THE INFLUENCE OF CHATBOT INFORMATION SYSTEMS ON CUSTOMER EXPERIENCE AND SOCIAL MEDIA ENGAGEMENT IN MARKETPLACES

Annisa Giwang Cempaka[1], Triana Rahajeng Hadiprawoto

Faculty of Economics and Business, University of Indonesia
Pondok Cina, Beji, Depok City, West Java 16424, Indonesia

Article history:

Received
23 June 2024

Revised
3 September 2024

Accepted
4 November 2024

Available online
24 January 2025

Background: In the era of the e-commerce boom, the role of chatbots in enhancing customer experience and engagement on social media has become increasingly vital in the dynamics of the marketplace market and industry.
Purpose: This research aims to investigate how the information quality, system quality, and service quality of chatbots influence customer satisfaction and positive emotions, leading to increased social media engagement.
Design/Methodology/Approach: An online survey was conducted with 305 respondents who use chatbot services on marketplace platforms. Data collected from an online survey are analyzed against the research model using PLS-SEM.
Findings/Results: The results show a positive impact and direct influence of information quality, system quality, and service quality on positive emotions and customer social media engagement, but no direct influence was found between satisfaction and customer social media engagement
Conclusions: The study indicates that the quality of chatbot information and service plays a crucial role in enhancing customer satisfaction and fostering positive experiences. Positive emotions, in turn, significantly drive customer engagement in activities such as co-developing and advocating on social media.
Originality/Value (State of the Art): By focusing on the mediating role of positive emotions, the study offers a deeper understanding of how chatbots contribute to customer interaction and social media behavior.

Keywords: chatbot services, information system, customer satisfaction, positive emotions, customer social media engagement

How to Cite:
Cempaka A. G., & Hadiprawoto T. R. (2025). The Influence of Chatbot Information Systems on Customer Experience and Social Media Engagement in Marketplaces. Indonesian Journal of Business and Entrepreneurship (IJBE), 11(1), 16. https://doi.org/10.17358/ijbe.11.1.16

[1] Corresponding author:
Email: Nisagiwang@gmail.com

INTRODUCTION

In highly competitive sectors like the marketplace, innovation in chatbot technology is crucial for maintaining a competitive advantage. In Indonesia, the marketplace sector has seen a significant surge in revenue, with six major marketplaces contributing to the country's Gross Merchandise Value (GMV) (Riyanto, 2023). Forecasts suggest that e-commerce transactions in Indonesia will reach IDR533 trillion in 2023, with continued growth expected in the coming years (Angela, 2024). However, many marketplace businesses continue to face challenges in improving social media engagement and brand interaction. According to Saputra (2021), a social media account is considered to have a good engagement rate if it falls between 1% and 3.5%. Despite this benchmark, numerous companies struggle to reach and maintain these levels. Using the application inbeat.co to measure engagement rates, Table 1 reveals that marketplace accounts are struggling to capture the attention and engage their followers on social media, with engagement rates falling below 1%. By addressing this issue, the study aims to offer valuable insights and practical recommendations for companies to enhance their social media engagement. Chatbots have emerged as a viable option to streamline operational activities, particularly in customer service, with several major Indonesian marketplaces, such as Shopee, Tokopedia, and Lazada, implementing these AI-powered conversational agents (Bakhshi, 2018; Dilmegani, 2021).

This study uses the information system model by Delone and McLean (2003), which consists of information quality, system quality, and service quality, these factors determine the success of an information system. This differs from Jiang et al. (2022), who used aspects like conversational tone and responsiveness to investigate chatbot services. While information quality and service quality can be represented by responsiveness and conversational tone, the aspect of system quality hasn't been thoroughly explored. Additionally, system quality contributes to a positive user experience, user satisfaction, operational efficiency, user trust, and the chatbot's ability to adapt to technological changes. Neglecting system quality can result in some problems in diminished performance and user dissatisfaction, ultimately impacting the overall effectiveness of the information system. The aim is to address this gap by providing a comprehensive analysis of these interrelated constructs within the context of the e-commerce industry.

The study examines the impact of the three quality dimensions of chatbots on customer experience (positive emotion and customer satisfaction) and various aspects of social media engagement, including learning, sharing, advocating, socializing, and co-developing (Jiang et al. 2022). In McLean's (2018) research, customer experience consists of customer satisfaction and positive emotion. Customer experience can be viewed as a holistic process that combines cognitive and affective components to create impressions (Wei et al. 2022). Some studies have focused solely on measuring cognitive factors, such as customer satisfaction (Lemke et al. 2011). However, incorporating the variable of positive emotion can represent the affective component and provide a more comprehensive measurement of customer experience.

This study aims to investigate the following research question (RQ): The research questions addressed in this study are:
RQ1. How do the information system quality dimensions (information quality, system quality, and service quality) of chatbots influence customer satisfaction?
RQ2. How does customer experience (customer satisfaction and positive emotions) with chatbot services influence customer social media engagement, which encompasses learning, sharing, socializing, advocating, and co-developing?
RQ3. What is the mediating role of customer experience (customer satisfaction and positive emotions) in the relationship between information quality, system quality, service quality, and customer social media engagement?

