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THE IMPACT OF DIGITAL INNOVATION ON E-COMMERCE YOUNG CUSTOMER SATISFACTION IN VIETNAM

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Abstract

This study looks at the influence of digital innovation, notably AI-driven chatbots, on e-commerce consumer satisfaction among young customers in Vietnam. It investigates key factors influencing user satisfaction employing frameworks such as the Uses and Gratifications Theory (U&G), Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT), including utilitarian, hedonic, technological, and social gratifications, privacy risk, and social influence. This research applies a quantitative method, with data collected through an online survey utilising snowball sampling, yielding responses from 1,007 individuals aged 18 to 30. SPSS and PLS-SEM tools are used in the statistical analysis. This study finds that utilitarian, hedonic, technological, and social gratifications positively and substantially impact user satisfaction. Aside from this finding, when engaging with chatbots, consumers are often affected by suggestions and endorsements from peers and their larger social context. This highlights the significance of peer validation and social dynamics in determining user satisfaction. Additionally, Privacy Risks do not substantially impact satisfaction, indicating that customers prioritise practical and emotional advantages over data security concerns when engaging with chatbots. Practical implications include strategically using digital innovation, making reasonable assumptions about privacy risks, and adding social elements to improve consumer satisfaction in Vietnam's thriving e-commerce industry. This study provides valuable insights for companies navigating digital innovation in Vietnam's e-commerce ecosystem and digital banking.

Keywords: *AI-driven chatbot, Digital Innovation, Gratification, User satisfaction.*

I. INTRODUCTION

Digital innovation involves employing technologies, strategies, and processes to generate novel or enhanced products, services, and business models.[1] It encompasses harnessing progress in digital technologies, including artificial intelligence (AI), big data analytics, machine learning, cloud computing, the IoT, and other emerging technologies, to instigate positive transformations and derive value from different facets of business and society.[2] The progress in AI and natural language processing has been a driving force behind the evolution and application of chatbot technologies.[3] Incorporating chatbots into digital platforms has improved customer interactions significantly.[4] Digital innovation forms the basis for creating and continually refining chatbot capabilities, allowing them to adjust to changing customer preferences.[5] Consequently, the collaboration between digital innovation and chatbots streamlines customer engagement and significantly advances intuitive, effective, and personalised digital experiences across various industries.

AI-driven chatbots offer substantial benefits for e-commerce platforms by autonomously understanding consumer needs, automating tasks like product consultations and incentive programs, and delivering personalised product recommendations.[6] They efficiently handle customer inquiries, including order information and status,[7] operating tirelessly without negative emotions

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1 Saurabh Tiwari and Totakura Bangar Raju, "Management of digital innovation," in *Promoting inclusivity and diversity through internet of things in organizational settings* (Hershey, Pennsylvania: IGI Global, 2022).

2 Satish Nambisan, Kalle Lyytinen, and Youngjin Yoo, "Digital innovation: towards a transdisciplinary perspective," in *Handbook of digital innovation*, ed. Satish Nambisan, Kalle Lyytinen, and Youngjin Yoo (Edward Elgar Publishing, 2020); Alan Hevner and Shirley Gregor, "Envisioning entrepreneurship and digital innovation through a design science research lens: A matrix approach," *Information & Management* 59, no. 3 (2022).

3 Moneerh Aleedy, Hadil Shaiba, and Marija Bezbradica, "Generating and analyzing chatbot responses using natural language processing," *International Journal of Advanced Computer Science and Applications* 10, no. 9 (2019).

4 Anuj Kumar et al., "Unlocking Brand Excellence: Harnessing AI Tools for Enhanced Customer Engagement and Innovation," *Engineering Proceedings* 59, no. 1 (2024).

5 Juliana JY Zhang, Asbjørn Følstad, and Cato A Bjørkli, "Organizational factors affecting successful implementation of chatbots for customer service," *Journal of Internet Commerce* 22, no. 1 (2023).

6 Nikhil Patel and Sandeep Trivedi, "Leveraging predictive modeling, machine learning personalization, NLP customer support, and AI chatbots to increase customer loyalty," *Empirical Quests for Management Essences* 3, no. 3 (2020); Chitra Krishnan et al., "Impact of artificial intelligence-based chatbots on customer engagement and business growth," in *Deep learning for social media data analytics* (Cham: Springer, 2022).

7 Paul R Daugherty, H James Wilson, and Paul Michelman, "Revisiting the jobs artificial intelligence will create," *MIT Sloan Management Review* 60, no. 4 (2019).

and ensuring 24/7 consumer interaction.[8] Moreover, chatbots manage large volumes of information during customer interactions, enhancing customer service efficiency and satisfaction.[9] Nevertheless, e-commerce platforms face challenges related to customer perceptions of chatbot usage, with some expressing discomfort and harbouring doubts about their reliability compared to human counterparts.[10] Consequently, the study's focus on investigating chatbots remains highly relevant in light of these considerations.

Chatbots are still in the early phases of application in Vietnam, a developing country with a rapidly expanding e-commerce sector.[11] Younger users, who comprise a sizable segment of the digital consumer base, interact with these technologies in ways that may differ from those in more technologically advanced nations. Most previous studies have focused on chatbot adoption in developed countries, leaving a significant lacuna in understanding their influence in developing nations such as Vietnam. Therefore, this investigation is crucial in discerning the dynamics of consumer behaviour and interaction with AI-driven chatbots, shedding light on the implications of digital innovation for e-commerce platforms and digital banking in Vietnam. Thus, the study addresses the following inquiries: *What impact does the adoption of digital innovation, specifically AI-driven chatbots, have on customer satisfaction within Vietnam's e-commerce environment?*

This study highlights areas overlooked by prior studies. Earlier investigations predominantly focused on developed countries where Chatbot prevalence has been established over time, as evidenced by studies by Brandtzaeg and

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[8] Xueming Luo et al., "Frontiers: Machines vs. humans: The impact of artificial intelligence chatbot disclosure on customer purchases," *Marketing Science* 38, no. 6 (2019); Moez Ltifi, "Impact of the E-brand on the Consumer's E-trust, Reliance and Resistance Towards the Chatbot," in *Communication Design and Branding: A Multidisciplinary Approach* (Cham: Springer, 2023).

[9] Martin Adam, Michael Wessel, and Alexander Benlian, "AI-Based Chatbots in Customer Service and Their Effects on User Compliance." *Electronic Markets* 31, no. 2 (2021): 427-45; Xusen Cheng et al., "Exploring consumers' response to text-based chatbots in e-commerce: the moderating role of task complexity and chatbot disclosure," *Internet Research* 32, no. 2 (2021).

[10] Cheng et al., "Exploring consumers' response to text-based chatbots in e-commerce: the moderating role of task complexity and chatbot disclosure."; Halima Afroz Lari, Kuhu Vaishnava, and KS Manu, "Artifical intelligence in E-commerce: Applications, implications and challenges," *Asian Journal of Management* 13, no. 3 (2022); Abdulla Alsharhan, Mostafa Al-Emran, and Khaled Shaalan, "Chatbot adoption: a multiperspective systematic review and future research agenda," *IEEE Transactions on Engineering Management* 71 (2023).

[11] Trinh Thi Thu Huong et al., "The impact of AI chatbots on customer experience in online retailing in an emerging economy," *International Journal of Process Management and Benchmarking* 15, no. 2 (2023).

