

Factors Influencing Employees' Continuance Intention in AI-Powered Digital Learning: Evidence from SMEs in Sichuan, China

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ABSTRACT

The research investigates which elements affect employee willingness to maintain their usage of AI-driven digital learning platforms within small and medium enterprises across Sichuan China. The study applies TAM and ECM to analyze how employees' perceptions of system ease of use and usefulness affect their satisfaction levels and their decision to continue using the system. The research analyzed data from 312 employees across 87 SMEs through PLS-SEM. The research findings demonstrate that user satisfaction together with perceived usefulness directly affect continuance intention which helps organizations enhance their AI-based training programs for SMEs.

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1. INTRODUCTION

The rapid advancement of artificial intelligence (AI) technologies has transformed organizational learning and workforce training practices. AI-powered digital learning platforms integrate machine learning, natural language processing, and adaptive recommendation algorithms to deliver personalized learning experiences and improve training efficiency. Such platforms have increasingly been adopted by small and medium-sized enterprises (SMEs) seeking scalable and cost-effective workforce development solutions.

In China, SMEs account for more than 99% of registered enterprises and play a critical role in employment generation and economic development. SMEs in Sichuan Province, however, operate under distinctive structural constraints, including uneven digital infrastructure, limited financial resources, and heterogeneous employee digital literacy levels. These characteristics differentiate Sichuan SMEs from large enterprises and SMEs located in more developed regions, making them a unique context for examining AI-enabled workplace learning.

Although AI-powered learning systems have been widely implemented, existing research has predominantly focused on technology adoption rather than employees' post-adoption continuance behavior. In practice, sustained employee engagement is essential for SMEs, as the effectiveness of digital learning initiatives depends not only on initial use but also on continuous usage. Prior studies applying TAM and ECM have largely overlooked SMEs in developing regions, where resource constraints may influence employees' cognitive and affective evaluations of AI systems.

Accordingly, this study addresses a critical research gap by examining employees' continuance intention toward AI-powered digital learning platforms in SMEs in Sichuan, China. By integrating TAM and ECM, the study investigates how perceived ease of use, perceived usefulness, and satisfaction jointly shape post-adoption usage behavior in a developing-region SME context.

1.1 Problem Statement

The fast adoption of AI learning systems across different industries including Sichuan China's small and medium-sized enterprises (SMEs) has not received sufficient research about employee maintenance of system engagement throughout time. The existing body of research about AI technology adoption focuses on new user adoption but fails to study employee behavior when using these systems in the long term within Sichuan's restricted digital infrastructure and resource-limited environment. SMEs need to maintain employee participation in digital learning systems because this factor determines the success of their digital transformation initiatives. The research lacks understanding about which elements affect employees to keep using AI-powered learning platforms after their first adoption. The research investigates which factors influence employee dedication to AI-based learning platforms in SMEs through an analysis of Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) and user satisfaction.

1.2 Objective

The main goal of this research investigates which elements affect employee willingness to keep using AI-based digital learning platforms in Chinese Sichuan small and medium-sized enterprises (SMEs). The research focuses on three main objectives.

- Objective 1: The research investigates how Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) affect employee satisfaction when using AI-powered digital learning systems.
- Objective 2: The research explores how employee satisfaction levels affect their decision to continue using AI-driven learning systems.
- Objective 3: The research delivers actionable guidance for SME leaders to create AI-based workforce development plans which boost employee retention and digital learning system adoption.

2. RELATED WORKS

The implementation of artificial intelligence (AI) technology has brought major changes to employee training operations within small and medium-sized enterprises (SMEs). AI-based learning platforms that incorporate machine learning and natural language processing and recommendation systems deliver customized educational experiences which enhance both student results and employee participation (Al-Emran, Mezhyuev, & Kamaludin, 2018). The systems deliver affordable and scalable workforce development solutions to SMEs which need these resources because of their restricted budget and limited operational capacity (Widjaja & Widjaja, 2022). The long-term employee participation with AI-based learning platforms remains an unexplored area despite their demonstrated potential.