Table 1. Engagement Data in Marketplace Instagram Account

Marketplace	Instagram Account	Engagement Rate	Followers
Tokopedia	@tokopedia	0.05%	5.11M
Shopee	@shopee	0.01%	8.94M
Bli-bli	@bliblidotcom	0.01%	2.32M

The relationship between the three independent variables and customer experience can be explained through the social exchange theory (SET). The basic principle of SET states that a person will join a group of people if they obtain benefits from that activity and will leave the group if it does not provide benefits to that person (Rohall, 2015). In the context of customer interactions with chatbots, the costs incurred by customers are effort and time, while the benefits obtained are answers and information addressing the customers' problems or needs. Aligned with social exchange theory (SET), the resource exchange theory (RET) also supports this reciprocal interaction. RET explains how social interaction relationships occur. It is used to understand the motivation behind exchanges and track patterns of exchange within groups (Greenberg et al. 2013). Foa and Foa (1975) identified six categories of resources: love, status, information, money, goods, and services. In the context of chatbot service satisfaction and customer social media engagement, information and services are the resources being exchanged.

The findings of this study are expected to provide valuable insights for businesses operating in the marketplace industry, offering practical strategies for enhancing chatbot effectiveness, strengthening customer relationships, and designing targeted social media campaigns that leverage the power of satisfied and emotionally engaged customers. Moreover, the research contributes to the growing body of knowledge on the transformative impact of emerging technologies, such as chatbots, on customer behavior and social media engagement.

METHODS

This exploratory study employs a quantitative approach to investigate the impact of information quality, system quality, and service quality (independent variables) on customers' social media engagement, which includes learning, sharing, advocating, socializing, and co-developing (dependent variables). Customer experience, consisting of customer satisfaction and positive emotions, is examined as a mediating variable between information quality, system quality, service quality, and social media engagement. Data is collected via online questionnaires distributed through Google Forms, targeting users of marketplace chatbots. The sample is selected using non-probability purposive sampling and the snowball sampling method, where the researcher distributes the questionnaire to an individual, who then helps to distribute it to other respondents meeting the criteria. The minimum target for this study is 300 respondents. Based on Hair (2010) determining the sample size can be done by the number of indicators multiplied by 5 or 10. This study collected 316 responses, of which 305 were suitable for analysis. Data collection took place from April 4 to April 30, 2024.

The questionnaire includes an introduction, screening questions, respondent profile data, instructions, definitions, and 35 core questions on chatbot usage, rated on a 1-7 Likert scale. Each latent variable is measured by several indicators to ensure an accurate representation of the underlying constructs. Details of indicators for each variable can be seen in Table 3, Table 4, and Table 5. Validity is assessed through tests such as Outer Loading, Average Variance Extracted (AVE), Fornell-Larcker Criterion, Cross Loading, and Heterotrait-Monotrait Ratio (HTMT), with data available on request. Reliability is evaluated using Composite Reliability (CR) and Cronbach's Alpha, both of which must exceed 0.7. A variable is valid if factor loading and AVE are ≥ 0.5, and each indicator's outer loading is > 0.6 (Hair et al. 2018; Chin et al. 1998). The measurement model is tested using SmartPLS 4 software and used PLS-SEM method. Consistent with the approach outlined by Hair et al. (2012), the significance of all paths was evaluated using 5000 bootstrap, samples significance level 0.050% to estimate the statistical significance of path coefficients.

As highlighted by Trivedi (2019), information quality is influenced by three key factors: timeliness, accuracy, and relevance. Furthermore, Jiang et al. (2022) emphasize that for chatbots to foster customer satisfaction, they must exhibit openness, responsiveness, and active communication with customers. By delivering timely, accurate, and relevant information while maintaining an open, responsive, and engaging communication style, chatbots can effectively enhance customer satisfaction levels. Positive emotions are essential for enhancing customer experiences, as highlighted by Huang et al. (2013).

H1a: The information quality provided by the chatbot service will positively influence customer satisfaction in the company.

H1b: The information quality provided by the chatbot service will positively influence customers' positive emotions in the company.

According to Cheng (2014a), users pay significant attention to system quality when using chatbots. It is also mentioned that system compatibility and quality can lead to student satisfaction. Additionally, research suggests that system quality has a positive relationship with behavioral intention to use and user satisfaction related to the use of learning systems (Chen, 2015). Emotions are a critical element that influences consumers' evaluations of services (Dai et al. 2015). When someone is in a positive emotional state, they tend to be more risk-averse compared to individuals in a neutral mood (Wyer & Srull, 2015).

H2a: The system quality of the chatbot service will positively influence customer satisfaction.

H2b: The system quality of the chatbot service will positively influence customers' positive emotions.

SERQ comprises responsiveness, assurance, and empathy. Responsiveness indicates how quickly service providers deliver services or responses to customers, Empathy refers to the system's ability to understand customer needs and prioritize customer interests and Assurance explains how the information system can resolve issues and maintain professional communication (Gorla et al. 2010). High-quality service not only enhances customer satisfaction and loyalty but also helps improve a business's market position and profitability (Dai et al. 2015). Service quality, as part of the cognitive evaluation, is an important aspect influencing consumers' positive emotions (Brady & Cronin, 2001). McLean (2018) states that the customer experience can be determined by both customer satisfaction and positive emotions.

H3a: The service quality of the chatbot will positively influence customer satisfaction.

H3b: The service quality of the chatbot will positively influence customers' positive emotions.

