

An Integrated Conceptual Model of Technological and Psychological Influencing Continuance Usage Intention in Online Course Platforms

Fauziah^{1,*}, Nurul Hidayatinnisa¹, Ayu Febriyanti Puspitasari¹, Sanita Dhakirah¹

¹Business Administration Department, Politeknik Negeri Malang, Indonesia

*Corresponding author. Email: fauziah@polinema.ac.id

ABSTRACT

Online course platforms have become essential in addressing the growing demand for accessible education, particularly in developing countries such as Indonesia. However, sustaining user engagement beyond initial adoption remains a significant challenge. This conceptual study proposes an integrated model to examine the factors influencing Continuance Usage Intention (CUI) in online learning environments. The model synthesizes two prominent theoretical frameworks: the Expectation-Confirmation Model (ECM) and the Technology Acceptance Model (TAM). It identifies Perceived Usefulness (PU) and Perceived Enjoyment (PE) as key antecedents, with Attitude (AT) serving as a mediating variable that links these constructs to users' continued usage behavior. By incorporating both technological and psychological dimensions, the model addresses existing gaps in literature and offers a holistic understanding of post-adoption behavior. The study contributes theoretically by enriching the discourse on user retention and practically by providing strategic insights for educators, platform developers, and policymakers aiming to foster sustained engagement in online learning. Ultimately, this research lays the groundwork for future empirical validation and offers a roadmap for designing more inclusive, engaging, and sustainable online learning experiences.

Keywords: *Continuance Usage Intention, Perceived Usefulness, Perceived Enjoyment, Attitude, Online course Platforms.*

1. INTRODUCTION

The rise of digital technology has transformed the educational landscape, with Online course platforms emerging as critical tools for improving access to education globally. These platforms offer flexible and scalable solutions, allowing users to engage in learning activities without the constraints of time and location. Particularly in developing countries such as Indonesia, Online course platforms play a pivotal role in bridging educational disparities caused by geographic and socio-economic challenges. By providing opportunities for lifelong learning and professional development, they contribute significantly to enhancing the competitiveness of the workforce in the digital economy (F. Huang & Liu, 2024; Rohiem & Sari, 2023).

Despite their growing popularity and potential, sustaining user engagement remains a significant challenge for Online course platforms. Studies reveal that many users discontinue their courses after initial adoption, resulting in low course completion rates and diminished long-term participation. For instance, only 35% of users in Indonesia complete their enrolled courses, while the remaining 65% drop out midway, citing issues such as lack of sustained motivation, limited perceived benefits, and insufficient social support (ACER Indonesia, 2021). Additionally, while over 60% of users register for multiple courses, only 25% proceed to subsequent enrollments after completing their first course (Statista, 2023). These figures highlight the urgent need to address barriers that hinder Continuance Usage Intention (CUI), defined as the willingness of users to continue using an Online course platforms after their initial experience (Bhattacharjee, 2001).

CUI is a critical factor in determining the long-term success and sustainability of these platforms, as it directly impacts user retention, platform growth, and user recommendations. Several studies have explored factors influencing CUI, including technological attributes, psychological experiences, and social dynamics (Venkatesh, 2000; Zhou, 2013). However, there remains a gap in integrating these factors within a cohesive framework that accounts for their interplay, particularly in the context of developing countries like Indonesia.

To address this gap, this study proposes an integrated conceptual model grounded in three established theoretical frameworks. The first framework is the Expectation-Confirmation Model (ECM), which highlights the role of user satisfaction, derived from the confirmation of pre-adoption expectations and perceived usefulness, in fostering continuance behavior (Bhattacharjee, 2001). The second framework is the Technology Acceptance Model (TAM), which emphasizes the importance of perceived usefulness (PU) and perceived enjoyment (PE) in shaping user attitudes and intentions toward continued technology usage (Davis, 1989). By combining these frameworks, the proposed model provides a holistic approach to understanding the factors influencing continuance usage intention in Online course platforms.

In this model, Attitude (AT) is proposed as a mediating variable that connects technological, psychological, and social antecedents to continuance behavior. Attitude encapsulates users' overall evaluations of the platform, shaped by their perceptions of usefulness, enjoyment, and social encouragement. This mediating role offers a deeper understanding of how these factors collectively influence users' decisions to remain engaged with Online course platforms (Bhattacharjee, 2001; Davis, 1989; Venkatesh, 2000).