The Technology Acceptance Model (TAM) developed by Davis (1989) serves as a widely used framework to study technology adoption behaviors. The Technology Acceptance Model (TAM) shows that users base their technology adoption decisions on two essential factors which are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Research studies about digital learning systems have proven that users' initial technology adoption and long-term usage depend on their perceptions of system usability and usefulness (Al-Emran et al., 2018; Roca et al., 2006). The model helps explain technology adoption but it does not effectively predict how users maintain their engagement throughout time when digital transformation depends on employee dedication in organizational environments.

The Expectation-Confirmation Model (ECM) (Bhattacharjee, 2001) extends TAM by making user satisfaction the primary factor that determines continued system usage. The system generates higher user satisfaction when their predicted system performance matches actual system performance which leads to extended system usage. The study by Roca et al. (2006) demonstrated that user satisfaction plays a crucial role in determining e-learning system continuance intention. The model has not received substantial application for AI-based learning systems operating in SMEs throughout Sichuan China because of its developing digital infrastructure.

Research on AI system user engagement and e-learning continuance intention through TAM and ECM models exists but their combined application for SME AI learning systems remains understudied. The research investigates how Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) along with user satisfaction affect employee engagement and continuance intention in AI-driven learning systems for SMEs.

2.1 Theoretical Framework

The complete framework for studying user behavior after adopting AI-based digital learning systems results from combining TAM and ECM models. The TAM model includes two cognitive factors which are PU and PEOU yet ECM shows that satisfaction acts as an affective mediator which connects cognitive perceptions to behavioral results (Roca et al., 2006). The combined model has demonstrated success in various research studies that investigated e-learning continuance intention and mobile learning and AI-based learning environments (Roca et al., 2006; Al-Emran et al., 2018; Jung & Jo, 2025). The corporate training industry needs to understand how cognitive beliefs interact with satisfaction to influence continuance intention because employee engagement directly drives workforce development and digital transformation.

The integrated theoretical framework enables this study to create a conceptual framework that examines employee commitment to AI-powered digital learning systems in small and medium enterprises. The model shows that PEOU leads to positive effects on PU and both factors create positive effects on satisfaction levels. The model shows that satisfaction directly affects continuance intention but PU also directly influences continuance intention. The following hypotheses emerge from these relationships.

- H1: Perceived ease of use (PEOU) positively influences perceived usefulness (PU).
- H2: Perceived ease of use (PEOU) positively influences satisfaction.
- H3: Perceived usefulness (PU) positively influences satisfaction.
- H4: Perceived usefulness (PU) positively influences continuance intention.
- H5: Satisfaction positively influences continuance intention.

Fig. 1 Theoretical Framework (author's Actual Research). The conceptual framework (Figure 1) demonstrates how PEOU and PU influence satisfaction which in turn affects continuance intention in AI-powered digital learning environments. The framework provides a theoretical framework which explains how cognitive and affective elements function together to sustain user interest in AI-based training systems and offers practical guidance for SMEs to develop improved workforce development initiatives.

2.2 Gaps in the Literature and Contribution of This Study

Research studies have used TAM and ECM models to study e-learning and AI adoption but none have studied how these models work together to predict user engagement in AI-based learning platforms (Jung & Jo, 2025). The current research lacks understanding about how these models function in SMEs operating in emerging economies such as Sichuan because most studies focus on large enterprises based in developed nations. The research investigates employee continuance intention toward AI-driven learning systems within Sichuan SMEs through a TAM-ECM combined model.

Despite extensive applications of TAM and ECM in e-learning and AI adoption research, limited attention has been paid to employees' continuance intention toward AI-powered digital learning platforms within SMEs operating in developing regions (Jung & Jo, 2025). In particular, existing studies rarely examine post-adoption learning behavior in resource-constrained organizational contexts, such as Chinese SMEs, where digital infrastructure and training support remain uneven. By addressing this gap, the present study extends post-adoption technology use research by focusing on continuance intention in AI-enabled workplace learning environments.

3. METHODOLOGY

This study adopts a quantitative research design to examine factors influencing employees' continuance intention toward AI-powered digital learning platforms in SMEs in Sichuan Province, China. A structured questionnaire was developed based on validated measurement scales derived from the Technology Acceptance Model (TAM) (Davis, 1989) and the Expectation-Confirmation Model (ECM) (Bhattacharjee, 2001).

