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CONTINUANCE INTENTION OF AI-BASED CHATBOT SERVICES IN HIGHER EDUCATION: EVIDENCE FROM INDONESIA

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ABSTRAK

Chatbot berbasis Kecerdasan Buatan (Artificial Intelligence/AI) semakin banyak digunakan di pendidikan tinggi untuk meningkatkan layanan mahasiswa. Namun, masih sedikit kajian yang meneliti faktor-faktor yang mendorong keberlanjutan penggunaan teknologi ini. Lambatnya response oleh layanan kemahasiswaan mendorong pemahaman lebih dalam mengenai determinan niak belernajutan dalam mempergunakan chatbot berbasi AI dengan menerapkan kerangka Technology Continuance Theory (TCT). Penelitian ini mempergunakan pendekatan kuantitatif dengan metode sampling purposive dimana data survei dikumpulkan dari 294 mahasiswa dan dianalisis menggunakan Partial Least Squares–Structural Equation Modeling (PLS-SEM). Hasil penelitian menunjukkan bahwa kualitas informasi berpengaruh signifikan terhadap persepsi kemudahan penggunaan, sementara kualitas sistem meningkatkan konfirmasi dan persepsi kegunaan. Namun, kualitas layanan tidak berpengaruh signifikan terhadap persepsi kegunaan. Baik persepsi kegunaan maupun kemudahan penggunaan terbukti berperan penting dalam mendorong niat keberlanjutan penggunaan VARA. Secara teoretis, penelitian ini memperluas penerapan TCT dalam konteks pendidikan tinggi dengan menunjukkan bagaimana kualitas informasi dan kualitas sistem secara bersama-sama membentuk niat keberlanjutan penggunaan. Secara praktis, temuan ini memberikan arahan bagi universitas untuk meningkatkan desain chatbot melalui keakuratan, keandalan, dan kemudahan penggunaan informasi. Penguatan faktor-faktor tersebut sangat penting untuk mendukung transformasi digital yang berkelanjutan dalam layanan mahasiswa.

Kata Kunci: *Chatbot, Artificial Intelligence (AI), Technology Continuance Theory (TCT)*, Pendidikan Tinggi, PLS-SEM

ABSTRACT

Artificial Intelligence (AI)-based chatbots are increasingly being adopted in higher education to enhance the quality of academic services. However, research on the factors influencing the sustained use of these technologies remains limited. This study aims to identify the determinants of students' continuance intention to use AI-based chatbots by applying the Technology Continuance Theory (TCT) framework. This quantitative research used a purposive sampling method, where data were collected from 294 students and analyzed using Partial Least Squares structural equation modeling (PLS-SEM). The results indicate that information quality significantly influences perceived ease of use, whereas system quality enhances both confirmation and perceived usefulness. In contrast, service quality had no significant effect on perceived usefulness. Perceived usefulness and ease of use are key factors in shaping students' intention to continue using chatbots. This study extends the application of TCT in higher education by demonstrating how information and system quality jointly influence continuance intention. In practice, the results can guide universities in improving chatbot design by ensuring accuracy, reliability, and usability. Strengthening these elements is vital for sustaining the digital transformation of student services.

Keywords: *Chatbot, Artificial Intelligence (AI), Technology Continuance Theory (TCT),Higher Education, PLS-SEM*

1. INTRODUCTION

The digital transformation of higher education has advanced rapidly over the past decade, reshaping how universities deliver academic and administrative services to students. Institutions increasingly rely on Artificial Intelligence (AI)-based Chatbot solutions to improve efficiency,

reduce operatiVonal costs, and enhance user satisfaction. Chatbots represent a significant innovation in the delivery of higher education services, particularly in environments where student populations are growing and institutional resources remain limited (Lei et al., 2021).

Recent studies emphasize that AI-based chatbots can contribute to institutional competitiveness by offering personalized and always-available support services (J. S. Chen et al., 2021). However, despite their growing adoption, the long-term success of chatbots depends not only on initial user acceptance but also on continuous intention, the willingness of users to sustain their use of the technology beyond initial trials (Foroughi et al., 2025). Without continued investments in chatbot systems may fail to achieve their intended goals of service improvement and digital transformation.

The introduction of AI-based chatbot services in higher education reflects institutions' strategic commitment to digital transformation and innovation. These chatbots are designed to address the ongoing challenges in delivering services to students. Traditionally, many universities have relied on live chat systems staffed by human agents, however, service quality often suffers because of extended response times. Such delays not only diminish student satisfaction but also undermine trust in the institution's capacity to deliver responsive and reliable service. In an era where Generation Z students, who form most of the current student population, expect instantaneous and seamless digital interactions, these inefficiencies present a significant risk to the university. Research consistently highlights that students in this demographic value speed, personalization, and ease of access to digital services (Novianta et al., 2024). Consequently, universities that fail to meet these expectations risk losing their competitive edge in terms of attracting and retaining students.

