The Role of Chatbots in Enhancing Customer Experience in Tattoo Studios in Thailand

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Abstract

The integration of chatbot technologies in service industries has expanded rapidly; however, research on their role in creative, high-trust services such as tattoo studios remains limited. This study investigates how chatbot interaction quality influences customer satisfaction, trust, and loyalty in the Thai tattoo industry. A quantitative survey was conducted with 408 customers who interacted with tattoo studios via LINE, Instagram, or Facebook Messenger. The research framework integrates SERVQUAL, the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT). Data were analyzed using descriptive statistics, reliability testing, correlation analysis, and multiple regression. The findings indicate that chatbot interaction quality significantly predicts customer satisfaction ($R^2 = .239$, $p < .001$) and loyalty intentions ($R^2 = .250$, $p < .001$). Information accuracy emerged as the strongest determinant of both satisfaction and loyalty, while hygiene assurance significantly influenced perceptions of studio professionalism. Chatbot-enabled booking systems also improved operational efficiency ($\beta = .304$, $p < .001$), and automated aftercare guidance enhanced compliance ($\beta = .584$, $p < .001$). Preference for human interaction did not reduce adoption; instead, customers viewed chatbots as an efficient gateway to human consultation. The study supports adopting a hybrid AI–human service model to enhance operational efficiency while maintaining professional trust in creative service contexts.

Keywords: *Chatbots, Customer Experience, Customer Satisfaction, Service Quality, Loyalty Intention, Thailand*

1. Introduction

The service sector in Thailand has experienced rapid growth and professionalization over the last decade, particularly as businesses integrate digital tools to support operational efficiency and real-time communication. Among the services increasingly sought by both locals and tourists is tattooing, which has expanded significantly as tattoos have transitioned from traditional spiritual symbols, such as *Sak Yant*, to modern lifestyle expressions and artistic identities (Şehirli, 2024). As Thailand moves towards a digital-first economy under the "Thailand 4.0" policy, small and medium enterprises (SMEs) in the creative sector are compelled to integrate digital technologies to remain competitive. According to recent digital trends, Thailand ranks among the highest globally in social media penetration and mobile messaging engagement, particularly on platforms such as LINE, Instagram, and Facebook Messenger. Consequently, the expectation for real-time interaction and 24/7 service availability has become a standard consumer demand in the Thai market (Venkatesh et al., 2003).

Despite this digital shift, the tattoo industry, a high-involvement service that requires significant emotional trust and technical precision, faces a critical "communication gap." Potential clients often require immediate, detailed information on hygiene standards, artist portfolios, and complex pricing structures before committing to a session. Traditional manual inquiry management typically results in administrative delays, lead leakage, and lower customer satisfaction (Parasuraman et al., 1988). While large-scale enterprises have successfully adopted Artificial Intelligence (AI) and chatbots to improve responsiveness and information clarity, their application in specialized artistic services, such as tattoo studios, remains relatively new and underexplored in Thailand (Lin et al., 2024).

The primary challenge lies in balancing the efficiency of automation with the personalized "human touch" that artistic services demand (Lemon & Verhoef, 2016). There is currently a lack of empirical research exploring how AI-driven assistants influence the overall customer experience and trust within the unique

cultural context of the Thai tattoo industry. This research, therefore, seeks to address this gap by investigating the impact of chatbot interaction quality on customer satisfaction, trust, and loyalty. By expanding the study's scope to include tattoo studios across Thailand, this paper aims to provide a comprehensive understanding of how digital tools can be leveraged to enhance business-client relationships and ensure sustainable growth for creative SMEs in the digital age.

This study extends service quality and technology acceptance literature by integrating SERVQUAL, TAM, and UTAUT within a high-involvement, identity-based creative service context. Unlike prior chatbot research that has primarily focused on retail or hospitality settings, this study examines digital service mediation in a trust-sensitive environment where hygiene assurance and artistic consultation are central to customer decision-making. By identifying information accuracy, hygiene assurance, and communication clarity as primary drivers of professional trust and loyalty, this research contributes to understanding how automation can coexist with human-led creative expertise in creative service industries.

2. Objectives

1. To evaluate the influence of chatbot interactions on customer satisfaction, trust, and loyalty.
2. To assess the effectiveness of chatbot-enabled booking and aftercare systems on service efficiency.
3. To identify customer perceptions, attitudes, and barriers toward chatbot adoption in tattoo services.
4. To provide empirical recommendations for chatbot and AI implementation in tattoo studios based on quantitative customer survey findings.

