CHAPTER 3

EXPLORING THE QUALITY DIMENSIONS OF CHATBOTS FROM THE USER PERSPECTIVE: EVIDENCE FROM THE BANKING SECTOR

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INTRODUCTION

Chatbots, also referred to as chatter robots, are software programs that interact with humans via a messaging application (Ciechanowski et al., 2019). These software agents are capable of communicating with humans using their native languages (Følstad & Brandtzaeg, 2017). Additionally, chatbots can respond to inquiries sent by humans via text or voice communications. They are also an excellent technique to increase productivity and save employee expenses due to their 24-hour response capabilities. Chatbots are used to assist humans with a variety of activities in a variety of services (Kumar et al., 2016). By 2023, it is estimated that the use of conversations in the retail, banking, and health sectors would save businesses 11 billion dollars per year. Additionally, cost reductions can be achieved through time savings in customer service. Businesses and consumers are anticipated to save more than 2.5 billion hours in these areas by 2023. Additionally, in 2022, the success rate of chatbots servicing the banking sector will climb to 93% (Juniper Research, 2018).

According to Luo et al. (2019), customers consider chatbots to be less knowledgeable and empathetic. Thus, when the identity of the chatbot is exposed to customers prior to the interaction, purchasing rates decline. Disclosing the chatbot's identity following the conversation can minimize these negative consequences. On the other hand, Fiore et al. (2019) and Rapp et al., (2021) argue that the transparency of a chatbot—a chatbot must indicate that it is not communicating with a human, but with a robot—is a necessary condition for the emulation of trust

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in a chatbot and therefore for its acceptance by users. It is critical to understand how to enhance the hedonic quality of chatbot discussions, as chatbots are usually developed for successful interactions, emphasizing pragmatic quality (Haugeland et al., 2022).

Since we began to live in a virtual world where banks are geographically dispersed from their consumers chatbots have grown more prevalent in the banking sector. Thus, improving service quality using chatbots is critical for the banking sector in order to improve customer experience and perceived value. Customer experience and user satisfaction has received little scholarly attention on the rapidly growing phenomenon of chatbots (Nguyen et al., 2021) and diverse findings exist. In this sense, concerning the importance and the extensive diffusion of the technology in various fields, it is critical to investigate the quality attributes of chatbots affecting the customer experience. However, it should be noted that the existing literature still lacks the conceptual clarity on the categorization of quality attributes of chatbots. Besides, since the quality dimensions of chatbots used for banking purposes are still uncovered, there is no robust quality evaluation tool or methodology for chatbots specific to the needs of the banking sector. In a nutshell, although the last decades have witnessed a burgeoning interest; the pertinent literature is still at the introductory stage and needs additional improvement in terms of customer perspective. As a response to these gaps, this study has three complementary objectives. The first two objectives are to unveil the quality attributes of banking chatbots and to contribute to the emerging conceptualization and operationalization efforts of banking chatbots' user quality evaluations by being one of the pioneer attempts to provide an empirical basis for a future model. On the basis of these study objectives, it is also aimed to advance the extant knowledge of the chatbot service quality by exploring the current situation in the context of an emerging market, which has been relatively neglected by prior research and has been suggested to be addressed in chatbot quality related studies from the user perspective.

In-depth interviews are conducted with both the users and non-users of chatbots in the banking sector. Data gathered are analyzed via content analyses and are framed on three distinct quality dimensions: system, information, and user related quality. The expected outcome of this research is threefold. First it is anticipated that the findings will contribute to the conceptualization and operationalization efforts of chatbot quality evaluations from the user perspective. The second point is exploring the dimensions may guide future research and support the design and development of chatbots for better customer service which in turn

may enhance customer experience on banking chatbots. The third outcome is the identification of improvement areas in banking chatbot quality in an emerging economy, which could assist Turkish banks bridge the gaps and enhance the level of service they provide.

The rest of the study is organized in the following manner. First section comprises a literature review on chatbots and quality attributes of chatbots. Second part involves methodology and findings revealed from the data obtained. Finally, discussion and future research directions are discussed, along with the limitations.