The Indonesian context provides a unique setting for this investigation. With a high internet penetration rate of 77% and a vibrant online learning ecosystem comprising over 30 platforms, Indonesia exemplifies the potential and challenges of digital education (Datareportal, 2023). The country's communal culture further amplifies the relevance of social influence, as decisions often reflect societal norms and peer recommendations (Sitorus et al., 2019). By tailoring the conceptual model to Indonesia's specific socio-cultural and technological environment, this study contributes a localized perspective to the broader discourse on online learning sustainability.

This research offers several significant contributions. From a theoretical perspective, the study integrates the Expectation-Confirmation Model (ECM) and Technology Acceptance Model (TAM) into a unified framework, addressing gaps in the literature on post-adoption behavior and user retention in Online course platforms (Bhattacharjee, 2001; Davis, 1989; Venkatesh, 2000). Practically, by identifying key factors influencing continuance usage intention (CUI), the model provides actionable insights for platform developers, educators, and policymakers to design strategies that enhance user retention and engagement. Additionally, the findings have societal implications by supporting the development of inclusive and accessible educational opportunities, which align with Indonesia's goals for digital transformation and workforce empowerment (Kementerian Komunikasi dan Informatika, 2023).

In summary, this study aims to advance the understanding of user behavior in online learning environments by examining the interplay of technological and psychological factors. By focusing on continuance usage intention, it seeks to provide a roadmap for improving platform design and fostering long-term participation in digital education. The proposed conceptual model lays the groundwork for future empirical research and practical interventions, ultimately contributing to the broader goal of promoting lifelong learning and digital inclusion.

2. LITERATURE REVIEW

2.1. Theoretical Frameworks

The Expectation-Confirmation Model (ECM), developed by (Bhattacharjee, 2001), explains users' post-adoption behavior in information systems by emphasizing the role of satisfaction in influencing continuance usage intention. Satisfaction arises from the confirmation of pre-adoption expectations and perceived usefulness. When users' experiences align with or exceed their initial expectations, satisfaction increases, fostering sustained usage. ECM has been widely applied in various technological contexts, including e-learning platforms, where satisfaction and perceived usefulness are pivotal in shaping continuance intentions (Muqtadiroh et al., 2019).

The Technology Acceptance Model (TAM), introduced by (Davis, 1989), highlights two primary constructs that influence user acceptance of technology: perceived usefulness (PU) and perceived ease of use. PU refers to the belief that a system enhances performance, while perceived enjoyment (PE), an extension of TAM, captures the intrinsic pleasure derived from using technology (Davis et al., 1992). Both PU and PE influence users' attitudes toward technology, which subsequently affect their intentions to continue usage. TAM has proven relevant in studies on online course platforms, demonstrating the importance of both functional and experiential benefits in driving user engagement (F. Huang & Liu, 2024; Zhou, 2013).

2.2. Key Constructs and Relationships

Perceived Usefulness (PU) is a critical determinant of continuance usage intention (CUI) within the frameworks of ECM and TAM. PU reflects users' perceptions of how effectively a platform enhances their learning outcomes.

Numerous studies have demonstrated the positive influence of PU on user attitudes and intentions, with platforms offering tangible benefits, such as improved skills or knowledge, being more likely to retain users (Bhattacharjee, 2001) (Davis, 1989; Tao et al., 2022).

Perceived Enjoyment (PE) captures the intrinsic motivation and satisfaction users derive from interacting with technology. As an experiential factor, PE plays a vital role in sustaining user engagement, as enjoyable experiences encourage users to continue using the platform. Research has shown that PE significantly impacts users' attitudes toward online course platforms, reinforcing their commitment to long-term usage (Ashfaq et al., 2020; Venkatesh et al., 2012; Wu & Gao, 2011).

Attitude (AT) serves as a mediating variable between PU, PE and CUI. It represents users' overall evaluation of the platform, shaped by their perceptions of usefulness, enjoyment, and social support. Positive attitudes foster stronger intentions to continue using online course platforms, highlighting the importance of addressing users' holistic experiences to drive sustained engagement (Bhattacharjee, 2001; Davis, 1989).