To address the research objectives, this study formulates a set of hypotheses grounded in established theories of service quality and technology acceptance. Specifically, Objectives 1 and 2 are operationalized as hypotheses that examine the effects of chatbot interaction quality on customer satisfaction, trust, loyalty, operational efficiency, and aftercare compliance (H1–H6). Objective 3 is addressed through hypotheses exploring customer perceptions, adoption barriers, and preferences for human versus automated interaction (H7–H8). Finally, Objective 4 is supported by examining the moderating effects of demographic factors on these relationships, as articulated in Hypothesis 9 (H9). Together, these hypotheses provide a structured empirical framework for achieving the study's objectives.

The findings, therefore, offer both theoretical advancement in digital service research and practical implications for AI-assisted service design in SMEs operating in creative sectors.

3. Materials and Methods

This study employed a quantitative research design and a survey to examine the role of chatbots and AI assistants in enhancing the customer experience in tattoo studios in Thailand. Quantitative survey methods are appropriate for investigating relationships among service quality, customer perceptions, and behavioral outcomes in technology-enabled service contexts (Davis, 1989; Parasuraman, Zeithaml, & Berry, 1988).

This study adopts a perception-based explanatory design rather than an experimental system-comparison approach, consistent with prior customer experience research in digital service contexts (Ashfaq et al., 2020; Gnewuch et al., 2022).

3.1 Population and Sample

The target population consisted of customers aged 18 and above who had interacted with tattoo studios in Thailand via digital platforms such as LINE, Instagram, and Facebook Messenger. As the total population of tattoo customers is unknown and continually changing, a nonprobability sampling approach

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was adopted. Convenience and snowball sampling techniques were employed, as used in service and technology adoption research where customer lists are unavailable (Malhotra, 2010).

To enhance representativeness, data were collected from customers of multiple tattoo studios across Thailand. A minimum sample size of 400 respondents was adopted, consistent with commonly accepted guidelines for large populations at a 95% confidence level (Yamane, 1967). Data collection was conducted between December 2025 and January 2026.

3.2 Research Instrument and Data Collection

Data were collected using a structured questionnaire designed to measure customer perceptions and experiences of chatbot- and AI-assisted interactions in tattoo studios. The questionnaire employed a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), a widely used scale in customer experience and technology adoption studies (Venkatesh et al., 2003).

The questionnaire comprised sections measuring chatbot interaction quality, customer perceptions and adoption barriers, customer experience outcomes (satisfaction, trust, loyalty, and operational efficiency), and demographic characteristics. Measurement items were adapted from established theoretical frameworks, including SERVQUAL for service quality assessment (Parasuraman et al., 1988), the Technology Acceptance Model (TAM) (Davis, 1989), and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003).

Content validity was assessed through expert review using the Index of Item Objective Congruence (IOC), conducted by three subject-matter experts. A pilot test was subsequently conducted to assess the internal consistency of the measurement scales prior to full-scale data collection. The survey was distributed both online via Google Forms and in a paper-based format at participating tattoo studios. Participation in the study was voluntary.

3.3 Data Analysis

The collected data were analyzed using a statistical software package. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondent demographics and key study variables. Reliability was assessed using Cronbach's Alpha to evaluate the internal consistency of the measurement scales (Hair et al., 2019).

To test the proposed hypotheses, multiple regression analysis was employed to examine the relationships between chatbot interaction quality, customer perceptions, and customer experience outcomes. In addition, moderated multiple regression analysis was conducted to investigate the moderating effects of demographic factors, including age, gender, and tattoo experience, on the relationships between chatbot interaction quality and customer perceptions (Aiken & West, 1991).

3.4 Chatbot System Context

The chatbots examined in this study primarily consisted of platform-integrated automated response systems deployed via LINE Official Accounts, Instagram Direct Message automation, and Facebook Messenger. These systems were predominantly rule-based and semi-automated, utilizing predefined response flows and keyword-triggered scripts rather than fully generative AI models. While some studios integrated AI-enhanced recommendation features, no fully autonomous generative AI chatbot was standardized across participating studios. Therefore, this study focuses on customer perceptions of chatbot-assisted communication rather than on evaluating a single standardized AI architecture.

