is evidence of internal and external motivation for using them.

Limitations and future research directions

The current study has examined the attitude of consumers towards chatbots in the context of retail banking. While the study has significant contributions, all studies have their limitations and the current study is no exception. A cross-sectional survey research design has been adopted for the study and future studies can be undertaken using a longitudinal research design. Further, the current study was undertaken in an emerging market and other researchers are encouraged to undertake similar studies in other markets. The survey undertaken for the current study had a high percentage of younger customers and other researchers are encouraged to undertake similar studies with respondents belonging to other age groups. New relationships of the variables adopted for this study can be tested with the help of other variables as moderators or mediators. The attitude of consumers towards chatbots can be investigated by using other marketing theories and other researchers are encouraged to undertake studies by focusing on other conceptual approaches.

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Table I: Demographic profiles of respondents

	N	%
Gender		
Male	114	57
Female	87	43
Age (years)		
18-25	106	53
26-35	44	22
36-45	30	15
46-55	18	9
> 55	2	1
Education		
High School	12	6
Undergraduate	141	24
Graduate	48	70
Annual income (in Indian Rupees)		
Less than INR 250,000	32	16
Between INR 250,000 - 500,000	65	32
Between INR 500,001 - 1,000,000	72	36
More than INR 1,000,001	32	16

Table II: Psychometric properties of the scales

Scale Items	Factor loadings
Self-Determination/Motivation (SCR = .808, AVE = .517, α = .800)	
I am capable of controlling the interaction with chatbots	.817
I have a say in choosing my actions during interactions with chatbots	.652
I am able to meet the challenge of dealing with chatbots	.619
I feel connected with other people who also use chatbots	.769
Performance expectancy (SCR = .867, AVE = .686, α = .864)	
I find chatbots useful in my daily life	.858
I can accomplish more things using chatbots	.853
Using chatbots increases my productivity	.771
Effort expectancy (SCR = .807, AVE = .583, α = .809)	
Learning how to use chatbots is easy for me	.707
My interactions with chatbots is clear and understandable	.839
It is easy to become skillful at using chatbots	.740
Social influence (SCR = .889, AVE = .728, α = .888)	
People who are important for me feel that I should use chatbots	.792
People who influence my behaviour feel that I should use chatbots	.894
People whose opinions I value prefer that I use chatbots	.871
Facilitating conditions (SCR = .821, AVE = .696, α = .82)	
I have the resources necessary to use chatbots	.817
I have the knowledge necessary to use chatbots	.852
Attitude (SCR = .915, AVE = .784, α = .915)	
I think use of chatbots is a positive behaviour	.824
I think use of chatbots is a valuable behaviour	.930
I think use of chatbots is a beneficial behavior	.898
Intention (SCR = .861, AVE = .680, α = .851)	
I have an intention to use chatbots	.909
I am willing to use chatbots	.916
I am willing to spare time and resources for using chatbots	.614

Table III: Descriptive statistics and Pearson correlation matrix

Construct	SDT	PE	EE	SI	FC	A	I
SDT	*.719*						
PE	.493	*.828*					
EE	.512	.353	*.764*				
SI	.153	.451	.329	*.853*			
FC	.446	.390	.504	.178	*.834*		
A	.427	.529	.403	.288	.487	*.885*	
I	.369	.306	.325	.276	.386	.431	*.825*

Note: Correlation is significant at the 0.01 level; the diagonal values (in italics) are the square root of the AVE; the lower half values indicate correlation coefficients between the constructs

Table IV: Summary of hypothesized relationships

Hypothesis	*Path*	*β value*	*p-value*	*Result*
H1	Self-Determination / Motivation → Attitude	.382	***	Supported
H2	Performance expectancy → Attitude	.296	***	Supported
H3	Effort expectancy → Attitude	-.044	.709	Not supported
H4	Social influence → Attitude	.262	***	Supported
H5	Facilitating conditions → Attitude	.480	***	Supported
H6	Attitude → Intention	.634	***	Supported

β = standardized path co-efficient; *** represents significant paths with p-value < .001

Figure 1: Examining customer attitude towards chatbots using self-determination theory and UTAUT