Jiang et al.'s (2022) research says that customer engagement on social media (learning, sharing, advocating, socializing, and co-developing) is a result of satisfaction with a company's chatbot services. Learning on social media can be understood as gaining knowledge or information from other users' experiences. Customers who use an organization's chatbot services also share (sharing) relevant information and experiences related to chatbot usage, contributing to knowledge creation within the social media community. Advocating activities, in the context of chatbot services on social media, reflect customers' active interactions in providing positive recommendations about using those services to others (Jiang et al. 2022). When customers are satisfied with the products or services they receive, they tend to have intentions to reuse the products and recommend them to others (Cheng et al. 2019; Priporas et al. 2017). Non-transactional interactions, or socializing, in the chatbot service context, refer to customer interactions not focused on transactions or purchases. Customer satisfaction can drive more active engagement, both in interacting with company-provided content and with fellow users (Majeed et al. 2022). Consumers not only receive products and services from companies but can also act as partners in creating new value (Wang & Lee, 2020).

H4a-e: Customer satisfaction with chatbot services will positively influence learning, sharing, advocating, socializing, and co-developing activities on social media.

Previous research has shown that there is a link between content characteristics and engagement behaviors on social media. The findings suggest that emotional responses might play a mediating role in this relationship (Schreiner et al. 2019). The positive emotions arising from brand interactions on social media enhance sharing behaviors among consumers on social media platforms (Harrigan et al. 2019). Positive emotions significantly impact consumers' electronic word-of-mouth (eWOM) behavior, especially in terms of their intention to provide reviews or recommendations on social networking sites (SNSs) and review sites (Liu et al. 2021). According to Saleem & Iglesias (2019), when in a mild/moderate positive mood, users are motivated to engage in socializing activities such as liking, commenting, and sharing content on social media as a way to maintain or enhance their positive mood. Consumers who experience positive emotions during shopping activities tend to become fully engaged and immersed in those activities, which in turn can result in a positive and more enjoyable experience (McLean et al. 2018). Zheng et al (2024) suggest that carefully balanced emotional expression in posts is key to maximizing user engagement in the tourism sector.

H5a-e: Customer positive emotion towards chatbot services will positively influence learning, sharing, advocating, socializing, and co-developing activities on social media

In the study by Jiang et al. (2022), a positive influence of chatbot services on customer social media engagement was found, mediated by customer satisfaction. Previous studies, such as the one conducted by Huang et al. (2013), have shown that positive emotion is a crucial factor in enhancing user experience in technological environments. According to McLean (2018), the customer experience comprises positive emotion and customer satisfaction, which can influence the frequency of technology usage.

H6a-b: Customer satisfaction and positive emotion mediate the positive relationship between information system quality and customer engagement on social media.

RESULTS

Descriptive Statistics

The research sample profile is presented in Table 2, providing details on the respondents' demographics. The characteristics outlined include gender, age, race/ethnicity, monthly household income, highest education level, and companies' chatbot services. Out of the 305 respondents who completed the questionnaire, the majority were female, with 180 respondents (58.6% of the total). The remaining 127 respondents (41.4%) were male. Regarding age distribution, the study sample was dominated by respondents aged 16–27 years, constituting 59.9% or 184 individuals from the total respondent pool. Additionally, Regarding their ethnicity, the majority (44.6%% or 137 respondents) comes from Java. Meanwhile, Sunda has the second largest number of respondents (26.4% or 81 respondents) while 69 respondents (22.48%) come from outside Java. The highest level of education attained by the majority (54.7% or 168 respondents) was a Bachelor's or Strata-1 degree. Regarding monthly expenditures, 49.2% (151 respondents) had expenses ranging between Rp 1.2 million – Rp 6 million while the second-largest group (32.6% or 100 respondents) had monthly expenses between IDR532,000 – 1.2 million.

Furthermore, Table 3 contains the distribution of marketplace chatbots that are most often used by respondents. Respondents had the option to select multiple chatbots they had previously used for communication purposes. Shopee ranks first with 237 respondents (41.1%), followed by Tokopedia with 163 respondents (28.3%), Lazada with 80 respondents (13.9%), Blibli with 52 respondents (9%), Bukalapak with 41 respondents (7.1%), and others had 3 respondents (0.6%).

Table 2. Research sample demographic profile

Measure	Items	Frequency	Percentage
Gender	Male	127	41.4%
	Female	180	58.6%
Age	16 – 27	184	59.9%
	28 – 43	117	38.1%
	44 – 59	5	1.6%
	60 – 78	1	0.3%
Race/ ethnicity	Jawa	137	44.6%
	Sunda	81	26.4%
	Melayu	1	0.3%
	Betawi	19	6.2%
	Outside Java	69	22.48%
Monthly expense (IDR)	< 354,000	4	1.3%
	354,000 – 532,000	14	4.6%
	532,000 – 1,200,000	100	32.6%
	1,200,000– 6,000,000	151	49.2%
	>6,000,000	38	12.4%
Educational level	Junior high school	1	0.3%
	Senior high school	80	26.1%
	Associate degree	39	12.7%
	Bachelor	168	54.7%
	Graduate studies	17	5.5%
	Doctorate studies	2	0.7%
Total		305	100%

Table 3. Distribution of marketplace chatbot used by respondents

Marketplace Chatbot	Frequency	Percentage
SHOPEE	237	41.1%
Tokopedia	163	28.3%
Blibli	52	9.0%
Bukalapak	41	7.1%
Lazada	80	13.9%
Others	3	0.6%

The demographic profile and platform preference data suggest that younger, middle-income, and educated users, especially females, are more likely to engage in marketplace platforms via social media. Java, being the most populous island in Indonesia, likely represents a large segment of the online consumer market, making it a key target for social media engagement. Shopee and Tokopedia are the dominant platforms for chatbot use, indicating their strong market presence and potential influence on customer interactions.