LITERATURE REVIEW

Chatbots

With the rapid advancement of the software industry in recent years, the development of artificial intelligence-based systems has uncovered novel techniques and technologies in a variety of areas. According to Almansor and Hussain (2020), there are two types of chatbots, sometimes referred to as conversation agents: task-oriented chatbots and non-task-oriented chatbots. Task-oriented chatbots are created using hand-crafted rules to assist users in achieving their objectives or completing a specific task in a particular subject. In this framework, Apple debuted the intelligent assistant Siri in 2011. Apple's Siri, Amazon's Echo, Alexa, and Microsoft's Cortana are all examples of modern chatbots (Calhoun & Lee, 2019). On the other hand, the non-task-oriented conversation framework enables users to engage in various activities, such as gaming, chit-chat, or entertainment, without assisting the user in completing any task associated with a specific job (Almansor & Hussain, 2020).

Chatbots are one of the most widely utilized forms of human-computer interaction, enabling users to communicate with one another via websites and messaging. Chatbots, which are artificial intelligence-based computer programs, are also referred to as virtual assistants for customers (Lui et al., 2018). According to Gartner's research, chatbot utilization in consumer interactions is predicted to reach 25% by 2020 (Gartner, 2018). Chatbots deliver a superior customer experience while lowering operating costs, increasing customer satisfaction and retention. According to a survey conducted by Juniper Research, the banking sector would save 7.3 billion dollars by 2023 due to the increased use of chatbots (Juniper Research, 2019). Chatbots are successfully used in a variety of industries, including entertainment, health, retail, insurance, education, automotive, and finance (Abd-alrazaq et al., 2019; Lind & Salomonson, 2006), as well as sales,

customer support, technical support, and marketing (Abd-alrazaq et al., 2019; Smutny & Schreiberova, 2020). One of the fastest-growing types of chatbots is mainly in the banking sector. The pace of artificial intelligence research has resulted in significant discoveries, particularly in finance. Numerous chatbot programs have begun to be deployed for customer interactions and assistance, particularly in the banking sector. Specifically, in the banking industry, it has been discovered that chatbots are being used to communicate with customers (Suhel et al., 2020).

Artificial intelligence is developing rapidly day by day, and accordingly, the need to redefine the customer experience has emerged. Thus, interacting with customers through chatbots is of great importance in improving the customer experience and customer satisfaction (Bahri Ammari et al., 2021). Research conducted by Chen (2021) investigates the importance of chatbots in online customer experience and customer satisfaction in the e-retail industry (Chen et al., 2021). Trivedi (2019) postulate that service quality, system quality and information quality significantly affect customer experience where the most significant effect on customer experience is identified as system quality. Customers expect an instant response, ease of use, availability, reliability, sufficient and necessary information for their experience. Another research on chatbots in banking sector in Turkey reveals the determinants of customer satisfaction (Eren, 2021a). Perceived performance, perceived trust and corporate reputation significantly affect customer satisfaction with chatbot use. A similar study identifies the effects of chatbots on customer satisfaction, trust and loyalty with service quality utilitarian and hedonic dimensions (Eren, 2021b).

Quality Attributes of Chatbots

As it is well acknowledged, there is a conflict about the relationship between quality dimensions and attributes. It is vital to comprehend the whole meaning of the quality dimensions' attributes. Due to the prevalence of several attributes with the same meaning in the literature, it is difficult to conduct an accurate analysis of the quality aspects. As a result, this section of the study aims to reveal all pertinent terminology in the literature.

The extant literature does not yet address the quality dimensions of chatbots and their effect on user satisfaction or their intention to use this service. There are diverse perspectives on the quality attributes and the dimensions which are classified differently according to the various researchers (L. Li et al., 2021). According to Ashfaq et al. (2020), chatbot quality dimensions are articulated as information quality, service quality, perceived enjoyment, perceived usefulness, and perceived

ease of use. On the other hand, Delone and McLean (2003) and Trivedi (2019) identify three critical quality factors for an information system's success: system quality, information quality, and service quality. According to Trivedi (2019), these three distinct characteristics are critical for improving chatbot quality. Moreover, a study conducted by Chung et al. (2020) introduced another quality dimension for chatbots: communication quality.