Continuance Usage Intention (CUI) is defined as the willingness of users to persist in using a technology beyond initial adoption. Central to this study, CUI is influenced by satisfaction, attitudes, and social dynamics as outlined in ECM and TAM. Understanding the interconnected factors influencing CUI is particularly critical in developing countries like Indonesia, where digital adoption is shaped by unique socio-cultural contexts, such as communal values and infrastructure challenges (Bhattacharjee, 2001; Kementerian Komunikasi dan Informatika, 2023; Venkatesh et al., 2003). These constructs collectively provide a foundation for analyzing the factors that drive user retention on online learning platforms.

3. CONCEPTUAL MODEL AND HYPOTHESES DEVELOPMENT

3.1. Conceptual Model

The conceptual model is developed to address gaps in understanding the post-adoption behavior of users on Online course platforms. By integrating technological, psychological, and social factors, it provides a comprehensive framework for examining continuance usage intention (CUI). The relationships among the variables in the model are guided by three theoretical foundations. The Expectation-Confirmation Model (ECM) explains how satisfaction and confirmation of expectations drive continuance behavior (Bhattacharjee, 2001). The Technology Acceptance Model (TAM) highlights the influence of perceived usefulness (PU) and perceived enjoyment (PE) on user attitudes and behavioral intentions (Davis, 1989).

The proposed model assumes that perceived usefulness (PU) and perceived enjoyment (PE) directly influence attitude (AT), which mediates their effects on continuance usage intention (CUI). PU enhances CUI by highlighting the platform's functional benefits, PE fosters engagement through enjoyable experiences, and SI encourages usage through social validation. Additionally, PU and PE also directly influence CUI, with PU emphasizing value, PE motivating through enjoyment. This demonstrates the combined direct and mediated effects of these factors on user retention, as illustrated in Figure. 1.

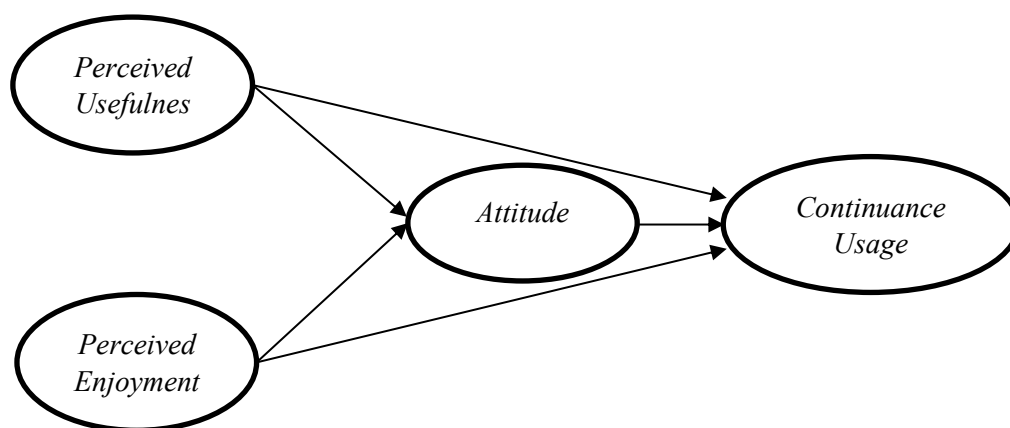


Figure 1. Research Framework

3.2. Hypotheses Development

Direct Relationships. Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.

Perceived usefulness (PU) reflects the extent to which users believe an online course platform enhances their learning outcomes. Research has shown that users are more likely to continue using a platform if they perceive it as beneficial in achieving their goals, such as acquiring new skills or improving academic performance. PU directly influences continuance usage intention (CUI) by increasing user satisfaction and perceived value, making it a critical determinant of user retention (Bhattacharjee, 2001; Davis, 1989).

H1: Perceived usefulness positively influences continuance usage intention.