Measurement Model

The independent variables in Table 4 consist of Information Quality (INQ), System Quality (SYQ), and Service Quality (SEQ). Table 5 presents Customer Satisfaction (SAT) and Positive Emotions (PSE) as mediating variables, while Table 6 explains the dependent variables, including Learning (LN), Sharing (SR), Advocating (AC), Socializing (SL), and Co-Developing (CD). The outer model is considered acceptable when the outer loading value for each indicator is greater than 0.6. Additionally, Cronbach's alpha values for all constructs exceed 0.7, indicating acceptable. The AVE value is considered acceptable when > 0.5, and composite reliability is accepted if the value exceeds > 0.7. The data in Tables 4, 5, and 6 show that the outer loading, Cronbach's Alpha, Composite Reliability, and AVE values for each indicator and variable meet these criteria, confirming their acceptability.

Tables 5 and 6 show that all outer loadings exceed 0.6, confirming that the indicators and model are both reliable and valid. Key indicators such as SAT 4 (0.868), PSE 5 (0.878), LN1 (0.892), SR2 (0.924), AC3 (0.935), SL1 (0.953), and CD3 (0.947) have the highest values, highlighting their strong validity in measuring their respective variables. The AVE for customer satisfaction is 0.712, meaning 71.2% of the variance in its indicators is explained by the variable. All AVE and outer loading values meet the required standards, confirming convergence validity. Moreover, the reliability test shows that all variables meet the criteria of CR > 0.7 and CA > 0.7, ensuring consistency and reliability. Thus, both Cronbach's alpha and composite reliability values for all variables meet the criteria. As shown in Table 7, based on the Fornell-Larcker criterion, the square root of the AVE for each latent construct should be higher than its correlations with any other latent construct. This demonstrates that the model has strong discriminant validity, meaning that each latent variable is unique and adequately measured by its indicators, ensuring that the constructs are not overlapping or measuring the same concept.

Table 4. Factor loading, composite reliability, and AVE of independent variables

	Items Measuring Marketplace Chatbot	Outer Loading
	Information Quality - Wei et al. (2022): CA = 0.810; CR = 0.832; AVE = 0.726	
INQ1	The e-commerce chatbot provides the precise information I need.	0.913
INQ2	The e-commerce chatbot provides me with sufficient information.	0.872
INQ3	The e-commerce chatbot provides up-to-date information.	0.764
	System Quality - Trivedi (2019): CA = 0.764; CR = 0.788; AVE = 0.578	
SYQ1	I find it easy to become skillful at using (brand) chatbots	0.743
SYQ2	I believe that (brand) chatbots are easy to use	0.726
SYQ3	Using (brand) chatbots requires minimal mental effort and is quite quick in response	0.783
SYQ4	chatbots from (brand) are reliable	0.787
	Service Quality - Wei et al. (2022): CA = 0.744; CR = 0.796; AVE = 0.661	
SEQ1	When I have a problem, the e-commerce chatbot service shows a genuine interest in solving it.	0.87
SEQ2	The e-commerce chatbot service provides individualized attention.	0.882
SEQ3	I feel safe in my interactions with this e-commerce chatbot in terms of security and privacy protection.	0.670

Table 5. Factor loading, composite reliability, AVE of mediating variables

	Items Measuring Marketplace Chatbot	Outer Loading
	Satisfaction - Jiang et al. (2022): CA = 0.898; CR = 0.899; AVE = 0.712	
SAT1	I am satisfied with the chatbot service agent.	0.867
SAT2	I am content with the chatbot service agent.	0.825
SAT3	The chatbot service agent did a good job.	0.822
SAT4	The chatbot service agent did what I expected.	0.868
SAT5	I am happy with the chatbot service agent.	0.833
	Positive Emotions - McLean et al. (2018): CA = 0.909; CR = 0.910; AVE = 0.733	
PSE1	Confident	0.863
PSE2	Sure	0.841
PSE3	Optimistic	0.844
PSE4	Relieved	0.855
PSE5	Satisfied	0.878

Table 6. Factor loading, composite reliability, AVE Dependent Variables

	Items Measuring Marketplace Chatbot	Outer Loading
	Learning - Jiang et al. (2022): CA = 0.809; CR = 0.821; AVE = 0.724	
LN1	I would get useful information from other users of this company's chatbot services	0.892
LN2	Get to learn something new or interesting from other users of this company's chatbot services	0.861
LN3	Take the opinions of other users of this company's chatbot services seriously.	0.796
	Sharing - Jiang et al. (2022): CA = 0.907; CR = 0.907; AVE = 0.843	
SR1	Share information about the company's chatbot services with other customers of the company.	0.914
SR2	Share chatbot service agent-related experiences with other customers of the company.	0.924
SR3	Share my opinions about the company's chatbot services with other users.	0.916
	Advocating - Jiang et al. (2022): CA = 0.898; CR = 0.907; AVE = 0.831	
AC1	Tell others who do not already engage with the company how good the company's chatbot services are.	0.868
AC2	Click "Like" for information about the company's chatbot services if the company promotes such information, for instance, on its Facebook page.	0.93
AC3	Click "Like" for this company's chatbot services to talk them up to other customers	0.935
	Socializing - Jiang et al. (2022): CA = 0.944; CR = 0.946; AVE = 0.899	
SL1	Interact with other users of the company's chatbot services.	0.953
SL2	Connect myself to other users of the company's chatbot services	0.943
SL3	Get to know people through talking about the company's chatbot services	0.948
	Co-Developing - Jiang et al. (2022): CA = 0.932; CR = 0.934; AVE = 0.881	
CD1	Interact with other users of the company's chatbot services to discuss how the services can be further improved.	0.935
CD2	Respond to questions or comments of other users of the company's chatbot services.	0.934
CD3	Contribute to the online community that users of the company's chatbot services form by adding useful information.	0.947