The information quality dimension, defined as the quality of information and contents provided by a chatbot system (Delone & McLean, 2003), consists of information sufficiency, reliability, being up-to-date, accuracy, clarity, and on-time user information (Ashfaq et al., 2020). In the relevant literature, relevance, understandability, completeness, timeliness, and reliability are also the other quality attributes compiled under the information quality dimension (Delone & McLean, 2003; DeLone & McLean, 1992). Mulyono and Sfenrianto (2022) assert that if the information is relevant to the consumers' requirements, it may be of high quality. Second, usefulness serves as a gauge of a system's information quality. It is beneficial if the information may aid in the process of resolving customer issues. Thirdly, understandability assesses the system's information quality in terms of the users' understanding levels. Accuracy is a criterion used to assess the system's information quality. The system's information must be accurate and reliable to assist users in making decisions. Sixth, completeness is a metric used to assess the system's information quality. A high-quality piece of information has all the information required by its users. Seventh, timeliness evaluates the system's information quality since when information is delayed, it may be damaging to users so they must get information on a timely basis.

The quality of chatbot systems and their technical aspects reveal the *system quality* of chatbots where accessibility, reliability, response time, usability, availability, and adaptability are just a few of the *system quality* attributes (Delone & McLean, 2003; DeLone & McLean, 1992). Trivedi (2019) claims that the *system quality* should include ease of use and the ability to acquire a quick answer with minimal effort. Mulyono and Sfenrianto (2022) propose ease of learning, ease of use, availability, response time, system reliability, flexibility, personalization, system interactivity, and system security as the components of system quality. It should be noted that some of the attributes defined under *information quality* (e.g., response time vs timeliness) also appear as attributes in the *system quality* dimension.

Reliability, responsiveness, assurance, tangibles, and empathy are among the most extensively used and validated *service quality* aspects (Parasuraman et al.,

1988). Chatbot service quality is described as the ability to comprehend customers' concerns and requirements, provide service as promptly as feasible, and provide after-sales support (Trivedi, 2019). *Communication quality* encompasses quality attributes like credibility, communication competence, and accuracy (M. Chung et al., 2020). Furthermore, Song et al. (2022) extends communication quality boundaries by adding openness and attractiveness to chatbots' perceived communication quality.

The understandability characteristic of *information quality* refers to the chatbot's ability to comprehend dialogues, which is critical for chatbot services since it relates to the chatbot's skill in human contact and facilitating interactive conversations with users (L. Li et al., 2021). Moreover, the understandability of chatbot services is directly tied to how clearly and precisely customer problems and requests are comprehended (Mohr & Sohi, 1995; Trivedi, 2019). On the other hand, the idea of openness, which is related to understandability, takes ease of expression and communication flexibility into account (Song et al., 2022). Credibility is determined by how honest, trustworthy, honorable, and moral chatbots are and how reliable their replies are (M. Chung et al., 2020; Song et al., 2022). The user's perception of the communication process's reliability is associated with its credibility (Edwards et al., 2014). Besides, credibility is also affiliated with assurance in terms of service quality in the extant literature. It is defined as the trustworthiness, believability, and honesty of the staff (Parasuraman et al., 1988). Assurance is a critical component of service quality in the banking business since it can influence customer satisfaction and intent to use chatbots (Lee et al., 2019). Jennifer, the chatbot's nickname, was created to assess public awareness and knowledge during the Coronavirus outbreak. It was understood that the assurance of the chatbots' service could be maintained by obtaining information from reputable sources (Y. Li et al., 2020). Customers need reliable, accurate, and complete communication to trust, and this situation reveals the importance of *communication quality* (Mohr & Sohi, 1995).

Reliability consists of providing promised service dependably, accurately, on time, and credibly. The term "reliability," associated with trust, refers to a chatbot's potential to provide consistent and independent service (Kushwaha et al., 2021). On the other hand, system reliability refers to the possibility that a system will perform as planned over a certain period (Russell & Taylor, 2011). Moreover, security means freedom from danger, risk, or doubt (Parasuraman et al., 1988). Besides, sufficiency means obtaining sufficient information from chatbots. The quality of information is contingent upon receiving the necessary, sufficient, and

accurate information from chatbots (Trivedi, 2019).

