World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

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Role of Reliability and Responsiveness of Chatbots in Enhancing Customer Satisfaction in Banking Sector

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World Journal of Advanced Research and Reviews, 2025, 28(01), 175-185

Publication history: Received on 27 August 2025; revised on 01 October 2025; accepted on 04 October 2025

Article DOI: https://doi.org/10.30574/wjarr.2025.28.1.3423

Abstract

This study is based on identifying the relationship between reliability and responsiveness of Chatbots on customer satisfaction in Sri Lankan banking sector. Adopted quantitative method, positivism philosophy, deductive approach followed with survey strategy with a sample of 382 banking sector customers who use Chatbots. First objective of the study is to identify the relationship between chatbot's reliability and customer satisfaction in private banks which satisfied with the results indicating a significant positive relationship between reliability and customer satisfactions. Second objective of the study is to identify the relationship between chatbot's responsiveness and customer satisfaction in private banks which also satisfied with significant positive relationship between responsiveness and customer satisfaction. This study is based on the banking sector which could be further enriched to other context to get overall implication of enhancing satisfaction with chatbots in service sector. Theoretically this study provides empirical implications based on the insights gathered regarding chatbots in Sri Lankan context. Reliability of chatbots based on the dimensions of probability of success, functionality, duration of responsibility and trustworthiness. Responsiveness is identified as another predictor on satisfaction conceptualized based on quick reaction, optimized images, consistency, and quick automatic navigation.

Keywords: Reliability; Responsiveness; Chatbots; Customer satisfaction; Banking Sector

1. Introduction

Digital banking can be defined as banks and financial entities developing their banking system and processes using the internet and digital platforms to deliver simple and expedient customer service. Haralayya (2021) defined digital banking as the computerization of traditional banking services, and digital transformation is an almost top priority for every bank in the present context. Banks have implemented more customer-centric processes and strategies to enhance customer service and cater to banking products to their customers with all the latest technologies (Eren, 2021). Chung et al. (2020) outline that implementing recent advancement in the banking industry with financial technologies (Fintech) enable customer engagement in financial services. Considering to digital transformations in banking sector it is revealed that chatbots are virtual AI-based technology programmed to represent company agents that provide services and carry out conversations via natural language (Mogaji et al., 2021). On a similar note Chatbots, fueled by the latest technology, are a need for businesses as they can provide immediate communication with customers anytime and anywhere (Quah and Chua, 2019). Banks tend to use chatbots in the growth of the internet and mobile banking as an

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integral part of customer service (Sarbabidya and Saha, 2020). Furthermore, it is emphasized the above findings by stating that the financial industry is becoming increasingly interested in chatbots as a critical technology in digital transformation (Jang, Jung and Kim, 2021).

Even though much research is available on other digital banking technologies such as internet banking, mobile banking, and e-wallet, it is identified that less number of researches done in the area of chatbots in literature. Recent literature identified consumers feel they are contacting a natural person with convenient interface of Chatbots (Suhel et al., 2020) easier for customers to access the bank rather than contacting an actual human being in their inquiries (Saha, 2020) thus reliability and responsiveness of chatbots are important indicators of satisfaction. However, lack of focus given in extant literature with reliability and responsiveness of chatbots in providing superior customer satisfaction in digital age of Banks. Accordingly, the main purpose of the research is to identify the relationship of reliability and responsiveness of chatbots on enhancing customer satisfaction in the banking industry. Accordingly, two research questions identified as

- "What is the relationship between reliability of chatbots on customer satisfaction in Banking sector?"
- "What is the relationship between responsiveness of chatbots on customer satisfaction in Banking sector?"

In achieving the main purpose two research objectives identified in the study as,

- To find out the relationship between reliability of chatbots on customer satisfaction in Banking sector
- To find out the relationship between responsiveness of chatbots on customer satisfaction in Banking sector

2. Review of literature knowledge gaps

Seelanatha (2010) states that the market structure of the banking business in Sri Lanka has seen a significant transformation between 1977 and 2005 due to financial services sector reforms, ICT development, and industry globalisation. Gajurel (2010) defines that banks' success does not rely on market concentration or market dominance of particular enterprises but rather on the efficiency of individual banking units along with the digital transformation.