Table 6. Fornell-Larcker

	AC	CD	INQ	LN	PSE	SAT	SEQ	SR	SL	SYQ
Advocating (AC)	0.91									
Co-developing (CD)	0.84	0.94								
Information quality (INQ)	0.57	0.56	0.85							
Learning (LN)	0.66	0.67	0.62	0.85						
Positive emotion (PSE)	0.65	0.65	0.74	0.62	0.86					
Satisfaction (SAT)	0.60	0.58	0.83	0.64	0.86	0.84				
Service quality (SEQ)	0.60	0.58	0.75	0.56	0.78	0.82	0.81			
Sharing (SR)	0.76	0.82	0.54	0.70	0.60	0.54	0.49	0.92		
Socializing (SL)	0.44	0.54	0.32	0.34	0.33	0.30	0.24	0.46	0.95	
System quality (SYQ)	0.50	0.41	0.71	0.56	0.66	0.69	0.69	0.41	0.14	0.76

The Structural Model And Hypothesis Testing

Hypotheses in this study were tested through p-value analysis in the structural model, with the criterion that a hypothesis is accepted if the p-value is less than < 0.05. In the one-tailed test, if the T statistics value is > 1.645, there is a positive effect, and if it is < 1.645, there is a negative effect. The analysis reveals that the information quality provided by chatbots significantly influences customer satisfaction and positive emotions. With a t-value of 9.039, the study shows a strong statistical significance, indicating that better information quality from chatbots leads to higher customer satisfaction, aligning with the findings of Nguyen et al. (2021) and Luo et al. (2023). Additionally, a t-value of 4.913 supports the significant impact of chatbot information quality on generating positive emotions, emphasizing the importance of relevant and complete information in enhancing customer experience (Hsu & Tsou, 2011; Ponder et al. 2016).

Based on the analysis, the t-value of 1.476 for the relationship between chatbot system quality and customer satisfaction is below the standard threshold of 1.645, indicating no significant positive impact. This finding aligns with Nguyen et al. (2021) and Luo et al. (2023), who found that certain aspects of system quality, such as adaptability, availability, and response time, do not significantly influence customer satisfaction in China and Hong Kong. In contrast, a t-value of 2.25 suggests a statistically significant positive relationship between system quality and positive customer emotions. This result supports Hsu & Tsou (2011) and Yuan et al. (2020), who emphasize that high system quality, particularly in website design and mobile payment platforms, fosters positive emotions and user trust.

The analysis reveals a t-value of 8.1 for the relationship between chatbot service quality and customer satisfaction, significantly exceeding the threshold of 1.645 and supporting hypothesis H3a. This indicates that high-quality chatbot service positively impacts customer satisfaction, aligning with findings by Nguyen et al. (2021) and Luo et al. (2023), who highlighted the importance of pleasure and assurance in service quality. Additionally, a t-value of 7.409 supports hypothesis H3b, showing that chatbot service quality significantly enhances positive customer emotions, consistent with Hsu & Tsou (2011), who found that service quality positively impacts positive emotions. Enhancing chatbot service quality not only improves customer experiences but also positively influences their perceptions of the service (Mattila & Enz, 2002; Guo et al. 2024).

The analysis indicates that customer satisfaction with chatbot services significantly influences learning activities on social media, with a t-value of 4.167 surpassing the standard threshold of 1.645. This supports hypothesis H4a, suggesting that satisfied customers are more likely to engage in social media learning activities, aligning with findings by Jiang et al. (2022). However, the hypothesis for H4b, H4c, H4d, and H4e were rejected, as indicated by a t-value of 0.766, 1.546, 0.404, and 0.66 falling below the threshold. The findings by Xie et al. (2024) highlight that the use of humor in chatbot interactions can either enhance or detract from customer satisfaction depending on the context, suggesting that emotional attachment plays a crucial role in driving social media engagement and co-developing activities (Guo et al. 2023).

The analysis reveals that positive emotions experienced by customers towards chatbot services significantly influence various social media activities, supporting multiple hypotheses. With a t-value above the threshold, all the hypotheses H5a-H5e were supported. This aligns with the findings of Saleem & Iglesias (2019), that customers in a positive mood state engage more actively in selective content consumption and participation. Additionally, they found that customers in a highly positive affective state are more likely to co-create or co-develop content on social media, sharing original content as an expression of their happiness and positive experiences.

Figure 1 shows that the hypotheses H1a, H1b, H2b, H3a, H3b, H4a, and H5a-H5e are accepted, while others are rejected. The result shows that the information quality and service quality of chatbots have a significant positive impact on customer satisfaction and positive emotions. Customer satisfaction with chatbot services positively influences learning activities on social media, while positive emotions lead to increased engagement in all types of social media activities. In a competitive marketplace, intense customer interaction through chatbots plays a key role in creating a satisfying shopping experience. Good chatbot information and service quality can foster customer satisfaction and positive emotions, encouraging more social media engagement.