One of the SERVQUAL dimensions is responsiveness, which relates to a commitment to support customers and provide timely service (Parasuraman et al., 1988). This parameter specifies the speed with which the system replies to requests (Conklin et al., 1982). Chatbots should reply to user requests promptly and with a trustworthy response to reassure them (Lee et al., 2019). Responsiveness is a significant service quality feature to consider when assessing the quality of a chatbot's service (Delone & McLean, 2003), and this dimension boosts chatbot systems' customer assistance capabilities (Nguyen et al., 2021).

Access to services is inextricably linked to the ease with which they can be contacted (Bailey & Pearson, 1983; Wang & Strong, 1996). The phrase "access" refers to the ease and convenience with which customers can utilize bank services (Yarimoglu, 2014).It should be underlined that accessibility to service agents is also used as synonymous with availability mentioned in the literature.

Perceived usefulness consists of productivity, providing convenience, supporting users, and being useful (Ashfaq et al., 2020). Radziwill and Benton (2017) conducted a study on the quality characteristics of chatbots and categorized them into effectiveness, efficiency, and satisfaction using the ISO 9241 concept of usefulness. The perceived enjoyment dimension is associated with users finding chatbots enjoyable and interesting (Ashfaq et al., 2020). Furthermore, perceived ease of use is associated with the ability to provide clear and understandable interaction without much effort (Ashfaq et al., 2020). Wu and Ho (2022) assert that an information system's ease of use is contingent on its ability to accomplish tasks efficiently and ease of use influences customers' continued engagement in chatbots.

Chatbots improve consumer interaction by enabling customizability, accessibility, and a natural customer experience. The communication should be credible, accurate, and timely. While offline consultants provided more in-depth consumer interactions, chatbots provided usefulness (M. Chung et al., 2020).

METHODOLOGY

This research is an exploratory study that aims to reveal the quality attributes that may influence customer experience with chatbot applications in the banking sector. Research methodology embraced is qualitative as it provides flexibility for investigating a phenomenon (Carson et al., 2001) and is highly convenient in exploratory studies. In line with the purpose, data is collected via structured in-depth interviews with users and non-users of chatbots.

Sampling and Data Collection

In Turkey, six banks provide chatbot application services. Thus, each bank's consumers who commonly interact with chatbots were contacted and interviewed. When selecting the sample, consideration was given to the individuals' heterogeneity in terms of gender, employment status, and education levels. As a result, this study combined convenience sampling, which is effective for exploratory research (Kinnear & Taylor, 1996), with purposive sampling techniques. The sample size for the interview approach is suggested to be greater than ten but fewer than fifty (Ritchie & Levis 2003). However, after the nineteenth in-depth interview, it is observed that no new concepts emerge from each interview when a grounded theory approach is used. As a result, interviews are completed in relation to the saturation level. Consequently, 19 in-depth interviews with bank customers in Izmir, Turkey, were performed.

Twelve participants have prior experience interacting with chatbots. Seven participants who had not used the bank's chatbot were also included in the sample to investigate the reasons for not using chatbots, which can be an essential input in quality evaluations. The interviews with customers were held in the last three weeks of February 2020. Nine participants were interviewed face to face, and data was collected from the other ten participants via phone. Each interview lasted about 15-25 minutes. Some of the face-to-face interviews were conducted at the places where the participants worked. First, the researcher introduced herself and provided brief information about the chatbots and the aim of the study. Then, questions were asked to understand the participants' experiences with chatbots, and their suggestions were received in the last part of the interview. The first author conducted all interviews to ensure the consistency of the interviews. Participants were informed that it was vital to express their positive and negative thoughts clearly, and the real ideas were learned. The researcher directed the questions objectively and noted down the answers. Repeated questions confirmed the participants' answers, and each stage of the research was reviewed in detail. All participants were interviewed in their native language, and interviews were recorded upon the consent of participants, and the recordings were transcribed verbatim into an excel document for data analysis.