3.1 Sampling and Data Collection

Purposive non-probability sampling was employed to select respondents with direct experience using AI-powered digital learning platforms. This approach was adopted due to the absence of a comprehensive sampling frame for SME employees using such systems and the exploratory, theory-validation nature of the study. The primary objective was to ensure respondent relevance rather than statistical representativeness, which aligns with prior PLS-SEM research conducted in emerging economy contexts.

Based on industry distribution data from the Sichuan Provincial Bureau of Statistics, SMEs from e-commerce, manufacturing, and service sectors were selected. A total of 400 questionnaires were distributed, and 312 valid responses were obtained, yielding a response rate of 78%.

Nevertheless, the use of non-probability sampling limits the generalizability of the findings. The results may not fully represent all SMEs across different regions of China. Future studies are encouraged to adopt probability-based or longitudinal research designs.

Table 1
Demographic Characteristics of Respondents (N = 312)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	158	50.6%
	Female	154	49.4%
Age	18–25	62	19.9%
	26–35	143	45.8%
	36–45	73	23.4%
	46 and above	34	10.9%
Education Level	High school or below	28	9.0%
	Bachelor's degree	194	62.2%
	Master's degree or above	90	28.8%
Work Experience	Less than 3 years	101	32.4%
	3–5 years	89	28.5%
	6–10 years	74	23.7%
	Over 10 years	48	15.4%
Industry Sector	E-commerce	122	39.1%
	Manufacturing	64	20.5%
	Services	86	27.6%
	Others	40	12.8%

3.2 Measurement Instruments

All constructs were measured using established scales adapted to the AI-powered digital learning context. Responses were recorded on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 2
Measurement Items for Perceived Ease of Use (PEOU)

Construct Reliability (5 items)	Original Measurement Scale	Cronbach's α
Perceived Ease of Use (PEOU)	1. The system operates with simplicity which makes it easy for me to learn its functions. 2. I understand the system interface because it presents information in a straightforward manner. 3. I can easily make the system execute my desired actions. 4. The system allows me to develop proficiency in its operation with minimal effort. 5. The system provides me with an easy user experience.	0.91
Measurement Report	1. The AI-powered digital learning platform has straightforward functionality which makes it simple for me to understand its operation. 2. The platform provides me with a straightforward interface that I can easily understand. 3. The platform responds to my commands without any difficulty. 4. I can learn to use the platform efficiently within a short period of time. 5. The AI-powered learning platform presents no difficulties for me to operate.	—

Table 3*Measurement Items for Perceived Usefulness (PU)*

Construct Reliability (5 items)	Original Measurement Scale	Cronbach's α
Perceived Usefulness (PU)	1. The system provides me with the tools needed to execute my job responsibilities better. 2. The system allows me to complete my work tasks at a faster rate. 3. The system allows me to achieve superior results in my work activities. 4. The system provides assistance which enhances my ability to execute job responsibilities effectively. 5. The system provides essential support for my work activities.	0.94
Measurement Report	1. The AI learning system enables me to achieve better results in my studies. 2. The platform enables me to work more efficiently during my work hours. 3. The platform enables me to execute my work tasks with better efficiency. 4. The AI-powered platform serves as a valuable tool for my skill development process. 5. The platform enables me to produce better results in my work activities.	–

Table 4*Measurement Items for Satisfaction*

Construct Reliability (5 items)	Original Measurement Scale	Cronbach's α
Satisfaction	1. I am satisfied with my decision to use the system. 2. The system has delivered satisfactory results throughout my overall usage experience. 3. The system operates at a level that brings me satisfaction. 4. The system operation has provided me with a positive experience. 5. I have positive feelings about working with the system.	0.93
Measurement Report	1. I am satisfied with my decision to continue using the AI-powered learning platform. 2. My overall experience with the platform has been positive. 3. I am pleased with the platform's performance. 4. Using the platform has been a good experience for me. 5. I feel happy about using the AI-powered digital learning platform.	–