Customer satisfaction is identified in extant literature in Banking sector and with new digital transformations like chatbots enabling creating the satisfaction. Sabir et al. (2014) outline that customer expectation is a critical driver of customer satisfaction and measuring customer satisfaction is essential to an organisation because it significantly impacts its long-term performance, builds customer loyalty, and improves its reputation and long term business success (Ngo, 2015; Feine, Morana and Gnewuch, 2019). Furthermore, extant literature identified chatbots as a way in enhancing satisfaction in digital age. chatbots help to improve customer satisfaction in the Sri Lankan banking industry (Weerabahu et al., 2019) human-chatbot interaction is a positive predictor of trust and attitude when considering overall chatbot performance reviews (Kvale et al., 2021) and evaluating outcomes related to e-service interactions or the emotional connection with the company providing timely responses (Agnihotri et al., 2016; Zhou et al., 2018), professional communication (Nunan et al., 2018; Kurdi, Alshurideh and Alnaser, 2020) customer convenience (Srivastava and Kaul, 2014; Kaura, Prasad and Sharma, 2015; Mehmood and Najmi, 2017) and product quality (Kaura et al., 2015; Suchánek et al., 2015) and chatbots identified as a mean of seamless customer experience (Salem, 2024). Although reliability is a predictor of satisfaction this is less focused relating to chatbots in Banking sector.

Extant literature identifies reliability as a key predictor of customer satisfaction with chatbots. According to Iberahim et al. (2016), reliability relates to the ability to deliver the expected standard consistently, how a business handles customer service issues, delivering services within the specified time frame, and maintaining an error-free record, capacity of businesses to offer services following their promises accurately and dependably (Barusman, 2019) company's ability to deliver services as describe (Barua. Dhingra, Gupta and Bhatt, 2020) ability to dependably and accurately perform certain promised services (Srivastava, 2020). Beun (2018) states that chatbots can answer customer inquiries reliably despite software and hardware problems. Accordingly, Trivedi (2019) mentions that customers anticipate excellent availability and reliability from chatbots. Likewise, Zurek et al. (2020) indicate that the capacity to ensure the preparedness of all available resources is reliable. Alternatively, Kim and Chang (2020) revealed that the reliability of chatbot services is a significant element in the desire to reuse chatbots and helps to acquire loyal clients. Li et al. (2021) highlight that providing reliable performance and information to users is essential when using chatbot-based services. Supporting the same argument, Mulyono and Sfenrianto (2022) state that system quality may be quantified using a variety of indicators, one of which is system reliability. Considering the extant literature, the probability of success, functionality, prompt issue resolution, and trustworthiness are the elements chosen for the reliability of chatbots.

The probability of success as the first indicator of reliability guarantees that all the bank customers obtain the intended results when they utilize the bank chatbot. According to Singh (2015), the probability of success is essential for customers to be happy with a service's quality. Barkaoui, Berger and Boukhtouta (2015) highlight that the probability of success can be enhanced using multiple customer analyses and surveys, leading to customer satisfaction and will help to improve service quality as well. It assures a customer's success or continued satisfaction with the chatbot. Jiang, Shang and Liu (2010) state probability of success enhances customer satisfaction and retention.

Chatbot's functionality as the second dimension of reliability is the function without any error is a significant role and impact on customer satisfaction. Mistakes are not a problem with chatbots unless there is a system issue because they are pre-programmed from the beginning to get the most current and accurate information from the bank knowledge base. According to Toader et al. (2019), it has been established that the Chatbots' Error Rate predicts variations in customer trust and favourable reactions. Sheehan, Jin and Gottlieb (2020) state that chatbots can produce errors in several ways, such as errors in communication as opposed to technical errors, which can be eliminated through software improvements. Kvale et al. (2021) identified in their study that chatbot functionality errors can be caused by using colloquial language, spelling errors, and feeling reluctant to use appropriate casing or notation for proper nouns and abbreviations hence proper functionality is idnetified important factor in creating satisfaction.

Customers want prompt issue resolution is identified as the third dimension of reliability. A chatbot increases customer satisfaction by quickly responding to bank clients around the clock. Thomas (2016) depicts that the chatbot generates random replies using a single template and can provide proper solutions to inquiries. Gnewuch et al. (2018) argue that delayed answers may also severely affect customer satisfaction when fast response times are needed in speedy customer service. Liu et al. (2020) state that how to respond at the right moment is one of the main obstacles for chatbots to sustain natural conversations with customers, and it will help to keep client service intact. Hence prompt solution is identified as an important dimension in reliability.