4. Results and Discussion

4.1 Demographic Profile of Respondents

This section outlines the demographic profile of the 408 respondents who provided valid data for this study. The analysis focuses on four key areas: age, gender, previous tattoo experience, and familiarity with chatbot technology. This background information provides the context for understanding the subsequent findings on customer perceptions and service outcomes.

4.1.1 Age Group

As shown in Table 1, the most significant proportion of respondents was aged 18–25 years (40.4%), followed closely by those aged 26–35 years (39.5%). Respondents aged 36–45 years accounted for 14.2%, while those aged 46 years or older represented 5.9% of the sample. This indicates that the sample was primarily composed of young adults, who are also the main users of digital communication platforms in tattoo services.

Table 1 Demographic Characteristics of the Respondents (n = 408)

Demographic Variable	Sample (n = 408)
Age Group	
18-25 years	40.4% (165)
26-35 years	39.5% (161)
36-45 years	14.2% (58)
46 or older	5.9% (24)
Gender	
Male	41.4% (169)
Female	44.4% (181)
LGBT+/Prefer not to say	14.2% (58)
Tattoo Experience	
This is my first tattoo.	33.6% (137)
I have 2-3 tattoos.	32.4% (132)
I have 4 or more tattoos.	26.5% (108)
No tattoo (Inquiry only)	7.6% (31)
Experience using service chatbots	
Frequently (More than once a week)	36.8% (150)
Occasionally (Less than once a month)	46.6% (190)
Rarely or never	16.7% (68)

4.1.2 Gender

Regarding gender distribution, 44.4% of respondents identified as female, 41.4% as male, and 14.2% identified as LGBTQ+ or preferred not to disclose their gender (Table 2). This reflects a relatively balanced gender representation in the study.

4.1.3 Tattoo Experience

In terms of tattoo experience (Table 3), 33.6% of respondents indicated that it was their first tattoo, while 32.4% reported having 2–3 tattoos, and 26.5% had four or more tattoos. A smaller proportion (7.6%) reported that they did not yet have a tattoo but had interacted with a tattoo studio chatbot for inquiry purposes.

4.1.4 Experience Using Service Chatbots

As shown in Table 4, 46.6% of respondents reported using service chatbots occasionally, 36.8% reported using them frequently, and 16.7% reported rarely or never using them. This suggests that most respondents had prior experience with chatbot-based services.

4.2 Descriptive Statistics of Research Variables

This section summarizes respondents' perceptions of the main research variables. Mean scores (M) and standard deviations (SD) were calculated to describe perceptions of chatbot interaction quality, booking convenience, and customer perceptions, as well as overall experience outcomes. Overall, the results indicate a relatively high level of agreement among respondents, reflecting generally positive perceptions of AI-assisted services in the tattoo industry.

Table 2 Mean and Standard Deviation of Research Variables (n = 408)

Variable Categories	Mean (*M*)	Std. Deviation (*SD*)	Interpretation
Chatbot Interaction Quality			
Responsiveness	4.57	.59	Very High
Information Accuracy	4.35	.66	High
Professional and Respectful Tone	4.36	.66	High
Hygiene and Safety Information	4.30	.73	High
Booking and Information Clarity			
Booking Convenience	4.34	.66	High
Price and Procedure Clarity	4.22	.71	High
Customer Perceptions & Barriers			
Perceived Ease of Use	4.34	.66	
Perceived Usefulness	4.20	.71	High
Trust in Data Confidentiality	4.13	.76	High
Preference for Human Interaction	4.21	.71	High
Concerns over Complex Requests	4.09	.71	High
Customer Experience Outcomes			
Overall Communication Satisfaction	4.43	.64	High
Perceived Studio Professionalism	4.28	.67	High
Loyalty and Recommendation Intent	4.29	.65	High
Future Usage Intent	4.27	.66	High
Operational Efficiency (Booking)	4.34	.63	High

4.2.1 Chatbot Interaction Quality

The analysis of chatbot interaction quality indicates that respondents held a very positive view of their digital service encounters. Among the dimensions assessed, responsiveness was the highest-rated attribute (M = 4.57, SD = .59), indicating that the system was perceived as providing immediate and efficient responses to customer inquiries. The professional and respectful tone of the chatbot was also a significant strength, receiving a high mean score of 4.36 (*SD* = .66). Furthermore, the accuracy and consistency of the information provided by the chatbot were rated at 4.35 (SD = .66), suggesting that customers found the details

regarding studio policies and pricing reliable. Finally, the chatbot's ability to provide clear, credible information on hygiene and safety protocols achieved a high mean score of 4.30 (SD = .73). This result is significant in the context of the tattoo industry, as it indicates that the AI assistant effectively provides the reassurance customers require regarding sterilization and safety standards.