Perceived enjoyment (PE) captures the intrinsic pleasure and satisfaction users derive from interacting with an online course platform. Enjoyable experiences enhance engagement, foster positive emotions, and motivate users to remain active on the platform. Prior studies have established that PE significantly impacts user intentions to continue usage, as pleasurable interactions contribute to sustained engagement and long-term adoption (Ashfaq et al., 2020; Venkatesh et al., 2012).

H2: Perceived enjoyment positively influences continuance usage intention.

Mediating Role of Attitude (AT). Perceived usefulness (PU) shapes users' attitudes (AT) by enhancing their perceptions of the platform's value. When users believe that an Online course platform effectively supports their learning goals, it fosters a positive evaluation of the platform, leading to a favourable attitude. PU is therefore a key driver in shaping users' overall assessment of the platform (Bhattacharjee, 2001; Davis, 1989).

H3: Perceived usefulness positively influences attitude.

Perceived enjoyment (PE) contributes to the development of a positive attitude (AT) by offering users an enjoyable and fulfilling experience. Positive emotions arising from engaging and pleasurable interactions strengthen users' overall evaluation of the platform. As such, PE is an important antecedent in fostering favourable attitudes toward Online course platforms (F. Huang & Liu, 2024; Venkatesh et al., 2012).

H4: Perceived enjoyment positively influences attitude.

Attitude (AT) represents users' overall evaluation of an Online course platforms, encompassing their perceptions of usefulness, enjoyment, and social support. Positive attitudes directly influence continuance usage intention (CUI), as users with favorable evaluations are more likely to maintain long-term engagement with the platform. AT serves as a critical mediator linking PU, PE, and SI to sustained usage (Bhattacharjee, 2001; Davis, 1989).

H5: Attitude positively influences continuance usage intention.

Mediating Effects. Attitude (AT) mediates the relationship between perceived usefulness (PU) and continuance usage intention (CUI) by enhancing the positive effects of PU on user retention. Users who perceive the platform as valuable are likely to develop favourable attitudes, which subsequently strengthen their intention to continue using it. This highlights the indirect role of AT in leveraging PU to drive sustained engagement (Bhattacharjee, 2001; Davis, 1989).

H6: Attitude (AT) mediates the relationship between perceived usefulness (PU) and continuance usage intention (CUI) among users of Online course platforms in Indonesia.

Attitude (AT) also mediates the relationship between perceived enjoyment (PE) and continuance usage intention (CUI). Positive emotions derived from enjoyable experiences foster favorable attitudes toward the platform, which in turn enhance users' intention to remain active. This mediation underscores the importance of enjoyable interactions in sustaining long-term platform use (F. Huang & Liu, 2024; Venkatesh et al., 2012).

H7: Attitude (AT) mediates the relationship between perceived enjoyment (PE) and continuance usage intention (CUI) among users of Online course platforms in Indonesia.

4. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This study develops a conceptual framework grounded in established theories, including the Expectation-Confirmation Model (ECM) and Technology Acceptance Model (TAM). However, the model remains conceptual and untested, necessitating empirical validation through methods such as structural equation modelling (SEM) with data

from diverse user populations. Additionally, the model is tailored to Indonesia's socio-cultural and digital context, emphasizing communal values and accessibility challenges. While this enhances its relevance locally, it may limit the model's generalizability to other cultural or geographic contexts, requiring comparative studies in different regions to test cross-cultural applicability. Furthermore, the model captures user behaviour at a single point in time, potentially overlooking the dynamic changes in perceptions, attitudes, and intentions that occur over time. Longitudinal studies are recommended to understand these behavioural shifts as users engage with Online course platforms. Lastly, the model takes a generalized approach to Online course platforms, potentially neglecting platform-specific features or functionalities that influence user engagement. Future research could address this by applying the model to specific platforms or categories, such as MOOCs or corporate training platforms, to better capture contextual nuances.

Future research should focus on empirically validating the proposed model using data from diverse user groups, such as students, professionals, and educators, to assess its robustness and generalizability. Applying the model in both developing and developed countries can uncover insights into global and localized user behaviours, enhancing its applicability across various contexts. Longitudinal studies are also recommended to track changes in user attitudes and intentions over time, providing a deeper understanding of the factors that sustain or diminish user engagement in the long term. Additionally, combining survey-based measures with behavioural and usage data—such as time spent on the platform, course completion rates, and engagement metrics—can strengthen the validity of findings and offer richer insights into user behaviour. Finally, comparative research across different Online course platforms can identify platform-specific drivers of retention. Investigating how features like gamification, community forums, or instructor support influence perceived usefulness (PU), perceived enjoyment (PE) and attitude (AT) can provide valuable insights for optimizing platform design and strategies.