Trustworthiness is identified as the fourth dimension of reliability. Sanny et al. (2020) highlighted that trust may be established by humanizing chatbots as actual human agents while replying to clients' questions. Pesonen (2021) defines that customers' trustworthiness in the chatbot was positively connected with their overall satisfaction with the chatbot and customers are more satisfied and trustworthy when interacting with chatbots that resemble humans, which increases chatbot adoption (Jenneboer, Herrando and Constantinides, 2022)

Accordingly, reliability is conceptualized with various dimensions of probability of success, functionality, prompt issue resolution, and trustworthiness considering the extant literature. Further reliability on technological services is identified as a key factor on customer satisfaction. Aimin and Hongyi (2017) indicate that it has been discovered that the technical reliability of self-service technologies is a significant predictor of satisfaction. Furthermore, literature depicted that the reliability and customer satisfaction of the chatbot is linked (Folstad and Skjuve, 2019), reliability and quality of the chatbot systems is a crucial aspect of customer satisfaction (Nguyen, Chiu and Le, 2021). Furthermore, extant literature emphasized that the reliability of technical-based services such as chatbots directly relates to customer satisfaction as customer impression and trust to use the systems depend on reliability (Yun and Park, 2022)

Extant literature identified responsiveness as another dimension impact on satisfaction. According to Liao (2016) responsiveness implies speedy responding or reacting correctly or sympathetically. Mizrahi et al. (2016) discovered that robot response enhanced nonverbal approach behaviour and participants' desire to accompany the robot through stressful circumstances. Iberahim et al. (2016) stated that responsiveness is the capacity to respond promptly and flexibly to customer demands. Dong et al. (2017) give a different aspect of responsiveness by saying responsiveness refers to the extent of prompt service and prompt responses to customer inquiries. Ability of the organisation to respond to customer inquiries and complaints can be defined as responsiveness and is a vital aspect of digital evaluation (Sharma, 2018). According to Atiyah, Jusoh and Almajali (2018), service interactions provided by chatbots are more responsive than those facilitated by human agents because chatbots may deliver rapid and real-time replies. Ramachandran (2020) highlighted that the responsiveness of a chatbot or conversational agent is its ability to comprehend user input and provide an appropriate response and solution. Also, Chatbots can boost customer service and satisfaction with service delivery. Doherty and Curran (2019) depicted that the industries like banking and finance are adopting voice assistants and chatbots to deliver more responsive consumer services. According to Nordheim, Folstad and Bjorkli (2019), a different viewpoint suggested that in customer support systems where chatbots and humans work closely together, responsiveness could enhance trust. According to Jenneboer, Herrando and Constantinides (2022) responsiveness pertains to the quick delivery of services to the customer. Quick reaction, optimised images, consistency, and quick automatic navigation were identified as the chatbot survey questionnaire elements. Alternatively, Selamat and Windasari (2021) state that chatbots have also grown more responsive, able to assist with reading product reviews, exploring for and researching items, comparing products, accessing stored

coupons, purchasing things, tracking purchases, and getting incentives and loyalty points. Considering the extant literature Quick reaction, optimised images, consistency, and quick automatic navigation identified as main dimensions of responsiveness.

Customers like chatbots for customer support because of their quick answers. No matter how popular the support services are, a user may get a fast answer to customer inquiries in a couple of seconds. However, Gnewuch et al. (2018) highlighted a different perspective saying quick responses are believed to make a chatbot look unnatural and prevent customers from experiencing a real interaction. On the other hand, Nordheim (2018) argues that the quick response seems to be appreciated since it makes the chatbot an effective method of obtaining assistance. Folstad and Skjuve (2019) identified that the need for chatbots to provide acceptable responses to basic questions efficiently had been identified through research.

Cloud technology optimises images quickly and effectively and makes various improvements automatically on all modified photos by default. Its technology expedites the transmission of picture resources to customers. Image Transformation of Chatbot might be enhanced to give more capabilities. According to Følstad, Nordheim and Bjørkli (2018) some participants also suggested that their faith in the chatbot would be contingent on the level of visual design development. In his research, Kang (2018) found that the chatbot's profile picture is the first thing customers see when interacting with the chatbot. Pereira and Barcina (2019) highlighted that new technology enables the service to search the internet for comparable photos when a picture is submitted. Hence image is a dimension identified in responsiveness of chatbots.