While research on chatbot adoption is growing, much of the literature remains focused on initial acceptance rather than on long-term continuance. Frameworks such as the Technology Acceptance Model (TAM) and Expectation Confirmation Model (ECM) have been widely applied to explain adoption behavior in domains such as e-commerce (Rabaa'i & ALMaati, 2021), mobile banking (Rahi et al., 2021) and travel apps (Foroughi et al., 2025). Research on the continued intention in higher education, particularly regarding AI-driven chatbot services, remains limited. Prior studies have indicated that elements such as information quality, system reliability, and service responsiveness significantly influence users' decisions to continue using them (Ashfaq et al., 2020). However, the distinctive features of higher education, such as varied student needs, complex administrative processes, and the integration of academic and non-academic services, call for a more in-depth investigation into how these factors function in this setting (Lei et al., 2021).

This gap highlights the need to expand well-established frameworks, such as Technology Continuance Theory (TCT), into higher education to examine continuance intention with greater contextual relevance. TCT integrates constructs from TAM, ECM, and the Cognitive Model, providing a comprehensive framework for studying post-adoption behavior by emphasizing confirmation, perceived ease of use, and perceived usefulness as key drivers of continued intention (Liao et al., 2009). Given the urgent service challenges faced by universities and the scarcity of research on chatbot continuance intention in higher education, this study sets out three key objectives. The first objective was to assess how information, service, and system quality influence the continuance intention of students who use AI-based chatbots. Second, the mediating effects of confirmation, perceived ease of use, and perceived usefulness were explored. Third, we extend TCT by incorporating both organizational and technological factors, thereby adapting its application to the higher education setting.

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By addressing these objectives, this study contributes to the academic discussion on AI and chatbots in higher education while offering practical guidance for institutional strategies. The findings are anticipated to enhance service performance, improve resource management, and ultimately strengthen students' intention to continue their studies in the academic environment.

Literature Review and Hypotheses Development

Technology Continuance Theory (TCT), introduced by Liao et al. (2009) was designed to explain post-adoption behavior. Namely, why do users either continue or discontinue technology use after the initial adoption phase. Unlike earlier models, such as the Technology Acceptance Model (TAM) or the Unified Theory of Acceptance and Use of Technology (UTAUT), which focus primarily on adoption, TCT integrates constructs from the Expectation-Confirmation Model (ECM), TAM, and the Cognitive Model (COG). This integration offers a more holistic framework for understanding the continuance intention. The theory posits that continuance is shaped by perceived usefulness (PU), perceived ease of use (PEU), and satisfaction, all of which are influenced by expectation confirmation (EC). When users' expectations are met or surpassed, they are more likely to perceive a technology as beneficial and easy to use, which enhances their satisfaction and fosters its continued use (Liao et al., 2009).

Recently, TCT has been applied in diverse contexts, including online learning platforms (Rabaa'i & ALMaati, 2021), mobile payment systems (Foroughi et al., 2025), and AI-driven consumer services (Lei et al., 2021). These studies collectively illustrate that while TCT provides a solid foundation for examining post-adoption behavior, the drivers of continuance intention differ across technological domains and user settings. Within higher education, where chatbots support both academic and administrative services, the application of TCT requires further context-sensitive investigation.

Understanding the factors that drive continuance intention is essential, as the intention to keep using a service plays a crucial role in determining the long-term success of chatbot implementation beyond merely the initial adoption intention (Foroughi et al., 2025, Lei et al., 2021). Continuance intention refers to the degree to which users intend to continue using a system after their initial experience (Sosianika et al., 2024).

Research has demonstrated that continuance intention is shaped by a combination of cognitive beliefs (e.g. perceived usefulness, perceived ease of use), satisfaction, and external factors such as system quality and service quality (Ashfaq et al., 2020). In chatbot studies, continuance intention has been linked to attributes such as response speed, personalization, and interaction quality (Sundjaja et al., 2025).

Continuance Intention in Information Systems Research

Understanding the factors that drive continuance intention is essential, as the intention to keep using a service plays a crucial role in determining the long-term success of chatbot implementation beyond merely the initial adoption intention (Lei et al., 2021). Continuance intention refers to the degree to which users intend to continue using a system after their initial experience (Sosianika et al., 2024). It has been recognized as a critical determinant of the long-term success of information systems because sustained use is essential for organizations to realize the full benefits of technological investments. Identifying the factors that drive users' continuance of service use is crucial, as the intention to keep using technology has a greater impact on the success of chatbot implementation than on initial adoption (Foroughi et al., 2025).

Research has demonstrated that continuance intention is shaped by a combination of cognitive beliefs (e.g. perceived usefulness, perceived ease of use), satisfaction, and external factors such as system quality and service quality (Ashfaq et al., 2020). In chatbot studies, continuance intention has been linked to attributes such as response speed, personalization, and interaction quality (Sundjaja et al., 2025). For example, while service quality plays a critical role in retail and banking chatbots, its impact appears less significant in education, where students may prioritize accurate and relevant information (Lei et al., 2021). This variability underscores the importance of examining continuance intention in context-specific environments, such as higher education, where expectations differ from commercial or entertainment settings.

The Relationship between Information Quality (IQ) with User Confirmation (C), Perceived Ease of Use (PEU) and Perceived Usefulness (PU)

The discussion on information quality in this study highlights how the quality of information provided by a chatbot can shape users' experiences and their willingness to continue using the service (Foroughi et al., 2025). Information quality refers to the accuracy, completeness, relevance, and timeliness of the information provided by a system (DeLone & McLean, 2003). In chatbot contexts, high information quality ensures that users receive reliable and helpful answers, thereby enhancing their trust and confidence in the system.