4.2.2 Booking Convenience and Information Clarity

Respondents expressed a clear preference for the convenience offered by automated booking systems. The ease of scheduling through the chatbot received a high rating (M = 4.34, SD = .66), while the transparency of pricing and procedures followed closely (M = 4.22, SD = .71). These scores indicate that chatbots effectively streamline the pre-service stage, making information access and appointment setting more efficient than traditional methods.

4.2.3 Customer Perceptions and Adoption Barriers

The analysis shows high scores for both Ease of Use (M = 4.34) and Perceived Usefulness (M = 4.20), aligning with the core tenets of technology acceptance. While trust in data security was positive (M = 4.13), the results highlight a persistent preference for human interaction (M = 4.21). Customers also acknowledged certain limitations, particularly the chatbot's ability to interpret complex or highly customized design details (M = 4.09), suggesting that human expertise remains essential for the creative aspects of tattooing.

4.2.4 Customer Experience Outcomes

Final service outcomes were evaluated favorably across the board. Overall satisfaction was notably high (M = 4.43), and the interaction appears to have a positive spillover effect on the studio's perceived professionalism (M = 4.28). Intention to recommend the studio (M = 4.29) and return for future bookings (M = 4.27) further confirm that chatbot integration successfully enhances the overall customer journey in the Thai tattoo industry.

4.3 Reliability Analysis

To ensure the internal consistency of the measurement scales used in this study, reliability was assessed using Cronbach's Alpha. According to academic standards, a Cronbach's Alpha value greater than .70 indicates good reliability, while values between .60 and .70 are considered acceptable for research in social sciences. The results of the reliability testing for each construct are summarized in Table 3 below:

Table 3 Reliability Analysis of Measurement Scales (n = 408)

Measurement Scales	Number of Items	Cronbach's Alpha	Interpretation
Chatbot Interaction Quality	4	.776	Good
Booking Convenience	2	.655	Acceptable
Customer Perceptions and Adoption Barriers	5	.758	Good
Customer Satisfaction and Trust	4	.742	Good
Customer Loyalty	2	.695	Acceptable
Aftercare Support and Efficiency	3	.652	Acceptable

As shown in Table 3, the Chatbot Interaction Quality scale achieved a Cronbach's Alpha of .776, indicating high consistency among its items. The scales for Customer Perceptions, Adoption Barriers, and Customer Satisfaction and Trust also demonstrated solid reliability, with alpha values of .758 and .742, respectively. While the scales for Booking Convenience, Customer Loyalty, and Aftercare Support showed slightly lower alpha values (ranging from .65 to .69), they remain within the acceptable range for behavioral research, especially given their limited number of items. Overall, these results confirm that the measurement instruments used in this study are reliable and provide a stable basis for subsequent hypothesis testing.

4.4 Correlation Analysis

Pearson correlation analysis was performed to examine the relationships between Chatbot Interaction Quality, Customer Perceptions, and Experience Outcomes. The results indicate that all primary variables are positively and significantly correlated at the .01 level ($p < .01$), suggesting a consistent relationship across the digital service journey.

Table 4 Inter-Correlations Among Primary Research Variables (n = 408)

Variables	1	2	3	4	5	6
1. Interaction Quality	1					
2. Perceived Usefulness	.505**	1				
3. Satisfaction	.488**	.584**	1			
4. Trust in Studio	.467**	.424**	.502**	1		
5. Loyalty Intent	.500**	.421**	.484**	.421**	1	
6. Operational Efficiency	.355**	.441**	.384**	.384**	.484**	1

Note: *** Correlation is significant at the 0.01 level (2-tailed).*

The correlation results in Table 4 provide several insights:

4.4.1 Relationship with Interaction Quality

Chatbot Interaction Quality (encompassing responsiveness, accuracy, and tone) shows a strong positive correlation with Loyalty Intent ($r = .500$, $p < .01$) and Overall Satisfaction ($r = .488$, $p < .01$). This suggests that as the quality of the chatbot interaction improves, customers are more likely to be satisfied and intend to reuse the service.