The responses and tone of the chatbot must be consistent with the company's style and values to deliver a more consistent experience that is in keeping with other communication channels responsiveness and digital engagement touchpoints. Smestad and Volden (2019) state that consistent personality makes customers feel as if they are conversing with the same person throughout the interaction. Z. Li et al. (2021) reveal that both automated assessment and human evaluation may provide the same performance ranking, demonstrating that methodology to evaluate the consistency of chatbots. Crolic et al. (2022) outline that the chatbot consistently understood a customer's inputs better been responsive resulting in an enhanced communication experience.

Extant literature identifies how responsiveness impacts customer satisfaction. Chen, Le and Florence (2021) highlight that the responsiveness of chatbots positively impacts customer service, leading to customer experience and satisfaction, an extrinsic value of customer experience. From a different viewpoint, as per Tran, Pallant and Johnson (2021), chatbots are more responsive than humans since they can deliver instant and real-time replies. Adebayo (2022) claims that adapting the whole organisation to its customers' demands and behaviours is feasible by operational responsiveness and impacting customer satisfaction. organisation's ability and willingness to build up positive customer relations determine responsiveness (Yun and Park, 2022). Further, it highlighted that the banks could function consistently and swiftly, following customer demands through technology and increasing customer satisfaction enabling the responsiveness with chatbots to enhance the customer satisfaction.

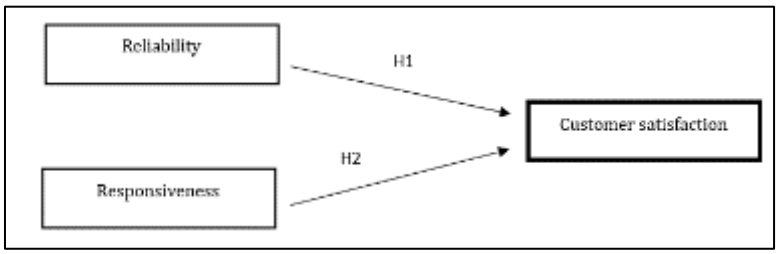
3. Methods

Saunders, Lewis and Thornhill (2016) identifies positivism as philosophical position of the natural scientist and comprises working with observable social reality to generate law-like generalizations. Accordingly, positivism philosophy is used in the study. Research approach considered the extend which research focused in testing a theory or building a theory. Considering the three research approaches are identified as inductive, deductive and deductive (Saunders et al., 2019) this study focused on deductive approach hence hypothesis testing is focused. Collis and Hussey (2014) illustrate that quantitative researchers associated with numbers & the quantitative study gathered data using a detailed questionnaire, demonstrating a mono-method methodology. Accordingly, mono method is utilized in the study. Different research strategies included experiment, survey, case study, action research, grounded theory, ethnography and archival research (Saunders et al, 2019) out of which Survey strategy is used in the study which is associated with deductive approach hence survey strategy utilized. Survey is conducted based on questionnaire distributed among customers which is considers as the unit of analysis in the study. Cross-sectional includes the study of a specific occurrence (or phenomenon) at a certain period (Saunders, Lewis and Thornhill, 2016) hence time horizon is selected as cross sectional for the study.

All the customers who accessed the chatbot feature at ABC Bank PLC for the previous year were considered, totaling 52,532 (Company Data, 2022) as the total population and a representative of 382 was picked based on Morgan's table. The sample was chosen by a nonrandom purposive (judgmental) sampling. According to Campbell et al. (2020), Purposive sampling procedures eschew any random kind of sampling and ensure that particular types of individuals

may be included in the final sample of the research project. The questionnaire was distributed among 400 frequently visiting customers of the Bank and considering outliers and missing values 382 responses used for further analysis.

Data analysis and presentation is done based on SPSS 21.0 statistical packages to analysis the collected data. Linear relationship between independent and dependent variable correlation and regression analysis is done after conducting the reliability and validity test. Conceptual framework developed based on considering the extant literature is identified in Figure 1.



Source: Authors (2025)

Figure 1 Conceptual framework

In developing the conceptual Framework two dimensions of Reliability and Responsiveness is identified. Reliability is depicted with the indicators of probability of success (Singh, 2015, Barkaoui, Berger and Boukhtouta, 2015; Jiang, Shang and Liu, 2010), functionality (Kvale et al., 2021), prompt issue resolution (Thomas, 2016, Gnewuch et al., 2018, Liu et al., 2020) and trustworthiness (Sanny et al., 2020; Pesonen, 2021, Jenneboer, Herrando and Constantinides, 2022). Second variable is responsiveness measured with the indicators of Quick reaction (Nordheim, 2018; Folstad and Skjuve, 2019), optimised images (Følstad, Nordheim and Bjørkli, 2018; Pereira and Barcina (2019), consistency Smestad and Volden (2019) and quick automatic navigation (Crolic et al., 2022), identified as main dimensions of responsiveness.