Within the Technology Continuance Theory framework, information quality plays a crucial role in shaping how users confirm their expectations. When users feel that the information provided by a chatbot meets or even goes beyond what they expected, they tend to feel more satisfied and develop a more positive attitude toward using the chatbot again in the future (Sosianika et al., 2024). Prior research indicates that information quality strongly influences the perceived ease of use (PEU). When the information provided by a chatbot is accurate and easy to understand, users are more likely to find the system simple and intuitive to use (Rabaa'i & ALMaati, 2021). Therefore, good information quality can enhance users' perceptions of usefulness and ease of use, which in turn influences their intention to continue using the chatbot service in a university setting. In the context of chatbots, information quality refers to the accuracy with which a chatbot can deliver precise and useful information to its users. Therefore, good information quality can enhance users' perceptions of usefulness and ease of use, which in turn influences their intention to continue using the chatbot service in a university setting (Sosianika et al., 2024).

Information quality highlights the importance of accuracy, relevance, and completeness of the information delivered by AI-based chatbot services in shaping users' positive perceptions (Foroughi et al., 2025). When users interact with a chatbot, they expect the information provided to be not only accurate but also aligned with their specific needs as students. High-quality information helps meet these expectations and strengthens users' trust in the system (Huang et al., 2024). Therefore, the following hypothesis is proposed:

H1a: The information quality provided by chatbots positively affects users' confirmation.
H1b: The information quality provided by chatbots positively influences perceived usefulness.
H1c: Information quality provided by chatbots positively influences the perceived ease of use.

The Relationship between Service Quality (SVQ) with User Confirmation (UC), Perceived Ease of Use (PEU) and Perceived Usefulness (PU)

In this study, service quality focuses on how the quality of services provided by the chatbot influences users' experiences and perceptions of the technology's usefulness and ease of use (Sosianika et al., 2024). A chatbot with a user-friendly interface and quick response time can

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increase students' trust and encourage them to continue using the service (Q. Chen et al., 2023). In the context of chatbots, service quality reflects how well the system simulates human-like interactions and effectively addresses user concerns (Foroughi et al., 2025).

Although service quality is often highlighted as a determinant of perceived usefulness in e-commerce and banking applications (Ashfaq et al., 2020). its role in higher education is less clear. Students may prioritize accurate information and usability over the human-like qualities of the chatbot responses. As such, the relationship between service quality and the perceived usefulness of educational chatbots remains uncertain (J. S. Chen et al., 2021).

Service quality plays a crucial role in shaping the overall user experience (J. S. Chen et al., 2021). When a chatbot works effectively and manages to meet or even surpass user expectations, it helps build students' trust and confidence in the reliability of service (Hannan & Liu, 2023). Therefore, the following hypothesis is proposed:
H2a: The service quality of chatbots positively influences users' confirmation of expectations.
H2b: The quality of chatbot services is positively associated with users' perceptions of usefulness.
H2c: The quality of chatbot services is positively associated with users' perceptions of ease of use.

The Relationship between System Quality (SQ) with User Confirmation (C), Perceived Ease of Use (PEU) and Perceived Usefulness (PU)
In the context of AI-based chatbot services in education, system quality covers technical aspects such as the system's ability to perform its functions, response speed to user inquiries, reliability, and capability to create interactions that feel natural and human-like (Hannan & Liu, 2023). System quality captures the performance of the technological infrastructure, including reliability, usability, and response time (DeLone & McLean, 2003). System quality is critical for ensuring seamless interactions, preventing downtime, and delivering rapid responses (Lei et al., 2021).

Studies suggest that system quality directly influences both perceived usefulness (PU) and perceived ease of use (PEU). For example, Foroughi et al. (2025) demonstrated that reliable system performance increases user trust and the long-term use of AI-based services. In higher education, where system failure can disrupt academic processes, high system quality is critical. A system with good quality responds quickly and provides accurate answers, allowing it to meet or even exceed students' expectations as users of the service (Hannan & Liu, 2023). Therefore, the following hypothesis is proposed:
H3a: Chatbot system quality positively affects users' expectation confirmation.
H3b: The quality of the chatbot system has a positive effect on perceived usefulness.
H3c: The quality of the chatbot system positively affects the perceived ease of use.

Relationship between User Confirmation (C) and Perceived Usefulness (PU) and Continuance Intention (CI).
Confirmation refers to the extent to which users' expectations of a technology are met after its initial use . It plays a central role in TCT because confirmation influences satisfaction, perceived usefulness, and perceived ease of use. When students' expectations of chatbot services align with their experiences, they are more likely to perceive the system as beneficial and easy to use. Previous studies have consistently shown that confirmation positively influences PU and user satisfaction (Lei et al., 2021). In higher education, where students often rely on chatbots for quick and reliable support, confirmation may be particularly influential in shaping their intention to continue using chatbots.