Følstad[12] and Y. Cheng and Jiang.[13] Conversely, limited attention has been devoted to areas in developing countries where the emergence of chatbots is still in its infancy. K. Tran and Nguyen[14] argue that delving into the impact of AI-driven chatbots in developing nations, such as Vietnam, is crucial to address critical aspects that distinguish these markets from their developed counterparts. Firstly, this study addresses gaps in prior studies, focusing on the impact of AI-driven chatbots in developing countries like Vietnam. Chatbots have only recently emerged in these regions, and younger users' experiences and perceptions may differ due to limited exposure to such technology.[15] Understanding these dynamics is crucial to gaining insights into the early stages of chatbot adoption and shedding light on factors influencing user satisfaction among young individuals. Developing countries' socioeconomic environments and cultural norms influence user behaviour and preferences significantly.[16] Language preferences, societal values, and trust in technology vary between developed and developing countries, impacting how younger users perceive and interact with chatbots.[17] For instance, there is a considerable distinction in buying behaviour between Vietnamese consumers and those in other countries, as seen in the statistics from market research firms, including Counterpoint Research and FPT Shop. Counterpoint Research's statistics show that the iPhone 13 was the best-selling product worldwide, accounting for 5% of total global smartphone sales and 28% of iPhone sales in 2022.[18] Nevertheless, statistics at FPT Shop show that the iPhone 13 Pro Max has been the best-selling smartphone for many months.[19] Furthermore, conducting research in developing countries is crucial for promoting inclusivity and addressing

[12] Petter Bae Brandtzaeg and Asbjørn Følstad, "Why people use chatbots" (paper presented at the Internet Science: 4th International Conference, INSCI 2017, Thessaloniki, Greece, November 22-24, 2017, Proceedings 4, 2017).

[13] Yang Cheng and Hua Jiang, "How do AI-driven chatbots impact user experience? Examining gratifications, perceived privacy risk, satisfaction, loyalty, and continued use," *Journal of Broadcasting & Electronic Media* 64, no. 4 (2020).

[14] Khoa Tran and Tuyet Nguyen, "Preliminary research on the social attitudes toward AI's involvement in Christian education in Vietnam: Promoting AI technology for religious education," *Religions* 12, no. 3 (2021).

[15] Sandra Cortesi et al., "Youth and digital citizenship+ (plus): Understanding skills for a digital world," *Berkman Klein Center Research Publication*, no. 2020-2 (2020).

[16] Rakibul Hoque and Golam Sorwar, "Understanding factors influencing the adoption of mHealth by the elderly: An extension of the UTAUT model," *International journal of medical informatics* 101 (2017).

[17] Roberta De Cicco, Susana C Silva, and Francesca Romana Alparone, "Millennials' attitude toward chatbots: an experimental study in a social relationship perspective," *International Journal of Retail & Distribution Management* 48, no. 11 (2020).

[18] Duc Huy, "Smartphone worth 10 best-selling iPhone 2022," VNExpress, 2023, https://vnexpress.net/iphone-thong-tri-10-smartphone-ban-chay-2022-4578659.html.

[19] Quy Luu, "Which iPhone is the best seller in the first half of the year?," VNExpess, 2022, https://vnexpress.net/iphone-nao-ban-chay-nhat-nua-dau-nam-4485447.html.

potential disparities in technology adoption.[20] As AI-driven chatbots become more integral across various markets, it is essential to ensure that the benefits of these technologies are accessible to all, regardless of the country's level of development.[21] By examining the impact of chatbots on younger users in developing countries, this research contributes to more inclusive and equitable technology development and deployment. Therefore, this research explores the influence of gratification, privacy risk, and social influence on the satisfaction of young users on e-commerce platforms in Vietnam – a developing country.

Focusing on Vietnam's unique business environment, where the intersection of digital innovation and e-commerce is particularly dynamic, this research unravels key dimensions of the customer experience. To be able to select appropriate variables for research, researchers use three foundational theories, including the Uses and Gratifications (U&G) Theory, the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Through this investigation, the study offers valuable insights that contribute to academic discourse and have practical implications for businesses aiming to provide enhanced customer satisfaction within the dynamic e-commerce landscape of Vietnam.

II. CONCEPTUAL FRAMEWORK

II.A. Gratification Obtained from Chatbots and User Satisfaction

The U&G Theory is a crucial framework for understanding customer adoption of technology-driven products like AI-powered chatbots.[22] It has four dimensions: utilitarian, hedonic, technological, and social gratifications.[23] Utilitarian Gratification (UG) is the satisfaction or benefits of employing a technology or media platform to fulfil pragmatic or functional objectives.[24] These needs typically encompass obtaining information, achieving specific goals, resolving issues, or enhancing efficiency and productivity.[25] Hedonic Gratification (HG) involves the joy or satisfaction individuals derive from using technology or products or participating in an activity purely for the sake

[20] Cecilia Ka Yuk Chan, "A comprehensive AI policy education framework for university teaching and learning," *International Journal of Educational Technology in Higher Education* 20, no. 38 (2023).

[21] Chan, "A comprehensive AI policy education framework for university teaching and learning."

[22] Cheng and Jiang, "How do AI-driven chatbots impact user experience?"

[23] Janarthanan Balakrishnan and Mark D Griffiths, "Social media addiction: What is the role of content in YouTube?," *Journal of Behavioral Addictions* 6, no. 3 (2017).

[24] Jing Wang and Jay In Oh, "Factors influencing consumers' continuous purchase intentions on tiktok: an examination from the uses and gratifications (U&G) theory perspective," *Sustainability* 15, no. 13 (2023).

[25] Xuemei Xie and Luyao Liu, "Exploring the antecedents of trust in electronic word-of-mouth platform: The perspective on gratification and positive emotion," *Frontiers in Psychology* 13 (2022).

of enjoyment, amusement, or sensory pleasure rather than driven by practical or utilitarian motives.[26] It encompasses emotionally rewarding, pleasurable, or visually appealing experiences that evoke joy, excitement, or contentment.[27] Technology Gratification (TG) is the contentment or enjoyment individuals specifically derive from using a technology or digital platform primarily due to its captivating, enjoyable, or intriguing nature.[28] It involves the satisfaction derived from exploring innovative features, discovering new functionalities, or engaging with cutting-edge technology for the experience rather than being driven by practical or utilitarian motives.[29] Social Gratification (SG) pertains to the enjoyment or satisfaction individuals experience when using technology or participating in online activities, enabling them to connect, communicate, and interact with others.[30] This type of gratification involves finding joy in establishing and maintaining social connections, seeking recognition within a social sphere, or feeling a sense of belonging to a larger community through technology-mediated channels.[31] These dimensions provide insights into the motivations and perceived benefits driving individuals to engage with and derive satisfaction from AI-powered products.

User satisfaction refers to the enjoyment a consumer feels upon assessing the perceived value of a product or service against its intended value, indicating whether the interaction fulfils their anticipated requirements.[32] C. Xie, Wang, and Cheng[33] found a strong association between these reward categories and varied levels of user satisfaction with AI-powered chatbots. According

[26] Fei Liu et al., "Disentangling utilitarian and hedonic consumption behavior in online shopping: An expectation disconfirmation perspective," *Information & Management* 57, no. 3 (2020).

[27] Anne Bartsch and Reinhold Viehoff, "The use of media entertainment and emotional gratification," *Procedia-Social and Behavioral Sciences* 5 (2010).

[28] Brandtzaeg and Følstad, "Why people use chatbots."

[29] Jarkko Kari and Jenna Hartel, "Information and higher things in life: Addressing the pleasurable and the profound in information science," *Journal of the American Society for Information Science and Technology* 58, no. 8 (2007).

[30] Sergio Ibáñez-Sánchez, Carlos Orus, and Carlos Flavian, "Augmented reality filters on social media. Analyzing the drivers of playability based on uses and gratifications theory," *Psychology & Marketing* 39, no. 3 (2022).

[31] Fanjue Liu, "Hanging out with my pandemic pal: Contextualizing motivations of anthropomorphizing voice assistants during covid-19," *Journal of Promotion Management* 29, no. 5 (2023).

[32] Wong Hhi San, Wong Yee Von, and Muhammad Imran Qureshi, "The impact of e-service quality on customer satisfaction in Malaysia," *Journal of Marketing and Information Systems* 3, no. 1 (2020); Tinggui Chen et al., "Analysis of user satisfaction with online education platforms in China during the COVID-19 pandemic," *Healthcare* 8, no. 3 (2020).

[33] Chenxing Xie, Yanding Wang, and Yang Cheng, "Does artificial intelligence satisfy you? A meta-analysis of user gratification and user satisfaction with AI-powered chatbots," *International Journal of Human–Computer Interaction* 40, no. 3 (2024).

to Y. Cheng and Jiang,[34] user satisfaction with chatbot services is positively associated with four primary dimensions: utilitarian, hedonic, technological, and social gratification. Therefore, the research has four hypotheses:

H1: Utilitarian Gratification (UG) positively affects user satisfaction when using chatbots.
H2: Hedonic Gratification (HG) positively affects user satisfaction when using chatbots.
H3: Technology Gratification (TG) positively affects user satisfaction when using chatbots.
H4: Social Gratification (SG) positively affects user satisfaction when using chatbots.