Table 1 Demographics of Participants			
Demographics		User Status	n
Gender	Female		9
	Male		10
Education	High-school Graduate		7
	Undergraduate		7
	Graduate		5
Employment Status	Student		6
	Employed		7
	Retired		6
Banks of Participants	Bank A	U	2
		NU	1
	Bank B	U	2
		NU	3
	Bank C	U	2
		NU	1
	Bank D	U	2
		NU	0
	Bank E	U	2
		NU	1
	Bank F	U	2
		NU	1

As depicted in Table 1. in-depth interviews were conducted with nine female and ten male participants. Five participants were graduates, whereas the rest were either high school graduates or had an undergraduate degree. Seven participants were employed, six of them were university students, and six of them were retired.

As discussed above, both nonusers (NU) and users (U) of chatbots of each bank were included in the study (see table 1.). Chatbots were used mainly for bank account inquiries and money transfers. Exchange rate inquiry, interest rate inquiry, and branch / ATM locations inquiry were among the other transactions made by the users, respectively.

Data Analysis

Data was analyzed systematically by content analysis (Kolbe & Burnett, 1991). Four stages which were coding data, finding themes, arranging codes and themes, and defining and interpreting findings (Şimşek & Yıldırım, 2011) were followed

during data analysis. The data was evaluated by the two authors in order to boost the reliability. The authors coded the first four interviews based on the coding protocol separately. Each discrepancy was thoroughly discussed, and the coding protocol was revised until 100% agreement was reached. Using the advanced coding protocol, two authors coded all interviews with 90% inter-coder agreement. Following the process, first-order themes, which stand for quality attributes, were generated and then these attributes were aggregated in second-order themes with a higher level of abstraction. As discussed earlier, there are diverse findings and categories within the context of chatbot quality dimensions. Thus, in order to contribute to the conceptualization and operationalization efforts of chatbot quality determinants, expert opinions were sought in generating the second-order themes. The first order themes were sent to five scholarly experts who have conducted various research and provided lectures on information systems and quality management via e-mails. They were asked to group and label the first order themes. The categorizations of the experts are aggregated and compared with the literature. The final categorization is done by the authors based on the comparison between the expert opinions and the literature. The final classification is sent to each of the experts and their approval is taken. The focus was on the consistency and meaningfulness of the findings to ensure internal validity. After the analysis of data, the findings were shared with the participants and validated. Besides, the findings were also compared with the literature. In this way, the validity and reliability of the study were ensured.

FINDINGS

Findings of the content analysis revealed thirteen quality attributes based on banking chatbot quality user evaluations. As displayed in Table 2, accuracy, security, emotions, enjoyment, understandability, sufficiency, usefulness, availability, timeliness, response, reliability, ease of use and credibility emerge as the first order themes mentioned by the users of banking chatbots in Turkey. The definitions of the corresponding themes are also provided in the table below.

Coupled with the experts' opinion on the conceptualization of the second order themes to obtain the dimensions revealed three chatbot quality dimensions from the user perspective. These are:

- Information Quality Dimension
- System Quality Dimension
- User Related Quality Dimension

As can be seen in Table 3, information quality dimension with a total frequency of 90 which is the highest among the dimensions unveiled consists of five attributes which are accuracy (f=12), sufficiency (f=22), credibility (f=26), timeliness (f=19) and response (f=11).

Table 2 Banking Chatbot First Order Quality Attributes and Definitions	
1st Order Codes	**Memo**
Accuracy	Providing accurate information
Security	Security of the system
Emotions	User feelings upon using the chatbot
Enjoyment	The level of enjoyment generated by using the chatbot
Understandability	The ability of chatbot to understand the customer
Sufficiency	Sufficient information provided by the chatbot
Usefulness	Convenience (benefit) invoked by using the chatbot (time saving e.g.)
Availability	The availability of the system as the possibility to access the information in an apt format and at a specified time.
Timeliness	Time taken by chatbot to respond to input and process the output.
Reliability	Reliability is the probability that a system performs correctly during a specific time duration. During this correct operation: No repair is required or performed. The system adequately follows the defined performance specifications.
Ease of Use	User's perceived ease of use of chatbot
Response	The general comments of users on the information received
Credibility	Trusting the information provided by the chatbot