In the context of AI-based chatbot services in educational settings, confirmation plays an important role in shaping students' positive perceptions of the system's effectiveness (Q. Chen et al., 2023). When their experience meets or even exceeds their expectations, users tend to feel satisfied and perceive the service as truly useful. Therefore, the following hypothesis is proposed:
H4a: User confirmation is positively associated with perceived usefulness.
H4b: User confirmation is positively associated with the intention to continue using the system.

The Relationship between Perceived Ease of Use (PEU) with Percevied Usefulessn (PU) and Continuance Intention (CI)
The construction of Perceived Ease of Use (PEU) originates from the Technology Acceptance Model (TAM) developed by Davis PEU is defined as the degree to which a person believes that using a particular system is free of effort. Within the TAM framework, PEU influences both users' attitudes toward using a system and their perceptions of its usefulness.

In the context of chatbot adoption, PEU reflects the intuitiveness and user-friendliness of the chatbot interface, as well as the ease with which students can navigate conversations to obtain the information they require. When a chatbot requires minimal learning effort and delivers responses smoothly, students are more likely to continue using it. Conversely, if the system is complicated, students may abandon its use, regardless of its potential utility (Tata et al., 2021).

A simple and seamless user experience largely depends on an intuitive and responsive chatbot interface (Foroughi et al., 2025). This is especially important for Generation Z students, who are accustomed to using digital technology and have high expectations of efficiency and convenience. With a user-friendly interface, students can easily access academic information, complete administrative tasks, and ask questions without confusion. Conversely, a complicated interface may lead to frustration and reduce the user's willingness to continue using the service (Lei et al., 2021). Therefore, the following hypothesis is proposed:
H5a: Perceived ease of use positively influences students' perceptions of chatbot usefulness.
H5b: Perceived ease of use positively influences students' intention to continue using chatbots.

The Relatiosnhip between Perceived Usefulness (PU) with Continuance Intention (CI)
Perceived Usefulness (PU)**,** another central construct of TAM is defined as the degree to which individuals believe that using a system enhances their task performance (Huang et al., 2024). PU emphasizes the instrumental value of technology, whether it effectively supports users in achieving their goals. In the case of chatbots, PU reflects students' belief that these systems improve their academic and administrative experiences, for example, by providing real-time course information, facilitating grade access, or addressing service-related inquiries. Chatbots that streamline processes, reduce delays, and offer reliable information are more likely to be considered valuable, thereby motivating their continued use. Extensive evidence has identified PU as one of the strongest predictors of continuance intention. Foroughi et al. (2025) found that PU is the most influential factor for long-term engagement with mobile payment systems, while Ashfaq et al. (2020) confirmed its central role in shaping consumers' intention to continue using AI-enabled chatbots in e-commerce. By extension, when students perceive chatbots as meaningfully enhancing their academic experience, they are more likely to continue using them.

A positive perception of a chatbot's usefulness is closely linked to user satisfaction (Lei et al., 2021). When students feel that a chatbot meets or even exceeds their expectations in providing academic information services, their satisfaction increases, leading to a more positive attitude toward its continued use (Foroughi et al., 2025). Therefore, the following hypothesis is proposed:

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H6: Perceived usefulness positively influences students' intention to continue using chatbots. Perceived usefulness also plays a key role in shaping students' decisions to continue using the chatbot in the future. When the chatbot consistently proves helpful by making it faster to find information, reducing the need for manual services, and saving time, students are more likely to build long-term trust and rely on the technology (Hannan & Liu, 2023).

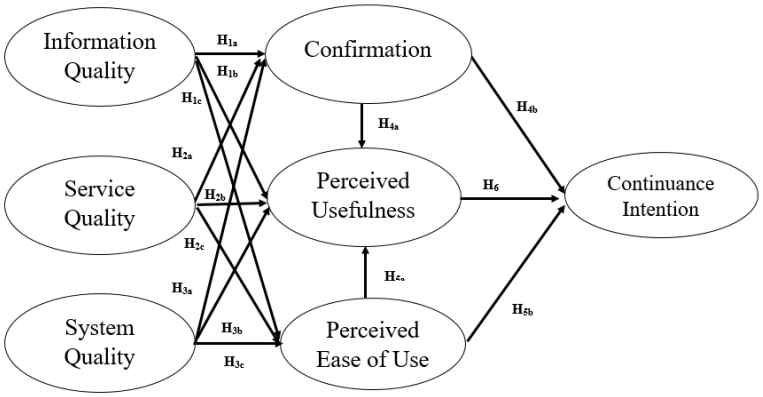

Figure 1 Research Model

Overall, the proposed hypothesis outlines a framework in which the quality dimension with confirmation, perceived userfulness, and perceived ease of use leads to the continuance intention to use AI-based chatbots in higher education, as depicted in Figure 1.

2. RESEARCH METHOD

This study employed a quantitative research design to examine the factors influencing students' intention to continue using the Virtual Assistant Multimedia NusantaRA (VARA) chatbot at Universitas Multimedia Nusantara (UMN). This approach is considered appropriate because the study aims to test the relationships derived from Technology Continuance Theory (TCT), as well as information, service, and system quality (Rabaa'i & ALMaati, 2021). A survey method was used to collect primary data, as it enabled the researcher to obtain responses from a large sample in a limited time frame. This approach has been widely applied in information systems (IS) and technology adoption studies to assess users' perceptions and behavioral intentions (Foroughi et al., 2025).