II.B. Privacy Risk (PR) and User Satisfaction

Consumers frequently express concerns about the security and privacy of their financial information when shopping online.[35] Additionally, people are apprehensive about banks and e-commerce companies sharing their personal information with other firms.[36] Perceived privacy risk is a user's assessment of the potential negative consequences of disclosing personal information on digital platforms, including chatbots.[37] This includes ambiguities and concerns about abuse or unauthorised sharing, which leads to vulnerability and decreased privacy, especially with chatbot communications.[38] Numerous researchers have investigated the effects of privacy risks on user satisfaction. For example, privacy risks have been recognised as barriers to adopting m-banking[39] and i-banking.[40] V.D. Tran[41] also observed a detrimental effect of privacy risk on

[34] Cheng and Jiang, "How do AI-driven chatbots impact user experience? Examining gratifications, perceived privacy risk, satisfaction, loyalty, and continued use."

[35] Mónika-Anetta Alt, Ibolya Vizeli, and Zsuzsa Săplăcan, "Banking with a chatbot–A study on technology acceptance," *Studia Universitatis Babes-Bolyai Oeconomica* 66, no. 1 (2021).

[36] Jeffrey Arief Mulyono and Sfenrianto Sfenrianto, "Evaluation of customer satisfaction on Indonesian banking chatbot services during the COVID-19 pandemic," *CommIT (Communication and Information Technology) Journal* 16, no. 1 (2022); Jane M Kolodinsky, Jeanne M Hogarth, and Marianne A Hilgert, "The adoption of electronic banking technologies by US consumers," *International Journal of Bank Marketing* 22, no. 4 (2004).

[37] Mengmeng Song et al., "Will artificial intelligence replace human customer service? The impact of communication quality and privacy risks on adoption intention," *Journal of Retailing and Consumer Services* 66 (2022).

[38] Mariem Bouhia et al., "Drivers of privacy concerns when interacting with a chatbot in a customer service encounter," *International Journal of Bank Marketing* 40, no. 6 (2022).

[39] Imtiaz Arif Sharif and Arshian Sahar Afshan, "Resistance to Adopt Mobile Banking in a Developing Country: Evidence from Modified TAM," *Journal of Finance and Economics Research* 1, no. 1 (2016).

[40] Apostolos N Giovanis, Spyridon Binioris, and George Polychronopoulos, "An extension of TAM model with IDT and security/privacy risk in the adoption of internet banking services in Greece," *EuroMed Journal of Business* 7, no. 1 (2012).

[41] Van Dat Tran, "The relationship among product risk, perceived satisfaction and purchase intentions for online shopping," *The Journal of Asian Finance, Economics and Business* 7, no. 6 (2020).

the satisfaction levels of online shoppers. Additionally, the results from Y. Cheng and Jiang[42] suggest that privacy risk plays a considerable and negative role in influencing user satisfaction during interactions with chatbots. As a result, we offer the following hypothesis:

H5: Privacy risk negatively affects user satisfaction when using chatbots.

II.C. Social Influence (SI) and User Satisfaction

Social influence refers to the effect others exert on individuals' thoughts, emotions, and actions, moulding their attitudes and behaviours within their social surroundings.[43] This phenomenon is pivotal in decision-making, consumer behaviour, group dynamics, and conformity, exerting influence across diverse aspects of life.[44] Kar[45] underscores the substantial impact of social factors on the satisfaction derived from digital services, particularly within mobile payment services. Additionally, Sithipolvanichgul, Chen, Land, and Ractham[46] highlight the positive influence of social factors on customer satisfaction with cloud computing services, illustrating how an individual's social context can affect satisfaction with information systems. Consequently, we propose the following hypothesis:

H6: Social Influence positively affects user satisfaction when using chatbots.

Derived from the research question and hypothesis development, the conceptual framework of this study comprises seven variables, encompassing six independent variables (utilitarian gratification, hedonic gratification, technology gratification, social gratification, privacy risks, and social influence) alongside the dependent variable of user satisfaction. *Figure 1* illustrates the conceptual framework of this study.

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[42] Cheng and Jiang, "How do AI-driven chatbots impact user experience?"

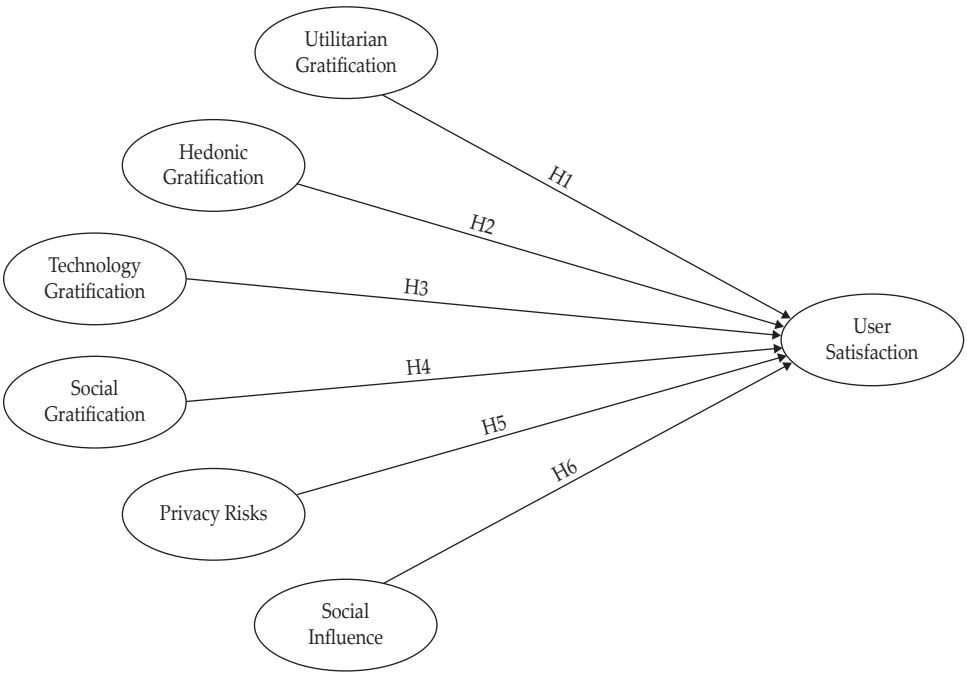
[43] Xi Hu, Xiayu Chen, and Robert M Davison, "Social support, source credibility, social influence, and impulsive purchase behavior in social commerce," *International Journal of Electronic Commerce* 23, no. 3 (2019).

[44] Francesco Manca, Aruna Sivakumar, and John W Polak, "The effect of social influence and social interactions on the adoption of a new technology: The use of bike sharing in a student population," *Transportation Research Part C: Emerging Technologies* 105 (2019).

[45] Arpan Kumar Kar, "What affects usage satisfaction in mobile payments? Modelling user generated content to develop the "digital service usage satisfaction model," *Information Systems Frontiers* 23, no. 5 (2021).

[46] Juthamon Sithipolvanichgul et al., "Enhancing user experiences with cloud computing via improving utilitarian and hedonic factors," *Energies* 14, no. 7 (2021).

Figure 1.
Conceptual framework



III. METHODOLOGY

III.A. Research Approach

This study employs a quantitative approach because it measures variables and establishes relationships among them; it proves more suitable for the present study.[47] Specifically, the study pinpoints the elements that impact satisfaction among younger Vietnamese users of chatbots. Researchers can objectively and precisely examine connections among different variables and younger users' loyalty and continued use of AI-driven chatbots by collecting numerical survey data.[48] Statistical analysis ensures more reliable and valid findings, which can be generalised to the broader chatbot user community in Vietnam. As the main aim of this research is to evaluate quantitative relationships among variables, the qualitative approach is considered unsuitable. In this case, a Likert scale is employed to assess participant responses to each variable quantitatively. The collected data undergoes statistical evaluation using tools such as SPSS and PLS-SEM to produce legitimate and trustworthy results. Therefore, a

[47] André Queirós, Daniel Faria, and Fernando Almeida, "Strengths and limitations of qualitative and quantitative research methods," *European Journal of Education Studies* 3, no. 9 (2017).