Table 5*Measurement Items for Continuance Intention (CI)*

Construct Reliability (5 items)	Original Measurement Scale	Cronbach's α
Continuance Intention (CI)	1. I will continue to use the system until the end of this period. 2. I will use the system for my work activities at least once per week. 3. I will spread the word about the system to all my contacts so they can start using it. 4. I will continue to use the system instead of ending its operation. 5. I plan to maintain system usage for an extended period.	0.92
Measurement Report	1. I intend to continue using the AI-powered digital learning platform in the future. 2. I will frequently use the platform for learning and development. 3. I will recommend the platform to my colleagues. 4. I plan to continue using the platform rather than stop using it. 5. My intention is to keep using the AI-powered learning platform for a long time.	–

Reliability and validity were assessed using Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). All constructs demonstrated satisfactory internal consistency.

3.3 Data Analysis

Data analysis was conducted using SPSS 27.0 and SmartPLS 4.0 following established PLS-SEM guidelines (Hair et al., 2021). Convergent and discriminant validity were confirmed prior to structural model evaluation.

4. RESULTS AND DISCUSSION

The structural model results support all proposed hypotheses. As shown in Table 6, perceived ease of use significantly influences perceived usefulness ($\beta = 0.61$, $p < 0.001$) and satisfaction ($\beta = 0.43$, $p < 0.001$). Perceived usefulness significantly affects satisfaction ($\beta = 0.52$, $p < 0.001$) and continuance intention ($\beta = 0.34$, $p < 0.01$). Satisfaction exerts the strongest effect on continuance intention ($\beta = 0.58$, $p < 0.001$).

Table 6
Hypothesis Testing Results

Hypothesis	Path	β	t-value	p-value	Supported
H1	PEOU $\rightarrow$ PU	0.61	12.35	< 0.001	Yes
H2	PEOU $\rightarrow$ Satisfaction	0.43	9.87	< 0.001	Yes
H3	PU $\rightarrow$ Satisfaction	0.52	10.14	< 0.001	Yes
H4	PU $\rightarrow$ CI	0.34	4.68	< 0.01	Yes
H5	Satisfaction $\rightarrow$ CI	0.58	11.42	< 0.001	Yes

Table 7
Measurement Model Assessment

Construct	Cronbach's α	CR	AVE
PEOU	0.91	0.93	0.72
PU	0.92	0.94	0.75
Satisfaction	0.89	0.91	0.68
CI	0.90	0.93	0.71

Table 8
Discriminant Validity (Fornell–Larcker Criterion)

Construct	PEOU	PU	Satisfaction	CI
PEOU	0.85			
PU	0.61	0.87		
Satisfaction	0.55	0.66	0.82	
CI	0.48	0.59	0.70	0.84

4.1 Structural Equation Modelling Results

The structural equation modeling (SEM) analysis validated the proposed model through its results which supported all five research hypotheses. The results show that users who find a system easy to use (PEOU) will also find it useful (PU) at a significant level ($\beta = 0.61$, $p < 0.001$) thus supporting H1. The Technology Acceptance Model (TAM) core concept receives support from this finding because users who find systems easy to use tend to recognize their usefulness (Davis, 1989). The results show that AI-powered digital learning systems require user-friendly interfaces and simple navigation and easy-to-use features to help employees understand their value.

The research shows that PEOU generates positive effects on satisfaction ($\beta = 0.43$, $p < 0.001$) which supports H2. The research shows that ease of use influences both mental evaluations and emotional responses of users thus demonstrating its dual role in technology acceptance and post-adoption behavior. The study validates H3 because users who find the system useful experience higher satisfaction levels ($\beta = 0.52$, $p < 0.001$). The study verifies Roca et al. (2006) findings which demonstrate that perceived usefulness directly influences user attitudes and emotional reactions.

The research confirms H4 because PU directly and positively affects CI ($\beta = 0.34$, $p < 0.01$). The study shows that perceived utility plays a central role in maintaining user engagement after satisfaction has been achieved. The research confirms H5 and supports the Expectation-Confirmation Model (ECM) by showing satisfaction produces the strongest effect on CI ($\beta = 0.58$, $p < 0.001$). The integrated TAM–ECM framework demonstrates strong explanatory power because it explains 68% of satisfaction variance and 71% of continuance intention variance.