The population of this study consisted of undergraduate students at Universitas Multimedia Nusantara (UMN) who interacted with AI-based chatbots. Questionnaires were distributed to the active students. The faculties were grouped into four categories: Business, Art and Design, Communication/Strategic Communication, and Engineering and Informatics, covering cohorts from 2018 to 2024.These groups were chosen because students are the primary users of chatbot services, particularly for inquiries related to class schedules, tuition payments, and campus services.

This study employed a purposive sampling technique with the criterion that respondents were undergraduate students who had prior experience using the university's AI-based chatbot service. The questionnaire was distributed between March 3 and April 29, 2025. This method was chosen because not all students had interacted with the system, therefore, only those with relevant experience could provide meaningful responses. The inclusion of these respondents aimed to compare user experiences before the implementation of the chatbot, when services were handled solely by human operators, and after the integration of the AI-based chatbot, which still involved human operators. Selecting such participants ensured more accurate and reliable evaluations of

constructs such as information, service, and system quality, perceived ease of use, and perceived usefulness, as well as their continuance intention toward the technology.

The conceptual model was tested using Partial Least Squares Structural Equation Modeling (PLS-SEM). The minimum sample size required was 119 respondents, based on G*Power analysis that was calculated based on effect size, significance level, and statistical power. Responses were obtained from 302 students. After data screening, six respondents were excluded because they were familiar with the chatbot service but had not actually used it. This resulted in a final dataset of 294 valid cases, exceeding the G*Power minimum requirement and thereby strengthening the validity and reliability of the findings (Kang, 2021).

3. RESULT AND DISCUSSION

The measurement model analysis results show that all constructs met the required validity and reliability criteria, as shown in Table 1. Factor loadings exceeded 0.7 and AVE values were above 0.5, confirming convergent validity, while discriminant validity was supported through a cross-loading analysis. Reliability was also established, with Cronbach's Alpha and Composite Reliability values consistently above 0.7. Overall, System Quality, Confirmation, Perceived Ease of Use, Perceived Usefulness, and Continuance Intention were found to be reliable constructs, indicating that the measurement model was both valid and robust for subsequent structural model assessment.

Table 2 shows that hypotesis testing where from the results, it can be concluded that several factors influence the continuance intention of active UMN students to use the AI-based chatbot service, including Information Quality (IQ), Service Quality (SVQ), System Quality (SMQ), Confirmation (C), Perceived Usefulness (PU), and Perceived Ease of Use (PEU). These factors collectively shape the (CI) to continue engaging with the AI-based chatbot service. For Information Quality, only hypotheses H_{1a} Information Quality → Confirmation and H_{1c} Information Quality → Perceived Ease of Use were supported, with p-values of 0.008 and 0.000, respectively. This indicates that information quality enhances expectation confirmation and perceived ease-of-use. However, H_{1b} (Information Quality → Perceived Usefulness) was not supported (p = 0.601), suggesting that information quality alone is insufficient to directly improve perceived usefulness. Improving IQ requires regular validation and updates of chatbot-provided information and staff training across the divisions responsible for content management.

Table 1. Measurement model assessment

No.	Variable	Indicator Code	Validity				Reliability		
			Convergent Validity		Discriminant Validity		Cronbach's Alpha > 0.7	Composite Reliability > 0.7	Supported
			Loading factor ((>0,7)	AVE (>0,5)	Cross Loading	Status			
1	*Information Quality* (IQ)	IQ1	0.878	0.768	0.878	Valid	0.95	0.97	Yes
		IQ2	0.873		0.873	Valid			
		IQ3	0.839		0.839	Valid			
		IQ4	0.865		0.865	Valid			
		IQ5	0.891		0.891	Valid			
		IQ6	0.868		0.868	Valid			
		IQ7	0.919		0.919	Valid			

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2	*Service Quality* (SVQ)	SVQ1	0.788	0.736	0.788	Valid	0.931	0.951	Yes
		SVQ2	0.895		0.895	Valid			
		SVQ3	0.872		0.872	Valid			
		SVQ4	0.887		0.887	Valid			
		SVQ5	0.857		0.857	Valid			
		SVQ6	0.845		0.845	Valid			
3	*System Quality* (SMQ)	SMQ1	0.854	0.737	0.854	Valid	0.737	0.933	Yes
		SMQ2	0.849		0.849	Valid			
		SMQ3	0.86		0.86	Valid			
		SMQ4	0.871		0.871	Valid			
		SMQ5	0.858		0.858	Valid			
4	*Confirmation* (C)	C1	0.924	0.868	0.924	Valid	0.868	0.97	Yes
		C2	0.935		0.935	Valid			
		C3	0.931		0.931	Valid			
		C4	0.933		0.933	Valid			
		C5	0.936		0.936	Valid			
5	*Perceived Ease of Use* (PEU)	PEU1	0.91	0.773	0.91	Valid	0.865	0.907	Yes
		PEU2	0.837		0.837	Valid			
		PEU3	0.869		0.869	Valid			
		PEU4	0.899		0.899	Valid			
6	*Perceived Usefulness* (PU)	PU1	0.909	0.719	0.909	Valid	0.842	0.881	Yes
		PU2	0.8		0.8	Valid			
		PU3	0.849		0.849	Valid			
		PU4	0.829		0.829	Valid			
7	*Continuance Intention* (CI)	CI1	0.849	0.735	0.849	Valid	0.829	0.829	Yes
		CI2	0.85		0.85	Valid			
		CI3	0.837		0.837	Valid			
		CI4	0.892		0.892	Valid			

Table 2. Structural model path analysis.