Table 3 Information Quality Dimension and the Frequency Distribution			
2ⁿᵈ Order Theme	**1st Order Theme**	**Response Status**	**F**
Information Quality Dimension (Total Frequency= 90)	Accuracy (Total Frequency= 12)	Positive	11
		Negative	1
	Sufficiency (Total Frequency= 22)	Positive	7
		Negative	15
	Credibility (Total Frequency= 26)	Positive	20
		Negative	6
	Timeliness (Total Frequency= 19)	Positive	19
		Negative	0
	Response (Total Frequency= 11)	Positive	5
		Negative	6

The sample of the study mentioned credibility of the chatbots most frequently where most of these mentions are positive in nature (f=20). However, it should be remarked that the credibility of the information is associated with the understandability of chatbots which is an attribute of system quality dimension. As one of the respondents indicates:

"In my opinion, I can say that information is credible, but it is also insufficient; if the chatbot misunderstands me, then it executes my transaction incorrectly. When I say money transfer or EFT to another bank, it can direct me to other operations, for example, to my credit card, it takes me to transactions there." (Participant 3)

Related with quote of the 3ʳᵈ participant, the sufficiency of information is the second most repeated quality attribute under information quality dimension. The sample claim that the information retrieved by the chatbot is credible but somehow insufficient (f=15) changing according to how well the system understands the user and the level of complexity of the user request. As the following statement highlights:

"I receive a sufficient response on time especially in simpler and basic operations; however, in more complex transactions, I may confront with insufficient responses." (Participant 9)

Timeliness attribute is repeated 19 times by the respondents, and banking chatbots are found to always give timely answers (f=19). The accuracy attribute is one of the least mentioned attributes within the information quality dimen-

sion. The sample declares that they get accurate answers most of the time with a frequency of 11. The response category under information quality represents the general comments about the information provided by the chatbots other than sufficiency, timeliness, credibility, and accuracy. Findings reveal that the response that users receive in general tends to be evaluated as negative (f=6).

Table 4 System Quality Dimension and the Frequency Distribution			
2nd Order Theme	**1st Order Theme**	**Response Status**	**F**
System Quality Dimension (Total Frequency= 75)	Security (Total Frequency= 11)	Positive	6
		Negative	5
	Reliability (Total Frequency= 10)	Positive	6
		Negative	4
	Availability (Total Frequency= 4)	Positive	4
		Negative	0
	Understandability (Total Frequency= 50)	Positive	16
		Negative	34

System quality dimension encompasses system reliability, security, availability and understandability quality attributes and the sum of the frequencies of these attributes is 75. It should be highlighted that the highest repetition among the attributes of system quality belongs to understandability (f=50) where the results pinpoint that the understandability of the chatbots tend to be assessed as negative (f=34) by the sample (See Table 4).

Security and reliability of the system emerge as the second and the third highly mentioned attributes in this dimension with frequencies of 11 and 10 respectively. The appraisal of the banking chatbots by the users as a system indicates favorable results in terms of security (f=6) and reliability (6) which needs to be improved further. The following quotations pinpoint the reliability of the system:

"The system is reliable, but people may feel insecure about digital technologies in general." (Participant 8)

"The system is reliable, but it is not complete. On the other hand, logging into the system with the password we use in mobile banking is essential for the system's security." (Participant 1)

User related quality attributes is the last and the least mentioned quality dimension (f=44). This dimension embodies attributes that may differ according to personal factors like age, the level of innovativeness, familiarity with technology. Table 5 summarizes the attributes and their frequency distribution. The most

frequent attribute under user related quality dimension is the ease-of-use attribute (f=26) where the respondents state that it is easy to use the banking chatbots (f=23). According to the sample, chatbots provide convenience in banking operations (f=7), positive time utility (f=7) and positive place utility(f=1). However, time loss is also articulated four times by the respondents.