[48] Queirós, Faria, and Almeida, "Strengths and limitations of qualitative and quantitative research methods."

quantitative method is more suitable for this topic than a qualitative research approach.

III.B Research methods

III.B.1. Data collection methods

In this scenario, primary data is crucial as it directly provides specific and accurate information about the target audience, especially considering that research on AI-driven chatbots is relatively new in Vietnam. This approach enables the researcher to tailor research questions and data collection techniques to the study's objectives, guaranteeing the precision and reliability of the data. Moreover, primary data provides novel and distinctive perspectives on the research subject and environment that might not be accessible through secondary data outlets.[49] Overall, including primary data significantly improves the efficacy and quality of the study's conclusions. According to Rabianski,[50] primary data refers to information gathered for the first time directly from the source, which could be an individual, group, or entity, using various techniques such as questionnaires, interviews, observations, and tests. Vietnamese chatbot users were presented with an online structured questionnaire to elicit the primary data for this study.

To obtain primary data, the researchers used the snowball sampling method. Non-probability sampling methods, such as snowball sampling, typically entail surveys and data collection and are especially useful for research projects in sociology and psychology.[51] This method is appropriate for tough-to-reach research in which precisely characterising or describing the population is difficult, particularly in cases with unique sample features or situations requiring more objective, quantitative inclusion criteria.[52] Random sampling would be ideal for obtaining a representative sample; however, it is not practical in this study due to Vietnam's high population of young people. The population size makes compiling a list of eligible survey participants impossible. Nonetheless, snowball sampling, which relies on participant networks, may not accurately represent the greater population.[53] This can distort results by over-representing specific demographics or social groups with comparable characteristics. Despite potential biases inherent in snowball sampling due to the researchers' narrow

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[49] Joseph Rabianski, "Primary and secondary data: concepts, concerns, errors and issues," *Australian Property Journal* 38, no. 4 (2004).

[50] Rabianski, "Primary and secondary data: concepts, concerns, errors and issues."

[51] Irina-Maria Dragan and Alexandru Isaic-Maniu, "Snowball sampling completion," *Journal of Studies in Social Sciences* 5, no. 2 (2013).

[52] Dragan and Isaic-Maniu, "Snowball sampling completion."

[53] Bernd Marcus et al., "The use of snowball sampling for multi source organizational research: Some cause for concern," *Personnel Psychology* 70, no. 3 (2017).

network or limited observational possibilities, this study seeks to counteract by including a large number of observations, reaching 1,007.

In this study, the researchers initially depended on their immediate circles, such as close acquaintances and family members aged between 18 and 30, to assist in survey participation. These initial participants were asked to distribute the survey link among friends who fulfilled the study's criteria. The data collection was conducted using a Google Forms survey. The researchers continued to encourage new volunteers to disseminate the questionnaire link within their social circles, employing the snowball sampling method to increase the study's sample size and the diversity of participants. To broaden participation, the survey was also distributed on university confession fan pages, including Greenwich VN Confessions (13,000 followers), RMIT Confessions (332,000 followers), students of CTU Confessions (142,000 followers), Dai Hoc FPT Confessions (246,000 followers), Dai Hoc Ngoai Thuong- FTU (110,000 followers), HUST Confessions (413,000 followers), DUT Confessions (72,000 followers), Sinh Vien Hue Confessions (over 160,000 followers), Sinh Vien Da Nang Confessions (over 226,000 followers), and similar platforms. Subsequently, the survey was shared in groups with a substantial young audience, such as Maybe You Missed This Freaking News (1.1 million members), Hoc bong ngan han, trao doi, tinh nguyen - HannahEd (122,000 members), Simply Economics (40,000 members), among others. Further outreach included posting comments about the study on the university and fan pages on Facebook, like RVN, with 301,000 followers. The focus was on confession pages affiliated with colleges and organisations that attract many young participants, as the survey is tailored to a young demographic. The collected survey responses from recruited participants provided the researchers with substantial primary data, enabling them to explore research topics using quantitative techniques. Overall, snowball sampling proved effective in this study, facilitating the researchers' ability to reach a specific target group (young adults using chatbots) and recruit a large, diverse sample that may have been challenging to access through alternative sampling methods.

III.B.2. Data analysis methods

Following data collection, the authors meticulously examined the dataset to minimise extraneous errors, promptly removing unsatisfactory observations and results to uphold the integrity of the data analysis process. Subsequently, the authors opted for the SPSS software to analyse the collected and refined data. Descriptive statistics and the PLS-SEM model were employed in the analysis in this study.

The survey employed various-item measures for each construct, relying on established studies for assessing variance. Specifically, Utilitarian Gratification was gauged using five items from Y. Cheng, Liang, and Leung;[54] Hedonic Gratification drew from sources by Chung, Ko, Joung, and Kim,[55] Kim and Ko,[56] Y. Cheng and Jiang,[57] Davis, Bagozzi, and Warshaw,[58] Qin;[59] Technology Gratification utilised sources from Childers, Carr, Peck, and Carson,[60] Ko, Cho, and Roberts,[61] Raza et al.,[62] and Marjerison, Zhang, and Zheng;[63] Social Gratification was measured based on studies by Araujo;[64] Privacy Risk incorporated sources from Jattamart and Leelasantitham[65] and Raza et al.;[66] Social Influence was determined from research by Rahim et al.,[67] Marinkovic

[54] Yang Cheng, Jingwen Liang, and Louis Leung, "Social network service use on mobile devices: An examination of gratifications, civic attitudes and civic engagement in China," *New Media & Society* 17, no. 7 (2015).

[55] Minjee Chung et al., "Chatbot e-service and customer satisfaction regarding luxury brands," *Journal of Business Research* 117 (2020).

[56] Angella Jiyoung Kim and Eunju Ko, "Impacts of luxury fashion brand's social media marketing on customer relationship and purchase intention," *Journal of Global fashion marketing* 1, no. 3 (2010).

[57] Cheng and Jiang, "How do AI-driven chatbots impact user experience? Examining gratifications, perceived privacy risk, satisfaction, loyalty, and continued use."

[58] Fred D Davis, Richard P Bagozzi, and Paul R Warshaw, "Extrinsic and intrinsic motivation to use computers in the workplace," *Journal of Applied Social Psychology* 22, no. 14 (1992).

[59] Yan Qin, "Attractiveness of game elements, presence, and enjoyment of mobile augmented reality games: The case of Pokémon Go," *Telematics and Informatics* 62 (2021).

[60] Terry L Childers et al., "Hedonic and utilitarian motivations for online retail shopping behavior," *Journal of Retailing* 77, no. 4 (2001).

[61] Hanjun Ko, Chang-Hoan Cho, and Marilyn S Roberts, "Internet uses and gratifications: A structural equation model of interactive advertising," *Journal of Advertising* 34, no. 2 (2005).

[62] Syed Ali Raza et al., "Drivers of intensive Facebook usage among university students: An implications of U&G and TPB theories," *Technology in Society* 62 (2020).

[63] Rob Kim Marjerison, Youran Zhang, and Hanyi Zheng, "AI in E-Commerce: Application of the Use and Gratification Model to the Acceptance of Chatbots," *Sustainability* 14, no. 21 (2022).

[64] Theo Araujo, "Living up to the chatbot hype: The influence of anthropomorphic design cues and communicative agency framing on conversational agent and company perceptions," *Computers in Human Behavior* 85 (2018).

[65] Aungkana Jattamart and Adisorn Leelasantitham, "Perspectives to social media usage of depressed patients and caregivers affecting to change the health behavior of patients in terms of information and perceived privacy risks," *Heliyon* 6, no. 6 (2020).

[66] Raza et al., "Drivers of intensive Facebook usage among university students: An implications of U&G and TPB theories."