REFERENCES

- ACER Indonesia. (2021). *Tren Transformasi Digital di Sektor Pendidikan Indonesia*. <https://Acerindonesia.Com>.
- Ahmad, A., Rasul, T., Yousaf, A., & Zaman, U. (2020). Understanding factors influencing elderly diabetic patients' continuance intention to use digital health wearables: Extending the technology acceptance model (TAM). *Journal of Open Innovation: Technology, Market, and Complexity*, 6(3). <https://doi.org/10.3390/JOITMC6030081>
- 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>
- Bhattacharjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS Quarterly*, 25(3), 351–370.
- Datareportal. (2023). *Digital 2023: Indonesia Report*. <https://Datareportal.Com/>.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarter*, 13(3), 319–340.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace'. In *Journal of Applied Social Psychology* (Vol. 22).
- Huang, D. H., & Chueh, H. E. (2022). Behavioral intention to continuously use learning apps: A comparative study from Taiwan universities. *Technological Forecasting and Social Change*, 177. <https://doi.org/10.1016/j.techfore.2022.121531>
- Huang, F., & Liu, S. (2024). If I Enjoy, I Continue: The Mediating Effects of Perceived Usefulness and Perceived Enjoyment in Continuance of Asynchronous Online English Learning. *Education Sciences*, 14(8). <https://doi.org/10.3390/educsci14080880>
- Kementerian Komunikasi dan Informatika. (2023). *Indonesia Digital Landscape 2023*. <https://Kominfo.Go.Id/>.
- Muqtadiroh, F. A., Herdiyanti, A., Wicaksono, I., & Usagawa, T. (2019). Analysis of Factors Affecting Continuance Intention of E-Learning Adoption in Lecturers' Perspectives. *IOP Conference Series: Materials Science and Engineering*, 588(1). <https://doi.org/10.1088/1757-899X/588/1/012022>
- Rohiem, A. F., & Sari, J. (2023). Analisis SWOT Sarana Pembelajaran Digital Masive Open Online Course (MOOC) Ruang Guru. *Jurnal Manajemen Dan Pendidikan Islam*, 9(2), 126–136. <https://doi.org/10.26594/dirasat>
- Sitorus, H. M., Govindaraju, R., Wiratmadja, Dr. Ir. I. I., & Sudirman, I. (2019). Examining the Role of Usability, Compatibility and Social Influence in Mobile Banking Adoption in Indonesia. *International Journal of Technology*, 10(2), 351. <https://doi.org/10.14716/ijtech.v10i2.886>
- Statista. (2023). *E-learning and Digital Education in Indonesia - Statistics & Facts*. <https://Statista.Com>.

- Tao, D., Fu, P., Wang, Y., Zhang, T., & Qu, X. (2022). Key characteristics in designing massive open online courses (MOOCs) for user acceptance: an application of the extended technology acceptance model. *Interactive Learning Environments*, 30(5), 882–895. <https://doi.org/10.1080/10494820.2019.1695214>
- Venkatesh, Thong, & Xu. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, 36(1), 157. <https://doi.org/10.2307/41410412>
- Venkatesh, V. (2000). Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model. *Information Systems Research*, 11(4), 342–365. <https://doi.org/10.1287/isre.11.4.342.11872>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). USER ACCEPTANCE OF INFORMATION TECHNOLOGY: TOWARD A UNIFIED VIEW. *MIS Quarterly*, 27(3), 425–478.
- Wu, X., & Gao, Y. (2011). Applying The Extended Technology Acceptance Model To The Use Of Clickers In Student Learning: Some Evidence From Macroeconomics Classes. *American Journal of Business Education (AJBE)*, 4(7), 43–50. <https://doi.org/10.19030/ajbe.v4i7.4674>
- Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision Support Systems*, 54(2), 1085–1091. <https://doi.org/10.1016/j.dss.2012.10.034>