Hypotheses	**Relationships**	**β**	**t-values**	***p*-values**	**Decision**
H_{1a}	IQ -> C	0,386	2.655	0.008	Supported
H_{1b}	IQ -> PU	0,046	0.523	0.601	Not supported
H_{1c}	IQ -> PEU	0,678	6.677	0.000	Supported
H_{2a}	SVQ -> C	0,243	1.954	0.051	Supported
H_{2b}	SVQ -> PU	0,019	0.202	0.840	Not supported
H_{2c}	SVQ -> PEU	0,208	2.421	0.016	Supported
H_{3a}	SMQ -> C	0,305	3.998	0.000	Supported
H_{3b}	SMQ -> PU	0,224	3.566	0.000	Supported
H_{3c}	SMQ -> PEU	0,078	1.196	0.232	Not supported
H_{4a}	C -> PU	0,091	0.941	0.347	Not supported
H_{4b}	C -> CI	0,237	2.220	0.026	Supported
H_{5a}	PEU -> PU	0,608	6.756	0.000	Supported
H_{5b}	PEU -> CI	0,403	4.562	0.000	Supported

The results indicate that several factors significantly influence students' intention to continue using AI-based chatbot services. These include Information Quality (IQ), Service Quality (SVQ), System Quality (SMQ), confirmation (C), Perceived Usefulness (PU), and Perceived Ease of Use (PEU). Collectively, these constructs shape the (CI) to engage with chatbot services in a higher education context (Figure 2).

For **Information Quality**, only the paths from Information Quality to Confirmation (H1a, $p = 0.008$) and Information Quality to Perceived Ease of Use (H1c, $p = 0.000$) were confirmed. This suggests that accurate and timely information enhances expectation confirmation and perceived ease-of-use. However, the path from Information Quality to Perceived Usefulness (H1b, $p = 0.601$) was not supported, indicating that Information Quality alone is insufficient to directly improve Perceived Usefulness. This highlights the need for continuous validation of the information provided by chatbots and effective content management strategies. The relationship between Information Quality and Perceived Usefulness (H1b) showed a p-value of 0.601, indicating a non-significant relationship. This finding suggests that the quality of information provided by the chatbot is not strong enough to directly enhance users' perception of its usefulness. This may occur because students, as users, tend to value a chatbot's practical functions and ease of use more than the quality of the information itself. In other words, even if the information delivered is accurate, users may not perceive it as useful unless it effectively helps them fulfill their needs in a more efficient manner.

For Service Quality, only the relationship with PU was significant (H2c, $p = 0.016$). Neither Service Quality → Confirmation (H2a) nor Service Quality → Perceived Usefulness (H2b) was supported. This implies that service responsiveness may enhance ease-of-use perceptions but does not directly contribute to usefulness or expectation confirmation. The results indicate that the hypotheses regarding the relationship between Service Quality and Confirmation (H2a) and Service Quality and Perceived Usefulness (H2b) are not significant. This can be explained by the automated and limited nature of chatbot interactions, where service aspects such as empathy, attentiveness, and human-like responsiveness, which are typically key determinants of service quality in traditional contexts, are less relevant. Students may not evaluate the chatbot's performance based on the same service quality dimensions they would use for human staff members. Therefore, even though chatbots provide quick responses, this does not necessarily enhance users' confirmation of their experience or perception of their usefulness.

System Quality demonstrated stronger effects. Significant paths were found from System Quality to Confirmation (H3a, $p = 0.000$) and Perceived Usefulness (H3b, $p = 0.000$). This underscores the importance of reliability and technical stability in shaping satisfaction and perceptions of usefulness. However, the non-significant path to Perceived Ease of Use (H3c, $p = 0.232$) suggests that technical robustness does not automatically translate into perceived simplicity of use. For the relationship between System Quality and Perceived Ease of Use (H3c), the results show a non-significant relationship, with a p-value of 0.232. This finding can be explained by the high level of technological familiarity of the students. In other words, the ease of using the chatbot is no longer strongly influenced by system quality factors such as stability or speed but rather by the intuitiveness of the interface and the clarity of the instructions. Users accustomed to various digital applications tend to be less affected by the technical aspects of a system when assessing its ease of use.