[67] Noor Irliana Mohd Rahim et al., "AI-based chatbots adoption model for higher-education institutions: A hybrid PLS-SEM-neural network modelling approach," *Sustainability* 14, no. 19 (2022).

and Kalinic;[68] User Satisfaction was assessed using studies from Chung, Ko, Joung, and Kim,[69] Sheng and Liu,[70] Hsu and Lin,[71] and C.-Y. Li and Fang.[72]

As defined by Christensen, Johnson, Turner, and Christensen,[73] descriptive statistics encompass concise descriptive coefficients that offer an overview of a dataset representing the total population or a sample. These statistics fall into two categories: central tendency measurements and variability measurements.[74] Descriptive statistics are utilised to elucidate the meaning of measurement questions related to the main variables of the study. Additionally, frequency analysis will be applied to assess qualitative variables.

PLS-SEM is a causal modelling strategy that integrates interdependence and interdependence approaches to maximise the explained variance of latent dependent components.[75] PLS-SEM has become increasingly popular in fields such as marketing and has experienced significant growth since the early 2000s.[76] PLS-SEM will analyse the factors affecting satisfaction among young users and contributing to their continued usage of AI-driven chatbots.

IV. RESULTS AND DISCUSSION

IV.A. Sample description

The demographic profile of the survey participants is presented in *Table 1*. Most participants (62.4%) identified as female and 37.6% as male. Regarding age distribution, most respondents fell into the 18-23 age group (61.0%), followed by those aged 24-30 (39.0%). Regarding monthly income, participants were distributed across various income (monthly) brackets, with 15.5% earning under 2 million VND, 32.2% earning between 2-6 million VND, 35.7% earning between 6-11 million VND, and 16.7% earning over 11

[68] Veljko Marinkovic and Zoran Kalinic, "Antecedents of customer satisfaction in mobile commerce: Exploring the moderating effect of customization," *Online Information Review* 41, no. 2 (2017).

[69] Chung et al., "Chatbot e-service and customer satisfaction regarding luxury brands."

[70] Tianxiang Sheng and Chunlin Liu, "An empirical study on the effect of e-service quality on online customer satisfaction and loyalty," *Nankai Business Review International* 1, no. 3 (2010).

[71] Chin-Lung Hsu and Judy Chuan-Chuan Lin, "What drives purchase intention for paid mobile apps?–An expectation confirmation model with perceived value," *Electronic commerce research and applications* 14, no. 1 (2015).

[72] Chia-Ying Li and Yu-Hui Fang, "Predicting continuance intention toward mobile branded apps through satisfaction and attachment," *Telematics and Informatics* 43 (2019).

[73] Larry B Christensen, Burke Johnson, and Lisa Anne Turner, *Research methods, design, and analysis* (Boston: Pearson, 2011).

[74] Christensen, Johnson, and Turner, *Research methods, design, and analysis*.

[75] Joe F Hair, Christian M Ringle, and Marko Sarstedt, "PLS-SEM: Indeed a silver bullet," *Journal of Marketing Theory and Practice* 19, no. 2 (2011).

[76] Mumtaz Ali Memon et al., "PLS-SEM statistical programs: a review," *Journal of Applied Structural Equation Modeling* 5, no. 1 (2021).

million VND. In terms of education, the sample comprised individuals with diverse educational backgrounds, with 10.9% having completed high school, 7.1% having an intermediate education, 13.7% having a college education, 53.7% having a university degree, 8.3% holding a master's degree, and 6.3% attaining a doctorate. Geographically, respondents were distributed across the North (32.5%), Central (29.3%), and Southern (38.2%) regions. Regarding the most frequently used e-commerce platforms, Shopee emerged as the leader with 36.8% of participants, followed by Lazada (23.1%), Tiki (21.6%), and others, including Amazon, Sendo, Taobao, and other platforms, making up the remaining 18.5%

Table 1.
Sample description

	Frequency	Per cent
Gender		
Female	628	62.4%
Male	379	37.6%
Age		
18-23 years old	614	61.0%
24-30 years old	393	39.0%
Monthly income		
Under 2 million VND	156	15.5%
2-6 million VND	324	32.2%
6-11 million VND	359	35.7%
Over 11 million VND	168	16.7%
Education		
High school	110	10.9%
Intermediate	71	7.1%
College	138	13.7%
University	541	53.7%
Master	84	8.3%
Doctor	63	6.3%
Region		
North	327	32.5%
Central	295	29.3%
South	385	38.2%

Table 1.
Sample description (Continued)

	Frequency	Per cent
Most used e-commerce platform by participants		
Lazada	233	23.1%
Shopee	371	36.8%
Tiki	218	21.6%
Amazon	31	3.1%
Sendo	48	4.8%
Taobao	52	5.2%
Other	54	5.4%

Note: N = 1007 sample

IV.B. Descriptive statistics

The dataset contains descriptive statistics for several essential variables. Utilitarian Gratification (UG) shows an average score of 3.80 and a standard deviation of 0.90, indicating moderate response variability. Hedonic Gratification (HG) shows a slightly higher mean of 3.85 and a standard deviation of 0.77, suggesting a relatively consistent level of satisfaction. Technology Gratification (TG) averages 3.78 and a standard deviation of 0.72, indicating moderate variability. Social Gratification (SG) shows an average of 3.87 and a standard deviation of 0.76, suggesting a relatively stable level of satisfaction. Privacy Risks (PR) show an average of 3.97 with a standard deviation of 0.68, indicating moderate agreement among participants. Social Influence (SI) averages 3.78 and a standard deviation of 0.86, indicating some response variability. Finally, User Satisfaction (US) is relatively high, with an average of 3.92 with a standard deviation of 0.75, meaning a generally positive sentiment among respondents regarding their satisfaction with the digital services under consideration. A detailed breakdown is provided in *Table 2*.

Table 2.
Descriptive statistic

Variable name	Code	Mean	SD
Utilitarian Gratification	UG	3.80	0.90
Hedonic Gratification	HG	3.85	0.77
Technology Gratification	TG	3.78	0.72
Social Gratification	SG	3.87	0.76
Privacy Risks	PR	3.97	0.68
Social Influence	SI	3.78	0.86
User Satisfaction	US	3.92	0.75

IV.C. Measurement Model Assessment

The evaluation of internal consistency reliability is detailed in *Table 3*. Across all variables, the metrics of Cronbach's alpha, exact reliability, and composite reliability surpassed the 0.70 threshold, meeting the criteria for internal consistency reliability.[77] Additionally, to assess convergent validity, it was ensured that the average variance extracted (AVE) values for all constructs exceeded 0.50.[78] Furthermore, the validation of discriminant validity is corroborated through strict adherence to the Fornell-Larcker criterion,[79] as meticulously detailed in *Table 4*. Specifically, each construct's square root of the AVE surpasses its highest correlation with any other construct. This nuanced analysis underscores that the observed variables within each construct exhibit a more discernible affinity with their designated construct than with any other. Such findings solidify the confidence in the reliability of the measurement model and its convergent validity.[80]

Table 3.
Reliability and validity statistics

Measure	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Utilitarian Gratification (UG)	0.911	0.924	0.933	0.736
Hedonic Gratification (HG)	0.913	0.914	0.931	0.658
Technology Gratification (TG)	0.856	0.858	0.897	0.636
Social Gratification (SG)	0.882	0.883	0.914	0.680
Privacy Risks (PR)	0.839	0.849	0.885	0.607
Social Influence (SI)	0.880	0.891	0.911	0.672
User Satisfaction (US)	0.886	0.887	0.916	0.686

[77] Adrian Leguina, "A primer on partial least squares structural equation modeling (PLS-SEM)," *International Journal of Research & Method in Education* 38, no. 2 (2015); Sane Hwui Chan and Yoon Fah Lay, "Examining the reliability and validity of research instruments using partial least squares structural equation modeling (PLS-SEM)," *Journal of Baltic Science Education* 17, no. 2 (2018).

[78] Gordon W Cheung et al., "Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations," *Asia Pacific Journal of Management* (2023).

[79] Claes Fornell and David F Larcker, "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research* 18, no. 1 (1981).

[80] Mohd Rashid Ab Hamid, Waqas Sami, and MH Mohmad Sidek, "Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion," (paper presented at the Journal of physics: Conference series, 2017).