4.4.2 Perceived Usefulness and Satisfaction

There is a significant positive relationship between Perceived Usefulness and Customer Satisfaction ($r = .584$, $p < .01$). This indicates that when customers find the chatbot helpful in managing their service needs, their overall satisfaction with the experience increases significantly.

4.4.3 Trust and Professionalism

Trust in the studio's professionalism is positively correlated with all chatbot quality dimensions. Specifically, the correlation with the chatbot's ability to provide hygiene and safety information suggests that the AI assistant plays a key role in establishing studio credibility before the physical service begins.

4.4.4 Operational Efficiency

Operational Efficiency (reduced booking delays) is most strongly correlated with Loyalty Intent ($r = .484$, $p < .01$). This implies that the time-saving aspect of the chatbot is a major driver in a customer's decision to recommend or return to the studio.

4.5 Hypothesis Testing

This section details the results of the hypothesis testing through multiple regression analysis. The study examined the impact of Chatbot Interaction Quality, comprising Responsiveness, Accuracy, Hygiene Assurance, and Professional Tone, on three key outcomes: Service Experience, Perceived Professionalism, and Loyalty Intentions.

4.5.1 Regression (H1–H8)

Multiple regression analysis was employed to examine the direct relationships between chatbot interaction quality, customer perceptions, and various experience outcomes. Table 5 presents the summary of regression results for Hypotheses 1, 2, and 3, examining the effects of chatbot interaction quality on service experience, perceived studio professionalism, and loyalty intentions. The analysis is organized into thematic areas corresponding to the research objectives and the testing of hypotheses H1–H8.

Table 5 Summary of Multiple Regression Results for Hypotheses 1, 2, and 3

Predictor Variables	H1: Service Experience (Beta)	H2: Professionalism (Beta)	H3: Loyalty Intent (Beta)
Responsiveness	.189**	.102	.011
Accuracy of Information	.140*	.181**	.305***
Hygiene Assurance	.130*	.272***	.159**
Professional Tone	.164**	.025	.133*
Model Statistics			
R^2	.239	.218	.250
F	31.340***	27.787***	33.211***
Conclusion	Supported	Partially Supported	Supported

Note: *$p < .05$, **$p < .01$, ***$p < .001$

4.5.1.1 Analysis of H1, H2, and H3: Chatbot Interaction Quality and Key Outcomes

This section presents the results of the multiple regression analysis examining the impact of Chatbot Interaction Quality, comprising Responsiveness, Accuracy, Hygiene Assurance, and Professional Tone, on three primary outcomes: Service Experience (H1), Perceived Studio Professionalism (H2), and Loyalty Intentions (H3).

- H1: Chatbot Interaction Quality and Service Experience

The regression model for overall service experience was statistically significant, accounting for 23.9% of the variance ($R^2 = .239$, $F = 31.340$, $p < .001$). All four predictors significantly and positively influenced the experience. Specifically, Responsiveness ($\beta = .189$, $p < .01$) and Professional Tone ($\beta = .164$, $p < .01$) emerged as the strongest drivers, followed by Accuracy of Information ($\beta = .140$, $p < .05$) and Hygiene Assurance ($\beta = .130$, $p < .05$). These results indicate that a polite and accurate chatbot directly enhances customers' overall perception of the service experience. Therefore, H1 is supported.

- H2: Chatbot Interaction Quality and Studio Professionalism

The model predicting perceived professionalism of the tattoo studio was also significant ($R^2 = .218$, $F = 27.787$, $p < .001$). However, only two factors had a significant impact: Hygiene Assurance ($\beta = .272$, $p < .001$) and Accuracy of Information ($\beta = .181$, $p = .003$). Interestingly, responsiveness and tone did not significantly predict professionalism in this model. This suggests that customers judge a studio's professionalism primarily by the credibility and safety information it provides. Consequently, H2 is partially supported.

- H3: Chatbot Interaction Quality and Loyalty Intent

For loyalty and future usage intentions, the model explained 25% of the variance ($R^2 = .250$, $F = 33.211$, $p < .001$). Accuracy of Information was the most influential factor ($\beta = .305$, $p < .001$), followed by Hygiene Assurance and Professional Tone. Similar to the previous model, responsiveness was not a significant driver of long- term loyalty, suggesting that while speed is appreciated, the reliability of information is what encourages return visits. Thus, H3 is supported.