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Among the mediators, confirmation significantly affected Continuance Intention (H4b, p = 0.026), although its effect on Perceived Usefulness was not supported (H4a, p = 0.347). This implies that fulfilling initial expectations directly encourages continued use, even when it does not strengthen the perceived usefulness. The hypothesis examining the relationship between Confirmation and Perceived Usefulness (H4a) was also not supported, with a p-value of 0.347. This finding indicates that meeting user expectations does not directly enhance the perceived usefulness of a chatbot. In other words, even if users' experiences with the chatbot align with their initial expectations, they do not necessarily perceive significant added value in using the technology. In this case, the chatbot is viewed as merely fulfilling basic informational needs rather than providing deeper benefits, such as time efficiency, intelligent recommendations, or personalized information. Perceived Ease of Use exerted significant influence on both Perceived Usefulness (H5a, p = 0.000) and Continuance Intention (H5b, p = 0.000), confirming its pivotal role. Similarly, Perceived Usefulness significantly predicted Continuance Intention (H6, p = 0.014). The structural model explains 81.9% of the variance in Continuance Intention (R^2 = 0.819, Adjusted R^2 = 0.817), with the remaining 18.1% attributed to external factors outside the model. This indicates strong predictive power and suggests that continuance intention is primarily driven by actual experiences (confirmation), perceived ease of use, and perceived usefulness rather than initial perceptions of information or service quality.

The findings indicate that students' intention to continue using AI-based chatbot services is primarily influenced by actual user experience (confirmation), perceived ease of use, and perceived usefulness. These factors play a more dominant role than the initial quality of information and services. For Information Quality, only its relationships with Confirmation and Perceived Ease of Use were significant, while the relationship with Perceived Usefulness was not supported. This suggests that students do not perceive the chatbot's usefulness solely based on the quality of the information provided but rather on how effectively the chatbot assists them in completing academic tasks efficiently.

Service Quality significantly affected Perceived Ease of Use but not Confirmation or Perceived Usefulness. This result implies that in automated AI interactions, traditional service attributes such as empathy and personal attention become less relevant. System Quality was found to influence Confirmation and Perceived Usefulness, but not Perceived Ease of Use, as digitally literate students tended to assess usability based on the intuitiveness of the interface and clarity of navigation rather than the technical performance of the system. Furthermore, Confirmation significantly influenced Continuance Intention but not Perceived Usefulness, suggesting that meeting user expectations encourages continued use but does not necessarily enhance perceived value when the chatbot only fulfills basic informational needs. Overall, the findings highlight that usability, perceived benefits, and user satisfaction are the key determinants of students' continued intention to use AI-based chatbot services in higher education.

In general, the findings indicate that the Perceived Ease of Use and Perceived Usefulness are the most dominant factors influencing users' continuance intention. This suggests that users are more likely to continue using technology when they find the system easy to operate and it provides tangible benefits in their daily activities. In addition, confirmation, or the degree to which users' expectations align with their actual experiences, plays a crucial role. Positive experiences strengthen users' willingness to continue engaging with technology in the future.
Conversely, several initial quality factors, namely, Information Quality, Service Quality, and System Quality, did not show a significant direct effect on user perceptions. Nevertheless, these factors still contribute indirectly through their influence on confirmation, perceived ease of use,

and perceived usefulness. This finding implies that technical quality alone is not the primary determinant of the intention to continue using a service. Instead, users' actual experiences and cognitive perceptions play substantial roles. In other words, when users perceive that technology is easy to use and provides meaningful benefits, they tend to overlook shortcomings in technical or service-related aspects of the technology.

These findings reinforce the core principles of the Technology Continuance Theory (TCT), which emphasizes that the intention to continue using a technology is not solely determined by system or service quality, but rather by users' perceptions of ease and usefulness that emerge from prior experiences. Therefore, users' decisions to continue using a system are more experience-driven than system-driven decisions.

From a practical perspective, these results have valuable implications for developers and system administrators of AI-based technologies. Greater emphasis should be placed on enhancing the user experience, which can be achieved by improving interface design to make it more intuitive, offering features that align with user needs, increasing response speed, and ensuring the delivery of accurate and easily understandable information. By adopting a user-centered approach, AI-based technologies are more likely to be used continuously and generate a long-term positive impact on their users.

4. CONCLUSION AND SUGGESTION

Based on the research findings regarding the factors influencing the continuance intention of using artificial intelligence (AI)-based services, it can be concluded that the variables within The The Technology Continuance Theory (TCT) model play a significant role in explaining user behavior and intention to continue using digital technology. Overall, the findings indicate that users' continuance intentions are more strongly influenced by actual user experiences and cognitive perceptions, such as Perceived Ease of Use and Perceived Usefulness, than by initial technical quality factors, including information, service, and system quality. Users tend to evaluate a system or service not merely based on its technological attributes but rather on how effectively the technology assists and facilitates their activities.

Collectively, Information Quality, Service Quality, and System Quality exert different effects on the mediating variables Confirmation, Perceived Ease of Use, and Perceived Usefulness, which in turn shape continuance intention. Specifically, Information Quality significantly influenced Confirmation and Perceived Ease of Use but not Perceived Usefulness. This suggests that while high-quality information can enhance user expectations and ease of use, it is insufficient to increase perceived usefulness. Service Quality was shown to influence only Perceived Ease of Use, whereas System Quality significantly affected Confirmation and Perceived Usefulness but not Perceived Ease of Use. This indicates that system stability and reliability contribute more strongly to users' positive experiences and perceive usefulness, whereas perceived ease of use is primarily shaped by interface design and direct interaction experiences.