- H01: There is no significant positive relationship between the reliability of chatbots and customer satisfaction
- Ha1: There is a significant positive relationship between the reliability of chatbots and customer satisfaction
- H02: There is no significant positive relationship between the responsiveness of chatbots and customer satisfaction
- Ha2: There is a significant positive relationship between the responsiveness of chatbots and customer satisfaction

4. Results and Discussion

Chronbach's Alpha value should be above 0.7 for identifying the internal consistency of the variables (Heir et al., 2010). Cronbach's alpha for the independent variable chatbot's reliability with four items is 0 .777, responsiveness with four items is 0.787 and dependent variable customer satisfaction is 0.734 identified in Table 1.

Table 1 Reliability Test

Variable	Chronbach's Alpha value
Reliability	0.777
Responsiveness	0.787
Customer Satisfaction	0.734

Source: Authors (2025)

Table 2 Relationship between the reliability of chatbots and customer satisfaction

Statistics					
		Probability of success	Functionality	Duration of responding	Trustworthiness
N	Valid	382	382	382	382
	Missing	0	0	0	0
Mean		4.0628	4.1571	3.8743	4.1466
Median		4.0000	4.0000	4.0000	4.0000
Mode		4.00	4.00	4.00	4.00
Std. Deviation		.71448	.72194	.67960	.69075
Customer Satisfaction * Chatbot's Reliability					
Pearson Correlation Value		.546			
Chi-Square Value		.000			
(Source: Developed by author)					

Source: Authors (2025)

First objective of the study is to identify the relationship between chatbot's reliability and customer satisfaction in private banks. Accordingly, the correlation analysis indicated that reliability of Chatbots and customer satisfaction has a strong positive correlation with a coefficient value of .546. Identified significant value p=0.000 ($p<0.05$). Hence significant positive relationship of reliability of chatbots on customer satisfaction is proved. The mean value is between 3.87 and 4.15, and the standard deviation is close to zero, indicating that data points are closer to the mean. Pearson Chi-Square analysis was conducted to test the independency level of the hypotheses. Jiang, Shang and Liu (2010) state chatbot's probability of success enhances customer satisfaction. According to Toader et al. (2019), it has been established that the Chatbots' Error Rate predicts variations in customer trust and favourable reactions. In this research study, the first two statements under the independent variable of reliability are related to the above literature. The chatbot's probability of success and functionality will improve customer satisfaction with mean values of 4.06 and 4.15, respectively, with a standard deviation of .714 and .722. The results prove that they influence customer satisfaction. Liu et al. (2020) state that how to respond at the right moment is one of the main obstacles for chatbots to sustain natural conversations with customers, and it will help to keep client service intact. Pesonen (2021) defines that customers' trustworthiness in the chatbot was positively connected with their overall satisfaction with the chatbot. The third and fourth statements are, respectively, duration of responding and trustworthiness related to the above literature. The mean values of 3.87 and 4.15, with standard deviations of .680 and .691, respectively, show that the results agree with the statements.

Table 3 Relationship between the responsiveness of chatbots and customer satisfaction

Statistics					
		Quick reaction	Optimised images	Consistency	Quick automatic navigation
N	Valid	382	382	382	382
	Missing	0	0	0	0
Mean		4.1623	4.0314	3.9686	3.9921
Median		4.0000	4.0000	4.0000	4.0000
Mode		4.00	4.00	4.00	4.00
Std. Deviation		.74230	.71655	.71288	.75116
Customer Satisfaction * Chatbot's Responsiveness					
Pearson Correlation Value		.561			
Chi-Square Value		.000			
(Source: Developed by author)					

Source: Authors (2025)