Based on demographic data and data analysis, we can see that younger, educated, middle-income users, especially females, represent a key segment for social media engagement with marketplace platforms. These users, concentrated in populous regions like Java, interact frequently with popular platforms like Shopee and Tokopedia. When users experience satisfaction through accurate and reliable information, they are more likely to engage in learning activities and share their experiences on social media. Likewise, positive emotional connections, driven by excellent service, encourage users to advocate for the brand and co-create content, such as feedback and ideas, on social platforms.

Information quality has the strongest effect on satisfaction, supporting H1a and H4a, with the highest path coefficient. Information quality has the strongest effect on Satisfaction, supporting hypothesis H1a. Marketplace companies can enhance customer learning by ensuring that their chatbots consistently provide accurate, relevant, and timely information. By improving the quality of information delivered through chatbots, companies can foster greater customer engagement, encourage users to seek and learn new information on social media, and ultimately improve overall satisfaction. This, in turn, can lead to more positive interactions and stronger customer loyalty.

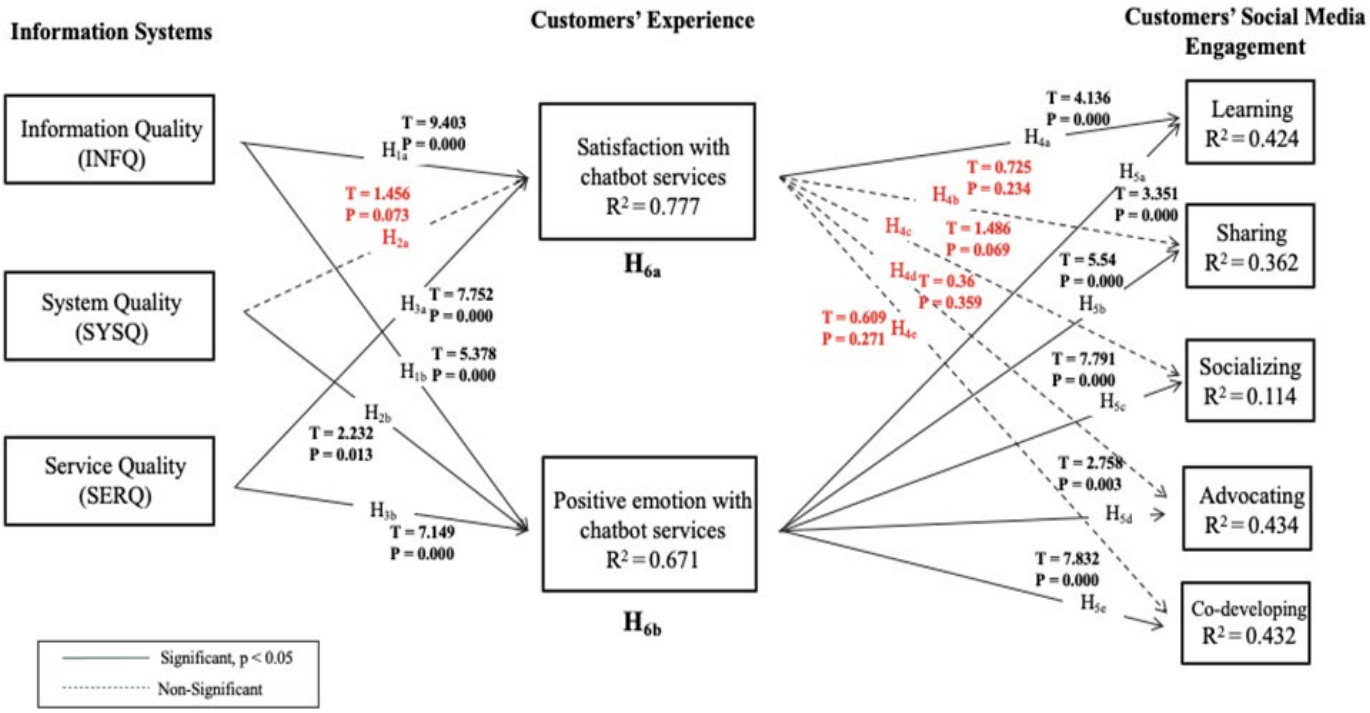

Figure 1. The conceptual model

The variables Positive Emotion, Service Quality, and Co-Developing have the highest path coefficients, supporting H3b and H5e. The most significant indicator is a chatbot that provides services aligned with customer needs. Companies must ensure that their chatbots are capable of delivering relevant and tailored services. An effective chatbot not only answers basic questions but also offers personalized and proactive solutions, fostering positive emotional engagement. Companies should enhance Customer Brand Engagement (CBE) by leveraging and managing their social media followers and building communities. This will make it easier for consumers to learn about the benefits and unique qualities of products (Febrian et al. 2021).

The findings of this study are different from prior research by Jiang et al. (2022), which indicates that Satisfaction positively affects social media engagement activities. This study reveals that only Learning is positively influenced by Satisfaction. This research aims to extend the dimensions investigated by Jiang et al. (2022), who focused on the conversational tone and responsiveness of chatbots. Using additional indicators from Trivedi (2019), including Information Quality, System Quality, and Service Quality. While the results show that Information Quality, System Quality, and Service Quality significantly impact Satisfaction and Positive Emotion, System Quality does not have a significant effect on Satisfaction. The limitation of this study use HTMT measurement standard < 1.