Table 4.
Discriminant validity

	HG	PPR	SG	SI	TG	UG	US
HG							
PPR	0.568						
SG	0.869	0.546					
SI	0.862	0.515	0.830				
TG	0.796	0.466	0.832	0.740			
UG	0.796	0.576	0.807	0.887	0.678		
US	0.864	0.541	0.847	0.883	0.766	0.804	

IV.D. Structural Model Assessment

The evaluation assessed the structural model after the comprehensive examination of the measurement models. The first step involved checking for collinearity concerns by scrutinising the inner variance inflation factor values. Notably, all Variance Inflation Factor (VIF) values were comfortably below five, with the highest recorded value being 3.908. This observation assures that collinearity was not a significant concern in our analysis.[81] Following that, we used the bootstrapping approach using 1.007 subsamples with bias correction and acceleration and a two-tailed test to assess the significance and statistical relevance of the associations in the structural model. The comprehensive outcomes of the estimations are presented in *Table 5* and *Figure 2*.

The analysis's findings show differing degrees of correlation between various constructs. The study revealed various significant and positive associations observed in other constructs on user satisfaction. The results show that user satisfaction in chatbot interactions on e-commerce platforms is strongly influenced by *utilitarian gratification, supporting H1*. It indicates that users who derive utilitarian gratification – accomplishing functional goals and obtaining information – experience higher satisfaction. It also aligns similarly with the previous studies that show that the practical utility of AI-driven chatbots positively influences user contentment.[82] *Hedonic gratification* emerges as a strong driver, indicating that users experiencing pleasure from chatbots are interactions likely to show more satisfaction; therefore*, H2 is explicitly supported*. It emphasizes the significance of enjoyable and emotionally

[81] Hair, Ringle, and Sarstedt, "PLS-SEM: Indeed a silver bullet."

[82] Xie, Wang, and Cheng, "Does artificial intelligence satisfy you? A meta-analysis of user gratification and user satisfaction with AI-powered chatbots."; Chunmei Gan and Hongxiu Li, "Understanding the effects of gratifications on the continuance intention to use WeChat in China: A perspective on uses and gratifications," *Computers in Human Behavior* 78 (2018); Cheng and Jiang, "How do AI-driven chatbots impact user experience?."

rewarding interactions like the research by H. Li et al.;[83] C. Xie, Wang, and Cheng[84] P. Wang and Li.[85] Users who find pleasure and joy in their engagement with chatbots exhibit higher overall satisfaction, affirming the crucial role of hedonic experiences. *Technology Gratification* positively contributes to user satisfaction, *supporting H3* and underscoring the role of technological aspects in shaping user experiences. I.L.B. Liu, Cheung, and Lee;[86] C. Xie, Wang, and Cheng;[87] Y. Cheng and Jiang[88] also established a positive association between technology gratification and user satisfaction. This implies that users who appreciate chatbots' innovative features and cutting-edge technology tend to be more satisfied, emphasizing the importance of technological aspects in shaping user contentment. Likewise, according to these results, individuals who derive happiness from social factors, such as having meaningful talks, and those who value efficiency and practical advantages are more likely to be satisfied with the subject interactions. As a result, user satisfaction in chatbot interactions on e-commerce platforms is strongly influenced by *social gratification, supporting H4*. This highlights the positive impact of social gratification on user satisfaction, indicating that users valuing social interactions facilitated by chatbots experience higher overall satisfaction, similar to research by Abrar, Mian, and Zaman;[89] C. Xie, Wang, and Cheng.[90] It suggests that creating a socially engaging environment within e-commerce platforms positively influences user experiences. The finding of this study on gratification is similar to the results of the study by Y. Cheng and Jiang[91] found that when user satisfaction with chatbot services is positively associated with four primary dimensions: utilitarian, hedonic, technological, and social gratification.

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[83] Hongxiu Li et al., "Modeling hedonic is continuance through the uses and gratifications theory: An empirical study in online games," *Computers in Human Behavior* 48 (2015).

[84] Xie, Wang, and Cheng, "Does artificial intelligence satisfy you? A meta-analysis of user gratification and user satisfaction with AI-powered chatbots."

[85] Ping Wang and Hongxiu Li, "Disentangling the factors driving user satisfaction with travel review websites: content, social or hedonic gratifications," (paper presented at the Proceedings of the 2019 Pacific Asia Conference on Information Systems (PACIS), 2019).

[86] Ivy LB Liu, Christy MK Cheung, and Matthew KO Lee, "User satisfaction with microblogging: Information dissemination versus social networking," *Journal of the Association for Information Science and Technology* 67, no. 1 (2016).

[87] Xie, Wang, and Cheng, "Does artificial intelligence satisfy you?."

[88] Cheng and Jiang, "How do AI-driven chatbots impact user experience? Examining gratifications, perceived privacy risk, satisfaction, loyalty, and continued use."

[89] Kashif Abrar, Asif Khurshid Mian, and Sobia Zaman, "How Social Gratification affects Social Network Gaming Habitual Behavior. Sequential Mediation of Flow Experience and Consumer Satisfaction," *Global Management Journal for Academic & Corporate Studies (GMJACS)* 12, no. 1 (2022).

[90] Xie, Wang, and Cheng, "Does artificial intelligence satisfy you? A meta-analysis of user gratification and user satisfaction with AI-powered chatbots."

[91] Cheng and Jiang, "How do AI-driven chatbots impact user experience? Examining gratifications, perceived privacy risk, satisfaction, loyalty, and continued use."

Notably, social influence is seen as an important aspect of consumer satisfaction. Within the context of chatbot interactions on e-commerce platforms, the study shows that social influence significantly influences user satisfaction, as illustrated by the path coefficient of 0.366, which supports H6. Among the six factors examined in the study, social influence (SI) was shown to be the highest predictor of consumer satisfaction with AI-powered chatbots on Vietnam's e-commerce platforms (see *Chart 1*). The finding is similar to the Kar's[92] results. This study emphasises the importance of social ties in moulding young users' perceptions and satisfaction. These findings also match the conclusions of Ogara, Koh, and Prybutok[93] and Junnonyang.[94] It demonstrates the importance of interaction among peers in the e-commerce industry. Users impacted by societal aspects, particularly those assisted by chatbots, report higher satisfaction levels, emphasising the relevance of social components in achieving total user satisfaction. One explanation for this finding in Vietnam is its collectivist culture, in which individuals usually subordinate personal preferences to collective norms, views, and shared experiences.[95] When it comes to embracing and interacting with new technology like chatbots, young people are heavily influenced by their peers, families, and social networks. This cultural bias highlights the importance of social effect since judgments are frequently impacted by how others perceive or approve of a particular idea. Furthermore, youthful consumers are often engaged on social media sites like Facebook, where peer conversations and technology suggestions are common.[96] Social media boosts social impact by allowing people to quickly access and share their interactions with chatbots, increasing trust and acceptance.[97] The finding emphasises the importance of e-commerce platforms strategically using the power of social influence to increase customer satisfaction and adoption rates, particularly in socially dynamic economies such as Vietnam.

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[92] Kar, "What affects usage satisfaction in mobile payments? Modelling user generated content to develop the "digital service usage satisfaction model."

[93] Solomon O Ogara, Chang E Koh, and Victor R Prybutok, "Investigating factors affecting social presence and user satisfaction with mobile instant messaging," *Computers in Human Behavior* 36 (2014).

[94] Ekkaphap Junnonyang, "Integrating TAM, perceived risk, trust, relative advantage, government support, social influence and user satisfaction as predictors of mobile government adoption behavior in Thailand," *International Journal of eBusiness and eGovernment Studies* 13, no. 1 (2021).

[95] Thang Dinh Truong, Philip Hallinger, and Kabini Sanga, "Confucian values and school leadership in Vietnam: Exploring the influence of culture on principal decision making," *Educational Management Administration & Leadership* 45, no. 1 (2017).

[96] Bang Nguyen-Viet et al., "Factors driving consumers' attitudes towards Facebook advertisements in an emerging market: A case study of Vietnam," *Asian Journal of Business and Accounting* 15, no. 1 (2022).