Second research objective is to identify the relationship between chatbot's responsiveness features and customer satisfaction in private banks. Therefore, Chatbot's quick reaction, optimised images, consistency, and quick automatic navigation identified as multiple aspects of responsiveness. customer satisfaction has a strong positive correlation with a coefficient value of .561. Inicated significant impact with P=0.000($P<0.000$). Hence significant positive relationship of responsiveness of chatbots on customer satisfactions is proved. The average answer for all the questions related to

product features can be summarised as 'agree' as the mean value is between 3.96 - 4.16. The standard deviation is also close to zero, indicating that data points are closer to the mean. The Pearson Chi-Square analysis was conducted to test the variables' independent level of built hypotheses. The Pearson Chi-Square value (P) was generated as .000. Nordheim (2018) argues that the quick response seems to be appreciated since it makes the chatbot an effective method of obtaining assistance. However, according to Følstad, Nordheim and Bjørkli (2019), some participants also suggested that their faith in the chatbot would be contingent on the level of visual design development. The first and second statements tested the above literature. The mean value for all two statements is above 4 with a standard deviation of fewer than 1, showing that the results agree with the statements tested. Crolic et al. (2022) state that The chatbot consistently understood a customer's inputs better, likely resulting in an enhanced communication experience. Klein and Martinez (2022) mention that chatbots can provide navigational support for targeted product searches. Chatbot's consistency and quick automatic navigation statement tested with the mean value of 3.97 and 3.99 and standard deviation of 0.713 and 0.751, which derives the results agreeing with the third and fourth statements.

5. Theoretical and practical Implication

Findings of the study provides important theoretical and managerial implications. In managerial point this study provides insights in developing strategies to enhance the reliability and responsiveness of chatbots. seamless experience in which the chatbot responds to inquiries and solves issues in real-time and needs to ensure that the chatbot is accessible, provide easy prompt responses to customers' complicated concerns and inquiries, optimized images are another aspect of responsiveness. The appearance of chatbots gets increasingly refined, and the use of visuals in chatbot communications is becoming more widespread modify the chatbot's user interface to be more attentive. consistency of the chatbot plays a crucial role in responsiveness. keep communications concise and use less jargon is important. Also, recommend learning from the audience and developing new versions with more functionalities to support consistency. Regularly evaluating and improving the bank chatbot is crucial. Automatic navigation provides directions for customers The chatbot is recommended to give a direct link to navigation, menus, and search bars for the needed information. Thus this provides important managerial implications on establishing responsiveness to enhance satisfaction on chatbots to create better service in Banking along with the digital transformation.

Regarding the reliability of chatbots the study provides important insights for the banking sector managers. probability of success, functionality, duration of responding, and trustworthiness of the chatbot must be given attention to enhance customer satisfaction. continuously examine and enhance its chatbot's accuracy. The above may include periodically refreshing the bank's chatbot's material. functionality without errors is recommended by measuring the confusion rate. functionality without errors is recommended by measuring the confusion rate by defining proper KPIs. The technical aspects can be improved by enhancing live chat trust, delivering 24*7 support, and using visual engagement tools to improve resolution time in a way reliability of chatbots increased in enhancing satisfaction of consumers in Banking sector.

As the theoretical implications the study provides empherical implications based on the insights gathered regarding chatbots in Sri Lankan context. Considering the extant literature, it is identified reliability and responsiveness as main predictors in customer satisfaction however customer with chatbots service from a Sri Lankan perspective is lack of focused. Further this study contributes to the extant literature in identifying different dimensions of reliability of chatbots based on probability of success, functionality, duration of responsibility and trustworthiness (Jiang, Shang and Liu, 2010; Toader et al., 2019; Liu et al., 2020; Pesonen, 2021). Responsiveness is identified as another predictor on satisfaction conceptualized based on quick reaction, optimized images, consistency and quick automatic navigation (Nordheim, 2018; Følstad, Nordheim and Bjørkli ,2019; Crolic et al., 2022; Klein and Martinez, 2022) further it is applied with chatbots and contributes for the existing literature. Also, many studies have been carried out concerning corporates and have not focused on the banking environment. The banking environment and other corporates are two different natures hence this study is significant in contributed to literature in addressing reliability and responsiveness in chatbots as indictors of customer satisfaction in Sri Lankan context applying to the Banking sector.

6. Conclusion

The study is based on identifying reliability and responsiveness as determinants of chatbot on customer satisfaction in Sri Lankan Banking sector. Study has conducted with positivistic research philosophy following deductive approach and quantitative technique followed conducted based on survey strategy. Study identified significant positive relationship between reliability on customer satisfaction and responsiveness on customer satisfaction regarding chatbots in banking sector. This provides important managerial and theoretical implications in implementing chatbots in providing better customer service to enhance the satisfaction. Future studies may concentrate on several variables influencing customer

satisfaction. population sample should be expanded to include additional perspectives and ideas so that future researchers may conduct more effective investigations

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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