4.5.1.2 Analysis of H4 and H6: Operational Efficiency

The influence of chatbot functions on operational efficiency (reducing administrative delays) was examined. The model was statistically significant ($F = 53.223$, $p < .001$, $R^2 = .209$).

- H4 (Supported): The "seamless and efficient process for scheduling" was a significant positive predictor of operational efficiency ($\beta = .221$, $p < .001$).
- H6 (Supported): "Booking convenience" compared to traditional methods strongly predicted reduced administrative delays ($\beta = .304$, $p < .001$).

4.5.1.3 Analysis of H5: Aftercare Support

The relationship between chatbot guidance and aftercare compliance was tested. The model was highly significant ($F = 207.231$, $p < .001$, $R^2 = .341$).

- H5 (Supported): The "helpful guidance" provided by the chatbot significantly predicted the customer's ability to follow and adhere to aftercare instructions ($\beta = .584$, $p < .001$).

4.5.1.4 Analysis of H7 and H8: Perceived Barriers

The impact of perceived barriers on future usage intent was analyzed ($F = 16.407$, $p < .001$, $R^2 = .110$).

- H7 (Contradictory Finding): Contrary to expectations, a "preference for direct communication with a human artist" showed a significant positive relationship with usage intent ($\beta = .155$, $p = .004$), indicating customers see the chatbot as an efficient gateway to human staff.
- H8 (Partially Supported): "Limitations in understanding complex artistic requirements" significantly predicted usage intent ($\beta = .172$, $p = .003$). However, "lack of confidence in accuracy" was not a significant predictor in this model ($p = .139$).

4.5.2 Group Differences (H9)

To further examine the boundary conditions of the proposed model, this section tests Hypothesis 9 (H9), which posits that customer demographics, specifically age, gender, and tattoo experience, moderate the relationship between chatbot interaction quality and customer perceptions. Beyond general trends, understanding these group differences is vital for identifying how diverse customer segments within the Thai tattoo industry respond to automated service agents. By analyzing these variations, the study can determine whether specific traits, such as technological familiarity or prior service experience, amplify or diminish the effectiveness of AI-assisted communication. To provide a structured comparison, the following analysis is divided into two parts: Section 4.5.2.1 employs an Independent Samples t-test to compare perceptions by gender, while Section 4.5.2.2 uses a One-way ANOVA to examine differences across age groups, tattoo experience, and prior chatbot familiarity.

4.5.2.1 Gender (Independent Samples t-test)

An Independent Samples t-test was conducted to compare perceptions of chatbot integration between male and female respondents.

Loyalty Intent: A significant difference was found between genders ($t(347) = 1.982$, $p = .048$). Males ($M = 4.37$) reported a significantly higher intention to use the chatbot for future inquiries or bookings than females ($M = 4.23$).

Service Experience and Professionalism: No significant differences were observed in overall service experience ($p = .071$) or perceived professionalism of the studio ($p = .136$). Both genders perceive these quality dimensions in a relatively similar manner.

4.5.2.2 Age, Tattoo Experience, and Chatbot Experience (One-way ANOVA)

A one-way ANOVA was used to test for differences across multiple demographic categories.

Age Groups: The analysis revealed no significant differences across age groups for service experience ($p = .240$), loyalty intent ($p = .606$), or decision-making ease ($p = .471$). This indicates that chatbot acceptance remains consistent across different generations in the Thai tattoo industry.

Tattoo Experience: A significant difference was found in the overall service experience ($F(3, 404) = 4.035$, $p = .008$). Tukey HSD post-hoc tests showed that respondents with no tattoos (Inquiry only) ($M = 3.94$) had significantly lower experience ratings compared to those with one or more tattoos (Means ranging from 4.31 to 4.39). No significant differences were found for loyalty or decision-making based on tattoo experience.

Chatbot Experience: Previous familiarity with technology significantly influenced outcomes.

Service Experience ($p = .001$): Users who use chatbots frequently ($M = 4.44$) rated the experience significantly higher than occasional users ($M = 4.28$) and rare users ($M = 4.10$).

Decision-Making ($p = .027$): Frequent users found the chatbot significantly more helpful in facilitating easier decision-making about designs and pricing ($M = 4.32$) than rare users ($M = 4.07$).