The respondents generally defined their emotions upon using the chatbots as "different" (f=6) and "interesting" (f=5). When the underlying reasons are investigated, it is determined that most of the respondents who defined their feelings as "interesting" and "different" find technological innovations and robot technology exciting. The following quotations are provided as exemplars of the definitions of emotions:

Table 5 User Related Quality Dimension and the Frequency Distribution			
2nd Order Theme	1st Order Theme	Response Status	F
User Related Quality Dimension (Total Frequency= 44)	Emotions (Total Frequency= 15)	Interesting	5
		Different	6
		Feels Good	3
		Weird	1
	Enjoyment (Total Frequency= 10)	Positive	6
		Negative	4
	Perceived usefulness (Total Frequency= 19)	Positive Time Utility	7
		Positive Place Utility	1
		Convenience in operations	7
		Time Loss	4
	Ease of use (Total Frequency= 26)	Positive	23
		Negative	3

"*It was interesting, it was something new, it was different, of course, it is nice to make a transaction with voice commands, but as I said, it needs to be improved.*" (Participant 7)

"*Interesting. I found it interesting, as it quickly reduced the few steps of the interface to a single step, which I did with a few buttons before.*" (Participant 2)

The last attribute under this dimension is enjoyment with a frequency of 10 where the user evaluations tend to uncover favorable response in terms of enjoyment. The following respondent state it as:

"It was fun, but it was very insufficient because the transaction list is limited to very elementary ones. It was not good." (Participant 12)

DISCUSSION AND FUTURE DIRECTIONS OF THE RESEARCH

Chatbot quality is an essential factor that has an impact on customer experience. The current study empirically supports that information and system quality attributes are crucial, with a greater emphasis on the information quality dimension in chatbots quality evaluations. This finding is in line with the pertinent literature (Borsci et al., 2022; K. Chung & Park, 2019; Nguyen et al., 2021). However, unlike the extant literature, the current research reveals one more dimension which is user related quality. This dimension embraces the notion that individual characteristics such as age, degree of innovativeness, and experience with technology, expectations induce different perspectives regarding perceived usefulness, enjoyment level, feelings generated and ease of use. Therefore, in accordance with the personal factors mentioned above the user perceptions of quality may differ. For example, an old respondent who uses the banking chatbot stated that it is not easy to use the chatbot due to his age. Similarly, a lady who has a low interest in technology expressed her enjoyment level as negative. Customers' attitudes about virtual service agents are influenced by factors such as enjoyment, fun, and relaxation (Godey et al., 2016; Muntinga et al., 2011). Thus, the quality dimension regarding user related is deemed as an important element in quality evaluations from the user perspective.

On the other hand, as disclosed in the section regarding quality attributes of chatbots, service quality is the frequently emerging dimension in the literature (Delone & McLean, 2003; Lee et al., 2019; Mulyono, & Sfenrianto 2022; Nguyen et al., 2021; Trivedi, 2019) did not appear as a quality dimension in this study. The rationale behind this fact is that there is an ambiguity on the definitions of the terminology used and categorizations made as already explained. Some quality attributes overlap, which is often recognized in service quality dimensions. To make it clearer let's give an example. The degree to which chatbots are honest, trustworthy, honorable, and moral, as well as the reliability of their responses, determines their credibility (M. Chung et al., 2020; Song et al., 2022). The user's view of the dependability of a communication process is related to its credibility (Edwards et al., 2014). Additionally, credibility is associated with guarantee of service quality

in the available literature. It is characterized by the staff's credibility, believability, and honesty (Parasuraman et al., 1988). Assurance is an important component of service quality in the banking industry since it has the potential to impact client happiness and willingness to utilize chatbots (Lee et al., 2019). Drawing on this inference, it is claimed that most of the service quality attributes encapsulate attributes regarding information and communication quality.