Managerial Implications

The managerial implications of this research suggest several strategies to enhance customer engagement on social media. First, companies can boost social media activity by improving chatbot interactions and service quality, ensuring quick, accurate, and relevant responses to increase customer satisfaction and encourage sharing and interaction online. Second, focusing on improving the information quality, system quality, and overall service quality of chatbots is crucial. Additionally, fostering positive emotional connections through chatbot interactions can motivate customers to engage in learning, sharing, socializing, advocating, and co-developing activities on social media.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The analysis reveals significant relationships between various factors in chatbot interactions and customer engagement on social media platforms. Firstly, it's evident that information quality, system quality, and service quality influence both customer satisfaction and positive emotions. Notably, while system quality doesn't directly impact satisfaction, information quality emerges as the most influential factor, emphasizing the importance of providing accurate and relevant information to users. Service quality, on the other hand, plays a crucial role in fostering positive emotional connections with customers.

Secondly, customer satisfaction emerges as a key driver of learning activities, indicating that satisfied customers are more inclined to engage in learning experiences facilitated by chatbots. However, satisfaction doesn't necessarily correlate with other social media engagement activities like sharing, socializing, advocating, or co-developing, suggesting that meeting user satisfaction alone may not stimulate these actions. Moreover, Positive emotions significantly correlate with all activities in social media engagement. Particularly, the connection between positive emotions and co-developing activities is notably stronger compared to other variables, indicating that emotionally engaged customers are more likely to engage in social media activities such as co-developing.

In essence, these findings underscore the importance of prioritizing information quality and service excellence in chatbot interactions to enhance customer satisfaction, foster positive emotional connections, and drive learning activities. By focusing on these aspects, companies can stimulate customer engagement on social media platforms, ultimately bolstering brand loyalty and customer advocacy.

Recommendations

Future research is needed to understand why system quality does not significantly affect user satisfaction and should explore factors influencing user perceptions of system quality and investigate whether there are moderating or mediating variables that can better explain the relationship between system quality and user satisfaction. Additionally, future research should

pay more attention to respondent age distribution. Broadening the sample scope to include more respondents from the 26-35 age group would provide a more representative insight into the overall marketplace user population, ensuring a broader perspective beyond just reflecting the views of the younger generation (Generation Z).

FUNDING STATEMENT: This research did not receive any specific grant from public, commercial, or not-for-profit funding agencies.

CONFLICTS OF INTEREST: The author declares no conflict of interest.

REFERENCES

Anderson, E. W., Fronell, & Lehmann, D. R. (1994). Customer satisfaction, market share, and profitability: Findings from Sweden. The Journal of Marketing. https://doi.org/10.2307/1252310

Angela, N. L. (2024, February 15). Kemendag ramal transaksi e-commerce di RI tembus Rp 533 trilliun. Kementerian Perdagangan RI. https://www.kemendag.go.id

Bakhshi, N. (2018, February 18). Chatbots point of view. Deloitte. https://www.deloitte.com

Brady, M. K., & Cronin, J. J. (2001). Some new thoughts on conceptualizing perceived service quality: A hierarchical approach. Journal of Marketing. https://doi.org/10.1509/jmkg.65.3.34.18334

Chen, Y. H. (2015). Setting the impact of an information literacy course: Undergraduates' perceptions and use of the university libraries' web portal. Library & Information Science Research. https://doi.org/10.1016/j.lisr.2015.04.002

Cheng, B., Gan, C. C., Imrie, B. C., & Mansori, S. (2019). Service recovery, customer satisfaction and customer loyalty: Evidence from Malaysia's hotel industry. International Journal of Quality and Service Sciences. https://doi.org/10.1108/IJQSS-09-2017-0081

Cheng, Y. M. (2014a). Extending the expectation-confirmation model with quality and flow to explore nurses' continued blended e-learning intention. Information Technology & People. https://doi.org/10.1108/ITP-01-2013-0024

Dai, H., Luo, X., Liao, Q., & Cao, M. (2015). Explaining consumer satisfaction of services: The role of innovativeness and emotion in an electronic mediated environment. Decision Support Systems. http://dx.doi.org/10.1016/j.dss.2014.12.003

Delone, W., & McLean, E. (2003). The Delone and McLean Model of Information Systems Success: A Ten-Year Update. Journal of Management Information Systems. https://doi.org/10.1080/07421222.2003.11045748

Dilmegani, C. (2021, January 25). Top 30 successful chatbots of 2021 & reason for their success. AI Multiple. https://research.aimultiple.com/top-chatbot-success/#industry-specific-chatbots

Foa, E. B., & Foa, U. G. (1980). Resource Theory Social Exchange. Springer MA.

Febrian, A., & Ahluwalia, L. (2021). Investigating the antecedents of consumer brand engagement to luxury brands on social media. Indonesian Journal of Business and Entrepreneurship. https://doi.org/10.17358/ijbe.7.3.245

Gorla, N., Somers, T. M., & Wong, B. (2010). Organizational impact of system quality, information quality, and service quality. The Journal of Strategic Information Systems, 19(3), 207–228. https://doi.org/10.1016/j.jsis.2010.05.001

Greenberg, M. D., Hui, J., & Gerber, E. M. (2013). Crowdfunding: A resource exchange perspective. In CHI EA. Paper presented at the 31st annual CHI conference, Paris: Human Factors in Computing Systems. https://doi.org/10.1145/2468356.2468514

Guo, Y., Li, Y., Liu, D., & Xu, S. X. (2024). Measuring service quality based on customer emotion: An explainable AI approach. Decision Support Systems. https://doi.org/10.1016/j.dss.2023.114051