5. Conclusion

The conclusion section restates the key findings and suggests avenues for further research. This study investigated the role of chatbots in enhancing customer experience within tattoo studios in Thailand. Based on the empirical analysis of 408 respondents, the research demonstrates that chatbot interaction quality is a fundamental determinant of customer satisfaction and long-term loyalty (H1, H3). While a professional tone and responsiveness are valued, information accuracy proved to be the most critical factor shaping the overall service experience. Interestingly, regarding the studio's professional image, customers prioritize assurances of hygiene and credible safety information over response speed (H2). Furthermore, integrating AI-enabled systems significantly optimizes administrative workflows by improving booking convenience and reducing scheduling delays (H4, H6). Beyond the transaction stage, chatbots are effective tools for post-service care, where automated aftercare reminders significantly improve customer compliance with safety instructions (H5).

Regarding customer perceptions, the findings indicate that Thai consumers do not view chatbots as a replacement for human artists, but rather as an efficient gateway to the initial service phase (H7). Although concerns regarding the interpretation of complex artistic designs remain a notable barrier (H8), previous digital familiarity and gender were found to moderate these perceptions, with frequent users and male respondents exhibiting higher loyalty intentions and smoother decision-making (H9). Consequently, to maximize the benefits of AI implementation, tattoo studios should adopt a hybrid service model that prioritizes functional accuracy and hygiene communication while ensuring a seamless transition to human expertise for creative consultations. This strategic integration not only streamlines operational efficiency but also fosters a more professional and trustworthy service environment in the Thai creative sector (Jansom et al., 2022).

5.1 Limitations

This study has some limitations. First, the research employed a cross-sectional survey design, which limits causal inference. Although regression analysis identified significant associations between chatbot interaction quality and customer outcomes, no experimental validation was conducted. Future studies should incorporate controlled experiments comparing different chatbot configurations to strengthen causal interpretation.

Second, the study examined chatbot-assisted communication across multiple tattoo studios without standardizing a single chatbot model. Variations in system design, automation level, and platform integration (e.g., LINE, Instagram, Messenger) may influence customer perceptions. Future research should specify and compare rule-based, AI-enhanced, and generative chatbot systems to enhance reproducibility.

Third, nonprobability sampling was used because there was no comprehensive customer database. While the sample size (n = 408) is statistically adequate, generalizability beyond the Thai tattoo industry may be limited.

Finally, the study focused on customer perception rather than objective chatbot performance metrics. Future research may incorporate system-level analytics to more rigorously examine response accuracy and operational effectiveness.

6. References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Sage.

Ashfaq, M., Yun, J., Yu, S., & Loureiro, S. M. C. (2020). I, Chatbot: Modeling the determinants of users' satisfaction and continuance intention. *Journal of Retailing and Consumer Services*, *54*, 102133. https://doi.org/10.1016/j.jretconser.2020.102133

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319–340. https://doi.org/10.2307/249008

Gnewuch, U., Morana, S., Adam, M., & Maedche, A. (2022). Understanding user satisfaction and loyalty of customer service chatbots. *Computers in Human Behavior Reports*, *7*, 100179. https://doi.org/10.1016/j.chbr.2022.100179

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

Jansom, A., Srisangkhajorn, C., & Limarunothai, W. (2022). Chatbot service quality in Thai retail: Evidence from apparel sector. *Journal of Retailing and Consumer Services*, *68*, 103050. https://doi.org/10.1016/j.jretconser.2022.103050

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, *80*(6), 69–96. https://doi.org/10.1509/jm.15.0420

Lin, X., Xu, Y., & Benbasat, I. (2024). How chatbots augment human intelligence in customer services: A mixed- methods study. *Journal of Management Information Systems*, *41*(2) , 577– 603. https://doi.org/10.1080/07421222.2024.2415773

Malhotra, N. K. (2010). *Marketing research: An applied orientation* (6th ed.). Pearson Education.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, *64*(1), 12–40.

Şehirli, M. (2024). The impact of tattoos on consumer behavior and purchasing decisions: Empirical research. *Marmara University Journal of Economic and Administrative Sciences*, *46*(3) , 744– 766. https://doi.org/10.14780/muiibd.1591130

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3) , 425– 478. https://doi.org/10.2307/30036540

Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper and Row.