In the existing literature, understandability attribute is commonly classified under information quality. However, this study categorizes understandability attribute under the system quality dimension. The consideration in this categorization is that since the chatbot is a reasoning system which provides service response in terms of information or content, the output of the system is information. Therefore, the accuracy, sufficiency, timeliness, and credibility of the information provided is associated with the level of understandability of the system which are the output of the service provided by the system. It should be highlighted that the highest repetition among the attributes of system quality by the sample of the study belongs to understandability attribute. Reckoning the emphasis on understandability, we can claim that this attribute is crucial for the sample, which needs to be reconfigured by the banks which provide chatbot service in Turkey. Thus, our findings are consistent with Mckinney et al. (2002)and Cho et al. (2019), which claim that the understandability of smart services is essential. It should be highlighted that some participants claimed negative evaluations regarding the credibility of the information provided by the chatbots since they have experienced inadequacies in terms of understandability of chatbots. We argue that it is quite possible to conceptualize understandability as an antecedent of information credibility. The customers must repeat the same dialogue when the chatbot misunderstands the user, leading to a credibility problem eliciting negative attitudes.

The sufficiency and timeliness of the information provided emerged as two important attributes of information quality dimension. This finding is also congruent with the research of Trivedi (2019), in which information and timely answers positively affect the customer experience in the banking sector. Users should perceive chatbots as easy to use, and they should get quick responses. Otherwise, they will likely have a negative experience (ISO, 2018).

Eren (2021a) empirically validated that perceived usefulness of the chatbot which was conceptualized as "perceived performance" influences customer satisfaction. In the same manner, in the current study, usefulness emerged as a quality attribute but within a diverse categorization. Moreover, chatbot's usability positively affects extrinsic values of customer experience. It has been revealed that

online customer experience has a positive effect on customer satisfaction (Chen et al., 2021). In our consideration, usability is expressed as ease-of-use attribute within the user related quality dimension. Chen et al. (2021)also claim that the intrinsic values of customer experience are influenced by the entertainment dimension which is in line with the enjoyment factor identified in our study.

The findings mainly convey that the banking chatbots in Turkey are credible, easy to use and provide prompt answers. Another important finding is that most users describe their experience with the chatbots as "interesting". If banks make chatbots even more interesting and enjoyable, it is most likely that the customer experience will be enhanced. Experimental research carried out on the interaction dimension of chatbots indicates that the humanization techniques are a critical point for interaction (Rhim et al., 2022). On the other hand, the participants of this research did not mention interactivity. This may be due to the fact that the usage of chatbots is relatively new in Turkey; in this sense, it will be essential to focus on information and system quality as the primary quality dimensions to increase customer experience.

CONCLUSION

Resting on the notion that chatbot quality constitutes an encouraging field of inquiry within user perspective and in the scope of emerging markets where the need for quality improvements is substantial, the current study addresses the following objectives. The first objective is to elucidate the quality attributes of banking chatbots. The second objective is to clarify the existing terminology in the literature by identifying the quality attributes which overlap within different quality dimensions. Drawn on these objectives, it is also expected to advance existing knowledge on chatbot service quality by examining the current situation in an emerging market, which has received relatively little attention in prior research and has been suggested to be examined in chatbot quality-related studies from a user perspective. Findings reveal that banking chatbot user quality evaluations are framed with three quality dimensions which are information, system, and user related. The information retrieved by the chatbot is credible, timely, and most of the time accurate but somehow insufficient. In terms of system quality, the biggest challenge is the understandability of the chatbots. Security and reliability of the system emerges as the second and the third highly mentioned attributes in this dimension where the system indicates favorable results in terms of security and reliability which needs to be improved further. Ease-of-use, perceived usefulness, enjoyment, and emotions emerged as user related quality attributes which has the lowest frequency among the other quality dimensions.

This study is intended to provide three outcomes. To begin, the results are expected to contribute to the conceptualization and operationalization efforts of chatbot quality assessments from a user viewpoint by serving as one of the pioneering attempts to provide an empirical foundation for a future model. The second point is examining the dimensions may drive future research to develop a robust quality evaluation tool or methodology which in turn may boost customer experience on banking chatbots. The third outcome is the identification of the quality attributes that should be improved to increase the level of customer experience with the chatbots in Turkey.

This research is conducted in Izmir, Turkey; therefore, the findings can't be generalized. The study provides insight into quality dimensions pertaining to the banking sector's chatbots. Subsequent studies can be conducted in different regions or countries, different sectors, with varying research techniques.

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