Furthermore, Confirmation significantly influenced Continuance Intention but not Perceived Usefulness, implying that when users' expectations are met, they remain motivated to continue using the technology even if they are not entirely satisfied with its functionality. Perceived Ease of Use significantly affects both Perceived Usefulness and Continuance Intention, and Perceived Usefulness also impacts Continuance Intention. These findings highlight that ease of use and perceived usefulness are the primary drivers of the sustained adoption of technology.

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In summary, the results reinforce the core premise of the Technology Continuance Theory (TCT) that users' decisions to continue using technology are driven more by actual experiences and perceived ease of use and usefulness rather than by technical quality alone. These findings also have practical implications for developers and system managers, emphasizing the importance of improving the user experience through intuitive interface design, faster system responses, and the inclusion of interactive, contextually relevant features. Thus, AI-based technologies can deliver more tangible added value, enhance functionality and foster long-term user satisfaction and loyalty.

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REFERENCES

Ashfaq, M., Yun, J., Yu, S., & Loureiro, S. M. C. (2020). I, Chatbot: Modeling the determinants of users' satisfaction and continuance intention of AI-powered service agents. *Telematics and Informatics*, *54*, 101473. https://doi.org/10.1016/j.tele.2020.101473

Chen, J. S., Le, T. T. Y., & Florence, D. (2021). Usability and responsiveness of artificial intelligence chatbot on online customer experience in e-retailing. *International Journal of Retail and Distribution Management*, *49*(11), 1512–1531. https://doi.org/10.1108/IJRDM-08-2020-0312

Chen, Q., Lu, Y., Gong, Y., & Xiong, J. (2023). Can AI chatbots help retain customers? Impact of AI service quality on customer loyalty. *Internet Research*, *33*(6), 2205–2243. https://doi.org/10.1108/INTR-09-2021-0686

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, *19*(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

Foroughi, B., Huy, T. Q., Iranmanesh, M., Ghobakhloo, M., Rejeb, A., & Nikbin, D. (2025). Why users continue E-commerce chatbots? Insights from PLS-fsQCA-NCA approach. *Service Industries Journal*, *45*(11–12), 935–965. https://doi.org/10.1080/02642069.2024.2371910

Hannan, E., & Liu, S. (2023). AI: new source of competitiveness in higher education. *Competitiveness Review: An International Business Journal*, *33*(2), 265–279. https://doi.org/10.1108/CR-03-2021-0045

Huang, D., Markovitch, D. G., & Stough, R. A. (2024). Can chatbot customer service match human service agents on customer satisfaction? An investigation in the role of trust. *Journal of Retailing and Consumer Services*, *76*, 103600. https://doi.org/10.1016/j.jretconser.2023.103600

Kang, H. (2021). Sample size determination and power analysis using the G*Power software. *Journal of Educational Evaluation for Health Professions*, *18*, 17. https://doi.org/10.3352/jeehp.2021.18.17

Lei, S. I., Shen, H., & Ye, S. (2021). A comparison between chatbot and human service: customer perception and reuse intention. *International Journal of Contemporary Hospitality Management*, *33*(11), 3977–3995. https://doi.org/10.1108/IJCHM-12-2020-1399

Liao, C., Palvia, P., & Chen, J.-L. (2009). Information technology adoption behavior life cycle: Toward a Technology Continuance Theory (TCT). *International Journal of Information Management*, *29*(4), 309–320. https://doi.org/10.1016/j.ijinfomgt.2009.03.004

Novianta, E., Andani, A., . F., & Pane, S. G. (2024). Financial Technology Dan Literasi Keuangan Terhadap Generasi Z. *Jurnal Ekonomika Dan Bisnis (JEBS)*, *4*(1), 1–8.

https://doi.org/10.47233/jebs.v4i1.1423

Rabaa'i, A. A., & ALMaati, S. A. (2021). Exploring the Determinants of Users' Continuance Intention to Use Mobile Banking Services in Kuwait : Extending the Expectation-Confirmation Model. *Asia Pacific Journal of Information Systems*, *31*(2), 141–184. https://doi.org/10.14329/apjis.2021.31.2.141

Rahi, S., Khan, M. M., & Alghizzawi, M. (2021). Extension of technology continuance theory (TCT) with task technology fit (TTF) in the context of Internet banking user continuance intention. *International Journal of Quality and Reliability Management*, *38*(4), 986–1004. https://doi.org/10.1108/IJQRM-03-2020-0074

Sosianika, A., Rafdinal, W., & Amalia, F. A. (2024). Exploring Students' Continuence Intention Toward Artificial Intelligence. *Jurnal Riset Dan Inovasi Pembelajaran*, *4*(3), 1726–1741. https://doi.org/10.51574/jrip.v4i3.2027

Sundjaja, A. M., Utomo, P., & Colline, F. (2025). The determinant factors of continuance use of customer service chatbot in Indonesia e-commerce: extended expectation confirmation theory. *Journal of Science and Technology Policy Management*, *16*(1), 182–203. https://doi.org/10.1108/JSTPM-04-2024-0137

Tata, S. V., Prashar, S., & Parsad, C. (2021). Examining the influence of satisfaction and regret on online shoppers' post-purchase behaviour. *Benchmarking: An International Journal*, *28*(6), 1987–2007. https://doi.org/10.1108/BIJ-06-2020-0332