[97] Wan-Hsiu Sunny Tsai, Yu Liu, and Ching-Hua Chuan, "How chatbots' social presence communication enhances consumer engagement: the mediating role of parasocial interaction and dialogue," *Journal of Research in Interactive Marketing* 15, no. 3 (2021).

Nonetheless, while analysing the structural model, it is important to note that H5, which examines the direct impact of privacy risks on user happiness, is not supported. The P-value of 0.192 is not statistically significant, indicating insufficient evidence to establish a strong direct impact in this context. This finding stands in sharp contrast to most previous research that relates privacy issues to user satisfaction, including the studies by Y. Cheng and Jiang[98] and J. Zhang, Luo, and Warkentin.[99] This surprising finding might be attributed to a variety of factors. Firstly, young people are more technologically aware and accustomed to using online buying platforms.[100] Their experience sharing personal information on digital services such as social media and e-commerce platforms is likely to lessen their awareness of or concerns for privacy risks. Second, some AI-driven chatbots in Vietnam are incorporated into well-known e-commerce platforms such as Shopee, Lazada, and Tiki, as well as respectable banks. Users may believe that these sites would manage their data properly, ameliorating privacy concerns. Furthermore, young users may prioritise the immediate practical (e.g., convenience, efficiency) and emotional (e.g., delight) advantages of utilising chatbots over abstract worries about data protection. Hence, they demonstrated relatively low concerns about privacy risks when communicating with chatbots about their financial and payment information. Although privacy threats have no major influence on satisfaction, e-commerce companies and banks should not completely overlook them. Transparent information about data usage and strong security measures can assist in developing long-term confidence, especially as user privacy knowledge rises.[101]

Table 5.
Model estimates

Hypotheses		Path coefficients	T values	P values
H1	Utilitarian Gratification → User Satisfaction	0.134	4.379	0.000
H2	Hedonic Gratification → User Satisfaction	0.207	5.627	0.000
H3	Technology Gratification → User Satisfaction	0.087	2.926	0.000
H4	Social Gratification → User Satisfaction	0.140	3.827	0.003
H5	Privacy Risks → User Satisfaction	0.034	1.305	0.192
H6	Social Influence → User Satisfaction	0.366	10.231	0.000

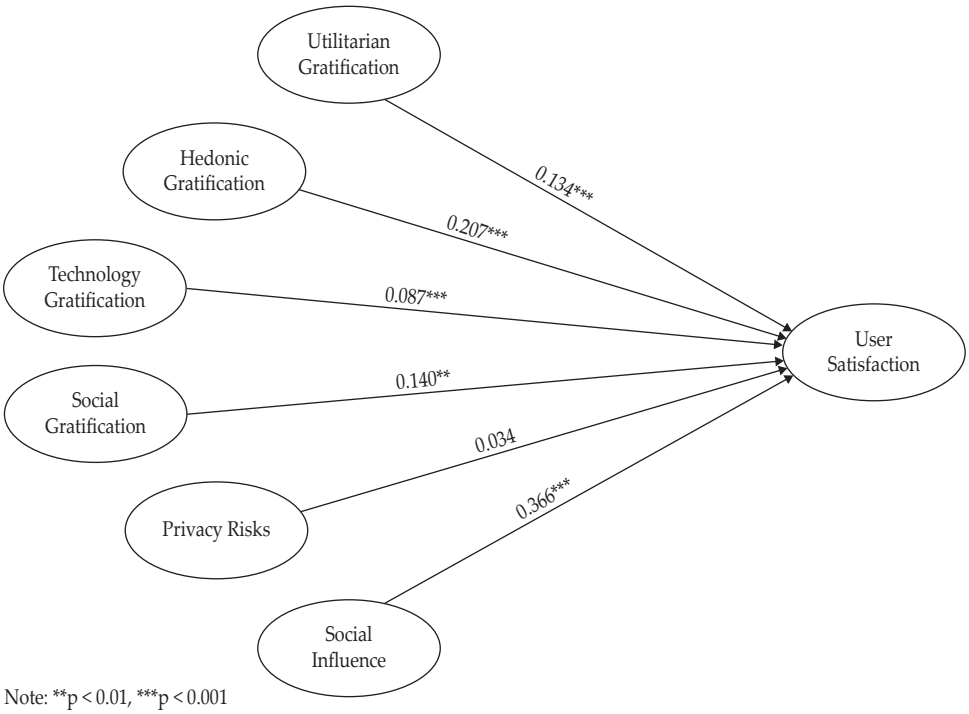
[98] Cheng and Jiang, "How do AI-driven chatbots impact user experience?"

[99] Jie Zhang et al., "Exploring the effects of the privacy-handling management styles of social networking sites on user satisfaction: a conflict management perspective," *Decision Sciences* 48, no. 5 (2017).

[100] Noor Afzaliza Nazira Ibrahim et al., "Online shopping behaviour in youth: a systematic review of the factors influencing online shopping in young adults," *International Journal of Academic Research in Business and Social Sciences* 13, no. 2 (2023).

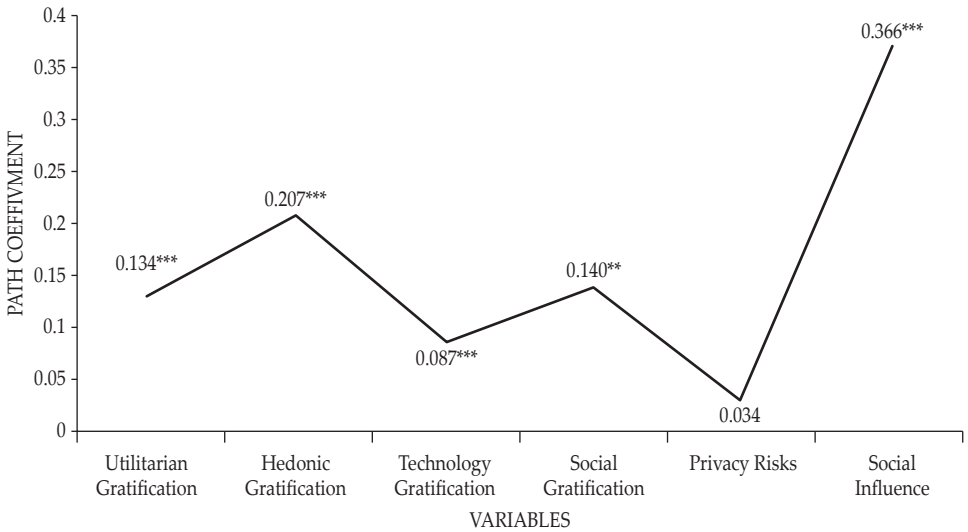
[101] Camila Amalia et al., "Legal Issues of Personal Data Protection and Consumer Protection in Open API Payments," *Journal of Central Banking Law and Institutions* 1, no. 2 (2022).

Figure 2.
Model estimate



Note: **p < 0.01, ***p < 0.001

Chart 1.
The Path Coefficient of Variables



Note: **p <0.01, ***p<0.001

V. IMPLICATIONS

Having examined data from 1,007 young users who interacted with AI-driven chatbots on e-commerce platforms in Vietnam, we have pinpointed various factors that impact the satisfaction of these users during chatbot interactions. Importantly, our investigation highlights a noteworthy positive correlation between user satisfaction factors. The subsequent implications will delve deeper into these discoveries, elucidating their implications and importance.

V.A. Theoretical implications

This study substantially contributes to the current User and Gratifications (U&G) literature by broadening its focus across multiple aspects. A survey by Finlay[102] highlights that AI-driven chatbots significantly influence people in various industries today. Nevertheless, more concrete evidence about how individuals, particularly young users, interact with chatbots daily is needed. By incorporating AI in business communication, novel prospects emerge for creatively meeting diverse customer requirements, as emphasised by Brandtzaeg and Følstad.[103] This study investigates the gratifications that young users want from leading businesses' AI-driven chatbots, improving our knowledge of their experience with AI-driven chatbots and providing light on the different gratifications they seek in the current world. Specifically, the study reveals that utilitarian gratification, hedonic gratification, technology gratification, and social gratification all have positive and statistically significant relationships with user satisfaction, highlighting the critical role of these gratifications in shaping and elevating users' overall satisfaction within digital innovation. It is especially relevant in AI-powered chatbots for e-commerce, confirming known theories that stress the crucial roles of both gratifications in moulding user experiences in digitally innovative surroundings.[104]

Furthermore, the study demonstrates a significant positive relationship between social influence and user satisfaction, emphasising the importance of peer and social interactions in shaping consumers' views and contentment in the e-commerce area driven by digital innovation.[105] This highlights the critical

[102] Steven Finlay, ed., *Artificial Intelligence and Machine Learning for Business: A No-Nonsense Guide to Data Driven Technologies* (Preston: Relativistic Book, 2021).