Harrigan, P., Evers, U., Miles, M., & Daly, T. (2019). Customer engagement and the relationship between involvement, engagement, self-brand connection and brand usage intent. European Journal of Marketing. https://doi.org/10.1016/j.jbusres.2017.11.046

Hsu, H. T. (2011). The effect of website quality on consumer emotional states and repurchase intention. Journal of Business Management. https://academicjournals.org/journal/AJBM/article-full-text-pdf/793264614555

Huang, Y., Backman, S., Backman, K., & Moore, D. (2013). Exploring user acceptance of 3D virtual worlds in travel and tourism marketing. Tourism Management. https://doi.org/10.1016/j.

tourman.2012.09.009

Inbeat.co. (2024, February 20). Engagement rate calculator Instagram. Inbeat. www.inbeat.co

Jiang, H., Cheng, Y., Yang, J., & Gao, S. (2022). AI-powered chatbot communication with customers: Dialogic interactions, satisfaction, engagement, and customer behavior. Computers in Human Behavior. https://doi.org/10.1016/j.chb.2022.107329

Lemke, F., Clark, M., & Wilson, H. (2011). Customer experience quality: An exploration in business and consumer contexts using repertory grid technique. Journal of the Academy of Marketing Science. https://doi.org/10.1007/s11747-010-0219-0

Liu, H., Jayawardhena, C., Osburg, V., Yoganathan, V., & Cartwright, S. (2021). Social sharing of consumption emotion in electronic word of mouth (eWOM): A cross-media perspective. Journal of Business Research. https://doi.org/10.1016/j.jbusres.2021.04.030

Luo, B., Lau, R., & Li, C. (2023). Emotion-regulatory chatbots for enhancing consumer servicing: An interpersonal emotion management approach. Information and Management. https://doi.org/10.1016/j.im.2023.103794

Majeed, M., Asare, C., Fatawu, A., & Abubakari, A. (2022). An analysis of the effects of customer satisfaction and engagement on social media on repurchase intention in the hospitality industry. Cogent Business & Management. https://doi.org/10.1080/23311975.2022.2028331

Mattila, A. S., & Enz, C. A. (2002). The role of emotions in service encounters. Journal of Service Research. https://doi.org/10.1177/1094670502004004004

McLean, G., & Osei-Frimpong, K. (2017). Examining satisfaction with the experience during a live chat service encounter-implications for website providers. Computers in Human Behavior. https://doi.org/10.1016/j.chb.2017.08.005

Nguyen, D. M., Chiu, Y. T. H., & Le, H. D. (2021). Determinants of continuance intention towards banks' chatbot services in Vietnam: A necessity for sustainable development. Sustainability. https://doi.org/10.3390/su13147625

Ponder, N., Holloway, B., & Hansen, J. D. (2016). The mediating effects of customers' intimacy perceptions on the trust-commitment relationship. Journal of Service Marketing. https://doi.org/10.1108/JSM-04-2014-0117

Priporas, C. V., Stylos, N., Vedanthachari, L. N., & Santiwatana, P. (2017). Service quality, satisfaction, and customer loyalty in Airbnb accommodation in Thailand. International Journal of Tourism Research. https://doi.org/10.1002/jtr.2141

Riyanto, G., & Pertiwi, W. (2023, January 17). Pendapatan e-commerce Asia Tenggara tembus Rp 1.480 trilliun Indonesia terbesar. Kompas Tekno. https://tekno.kompas.com

Rohall, D. (2015). Social Psychology Sociological - International Encyclopedia of the Social & Behavioural Sciences. Waveland Press.

Saleem, F. Z., & Iglesias, O. (2020). Exploring the motivation of affect management in fostering social media engagement and related insights for branding. Internet Research. https://doi.org/10.1108/INTR-07-2018-0321

Schreiner, M., Fischer, T., & Riedl, R. (2019). Impact of content characteristics and emotion on behavioral engagement in social media: Literature review and research agenda. Electronic Commerce Research. https://doi.org/10.1007/s10660-019-09353-8

Trivedi, J. (2019). Examining the customer experience of using banking chatbots and its impact on brand love: The moderating role of perceived risk. Journal of Internet Commerce. https://doi.org/10.1080/15332861.2019.1567188

Wang, T., & Lee, F. Y. (2020). Examining customer engagement and brand intimacy in social media context. Journal of Retailing and Consumer Services. https://doi.org/10.1016/j.jretconser.2020.102035

Wei, C. L., Wang, Y. M., Lin, H. H., Wang, Y. S., & Huang, J. L. (2022). Developing and validating a business simulation systems success model in the context of management education. The International Journal of Management Education. https://doi.org/10.1016/j.ijme.2022.100634

Wyer, R. S., & Srull, T. (2015). Towards understanding the role of affect in cognition. Nijmegen: Erlbaum.

Xie, Y., Liang, C., Zhou, P., & Jiang, L. (2024). Exploring the influence mechanism of chatbot-expressed humor on service satisfaction in online customer service. Journal of Retailing and Customer Services. https://doi.org/10.1016/j.jretconser.2023.103599

Yuan, S., Liu, L., Su, B., & Zhang, H. (2020). Determining the antecedents of mobile payment loyalty:

Cognitive and affective perspectives. Electronic Commerce Research and Applications. https://doi.org/10.1016/j.elerap.2020.100971

Zheng, Y., Li, Y., Shi, N., Sun, X., & Pan, Y. (2024). Neither more nor less: Understanding positive emotion of posts and user engagement on tourism social media. Asia Pacific Journal of Tourism Research. https://doi.org/10.1080/10941665.2024.2342366