[103] Brandtzaeg and Følstad, "Why people use chatbots."

[104] Hyeon Jo and Eun-Mi Baek, "Customization, loneliness, and optimism: drivers of intelligent personal assistant continuance intention during COVID-19," *Humanities and Social Sciences Communications* 10, no. 1 (2023).

[105] Veljko Marinković, Aleksandar Đorđević, and Zoran Kalinić, "The moderating effects of gender on customer satisfaction and continuance intention in mobile commerce: a UTAUT-based perspective," *Technology Analysis & Strategic Management* 32, no. 3 (2020); Matthew Wynn et al., "Digitizing nursing: A theoretical and holistic exploration to understand the adoption and use of digital technologies by nurses," *Journal of Advanced Nursing* 79, no. 10 (2023).

role that social component, particularly interactions provided by AI-powered chatbots and other digital innovations, play in moulding and improving consumer happiness. The findings highlight the importance of social dynamics as a driving force behind user contentment, shedding light on the influential role of social elements in shaping the overall user experience within the ever-changing landscape of e-commerce, particularly in the context of AI-driven chatbot interactions and other digital innovations.[106]

Nonetheless, the lack of a statistical significance between privacy risks and user happiness calls into question common assumptions, suggesting that increased perceived privacy concerns may not always result in decreased satisfaction.[107] This unexpected outcome highlights the critical need for more investigation into the subtle mechanisms that govern how privacy concerns and user pleasure interact in the unique environment of digital innovation,[108] especially in the security of customers' personal, financial, and payment information when communicating with chatbots. This investigation may uncover mediating factors that intricately influence the relationship between privacy risks and user satisfaction, offering a better comprehension of the complex dynamics between privacy considerations and user contentment in the ever-changing landscape of digital innovation.

In summary, the theoretical implications illuminate customer satisfaction's intricate and multifaceted nature within the e-commerce landscape and digital banking driven by digital innovation. They underscore the importance of utilitarian, hedonic, and social factors while advocating for a more comprehensive investigation into the role of privacy risks in digital innovation and the deployment of AI-driven chatbots.[109] This holistic understanding contributes to the evolving discourse on user satisfaction within the dynamic and digitally transformative e-commerce environment, providing valuable insights for researchers and practitioners.

V.B. Practical implications

The findings of this study have significant practical significance for firms and e-commerce platforms looking to improve youthful customer satisfaction.

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[106] PS Varsha et al., "The impact of artificial intelligence on branding: a bibliometric analysis (1982-2019)," *Journal of Global Information Management (JGIM)* 29, no. 4 (2021).

[107] Chih-Chin Liang and Wen-Lung Shiau, "Moderating effect of privacy concerns and subjective norms between satisfaction and repurchase of airline e-ticket through airline-ticket vendors," *Asia Pacific Journal of Tourism Research* 23, no. 12 (2018).

[108] G Sowmya et al., "Exploring the adoption patterns of matrimonial apps: An analysis of user gratifications," *Journal of Retailing and Consumer Services* 78 (2024).

[109] Cheng and Jiang, "How do AI-driven chatbots impact user experience? Examining gratifications, perceived privacy risk, satisfaction, loyalty, and continued use."

E-commerce enterprises in Vietnam may improve customer satisfaction by concentrating on factors that meet utilitarian demands, give hedonic experiences, harness technology breakthroughs, and encourage social relationships using AI-powered chatbots.[110] Practical tactics include maximising chatbot functions to meet practical issues, improving the user experience for enjoyment, utilising cutting-edge technology, and encouraging social connections. Besides, businesses must carefully assess and balance privacy concerns against other factors when implementing AI-driven chatbots.[111] Significantly, Vietnam's government, e-commerce companies, and banks need specific policies on stricter security of customers' private information to improve their satisfaction when communicating with chatbots on e-commerce platforms. Moreover, businesses may employ social components to enhance customer satisfaction while potentially increasing user engagement and loyalty.[112] In summary, e-commerce businesses in Vietnam must strategically use digital innovation, particularly AI-driven chatbots, to meet users' needs. They should also consider privacy risks and user satisfaction, promoting transparent communication practices to manage and mitigate perceived privacy concerns. These approaches will help businesses, including banks, address users' needs and maintain and improve user satisfaction.

VI. CONCLUDING REMARKS

This study investigated the influence of digital innovation, namely AI-driven chatbots, on young consumers' satisfaction in Vietnam's e-commerce market. The study used the Uses and Gratifications (U&G) Theory, the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT) to investigate how various factors affect user satisfaction, including utilitarian, hedonic, technological, and social gratifications, privacy risk, and social influence. The study showed that utilitarian, hedonistic, technical, and social gratifications, as well as social influence, all positively and significantly affected users' satisfaction. Among these, social influence was recognised as the most significant factor, emphasising the significance of peer recommendations, endorsements, and social dynamics in influencing user

[110] Alex Mari and René Algesheimer, "AI-based voice assistants for digital marketing," in *Contemporary issues in digital marketing*, ed. Outi Niininen (New York: Routledge, 2021).

[111] Song et al., "Will artificial intelligence replace human customer service? The impact of communication quality and privacy risks on adoption intention."

[112] Rintis Eko Widodo and Togar Alam Napitupulu, "Exploring the Impact of Live Streaming for E-Commerce Business: A Systematic Literature, " *Journal of Theoretical and Applied Information Technology* 101, no. 16 (2023).

happiness with chatbots. This emphasises the value of social affirmation and community-based relationships in Vietnam's collectivist culture. Privacy risk had no significant effect on pleasure, demonstrating that young users value immediate practical and emotional advantages above data privacy concerns. This finding undermines long-held beliefs about the detrimental impact of privacy threats and implies a more nuanced view of user priorities in the context of evolving digital technology. The study's findings have practical implications for e-commerce businesses in Vietnam. To enhance customer satisfaction, companies should focus on optimising chatbot functionalities to provide practical utility, enjoyable experiences, cutting-edge technological features, and opportunities for social interaction. Transparent communication about privacy and data security remains essential, even if its immediate impact on satisfaction appears minimal. The study is critical for Vietnam and other emerging nations or sectors undergoing comparable digital transformations.

This study provides valuable insights into the influence of AI-powered chatbots on e-commerce consumer satisfaction in Vietnam, but it is not without limits. For starters, snowball sampling may have resulted in a homogenous sample favouring youthful, urban, and digitally active people. This method may exclude users from rural regions or those with restricted digital access, limiting the generalisability of the findings to the larger population. Future studies will use stratified or random selection approaches to assure more representative coverage of varied user groups, such as those in rural locations, older age brackets, and those with poor digital access. Secondly, the findings are limited to Vietnam's e-commerce industry and may not apply to other industries or countries with different cultural, economic, and technical circumstances. As a result, future research should focus on other businesses, such as digital banking, healthcare, and education, to better understand how chatbot satisfaction criteria vary across domains. Furthermore, future research might compare Vietnam's findings to those from other countries or regions to identify cultural or economic factors influencing consumer satisfaction with AI-powered chatbots. Finally, the study's cross-sectional approach captures user satisfaction at a given time, limiting the ability to investigate how satisfaction levels and perceptions change with continued use of chatbots or technical advancement. To address this restriction, future research can perform longitudinal studies to assess how user happiness and views change, mainly when users acquire more experience with chatbots or how chatbot technology improves. By addressing these issues, future studies can better understand how AI-driven chatbots affect customer happiness and how organisations can customise their tactics to different user demands.

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