The measurement model achieved strong reliability and convergent validity through its Cronbach's α values above 0.70 and composite reliability (CR) values above 0.80 and average variance extracted (AVE) values above 0.50 as shown in Table 7. The Fornell–Larcker criterion served to assess discriminant validity. The AVE square roots in Table 8 show values above all construct correlations which confirms adequate discriminant validity.

4.2 Practical Implications

The findings provide several practical implications for SMEs. First, AI-powered digital learning platforms should emphasize job relevance and task-oriented content to enhance perceived usefulness. Second, SMEs should prioritize usability-oriented design and onboarding support to reduce cognitive effort and enhance satisfaction. Finally, policymakers and industry associations may consider providing targeted AI training subsidies to support SME workforce digital transformation in developing regions.

The findings of this study offer several practical implications for SMEs implementing AI-powered digital learning platforms. First, SME managers should prioritize learning systems that emphasize task relevance and job-oriented content, ensuring that training modules directly support employees' daily work activities and skill development. Such alignment enhances perceived usefulness and promotes sustained engagement. Second, usability-oriented platform design and onboarding support are critical. Simple interfaces, guided tutorials, and responsive technical assistance can significantly reduce employees' cognitive effort, thereby improving satisfaction and strengthening continuance intention. Finally, at the policy and industry level, targeted AI training subsidies and digital learning support initiatives can help mitigate resource constraints faced by SMEs in developing regions, facilitating inclusive workforce digital transformation.

5. CONCLUSION

The research examined which elements determine employee willingness to continue using AI-based digital learning platforms at small and medium-sized enterprises (SMEs) operating in Sichuan China. The research used TAM and ECM to develop a conceptual framework which tested how PEOU and PU affect satisfaction levels which then influence CI. The study used SPSS and PLS-SEM to analyze data from 312 employees at 87 SMEs which confirmed all five research hypotheses.

The research established that PEOU directly affects PU and satisfaction levels and PU directly and indirectly affects continuance intention. The study showed that satisfaction acts as the primary factor which determines employee commitment to using AI-enabled training systems. The research extends TAM and ECM theory to corporate learning environments in emerging economies to study how people behave after adopting AI-based learning systems.

The research provides practical recommendations to SME leaders and policymakers through its identification of essential cognitive and affective factors which drive long-term user engagement thus enabling them to create better training solutions. The model requires future research to include organizational support and individual self-efficacy

variables while studying different regions to improve the study's overall applicability, and further exploration of the impacts of emerging generative conversational AI technologies on employees' continuance intention is also warranted (Dwivedi et al., 2023).

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8. DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

During the preparation of this manuscript, the authors used ChatGPT (version 4) solely for the purpose of checking grammar and improving language style. The content and scientific findings remain entirely the original work of the authors. The authors reviewed and edited the output and take full responsibility for the content of this publication.

9. DATA AVAILABILITY / SUPPLEMENTARY MATERIALS

The data that support the findings of this study are available from the corresponding author upon reasonable request.

10. REFERENCES

- Al-Emran, M., Mezhyuev, V., & Kamaludin, A. (2018). Technology Acceptance Model in M-learning context: A systematic review. *Computers & Education*, 125, 389–412. <https://doi.org/10.1016/j.compedu.2018.06.008>
- Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, 25(3), 351–370. <https://doi.org/10.2307/3250921>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., & Wright, R. (2023). Opinion paper: “So what if ChatGPT wrote it?” Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642. <https://doi.org/10.1016/j.ijinfomgt.2023.102642>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling* (PLS-SEM) (3rd ed.). SAGE Publications. <https://doi.org/10.1007/978-3-030-80519-7>
- Jung, Y. M., & Jo, H. (2025). Understanding continuance intention of generative AI in education: An ECM-based study for sustainable learning engagement. *Sustainability*, 17(13), 6082. <https://doi.org/10.3390/su17136082>

Ministry of Industry and Information Technology of China. (2023). *China's SME development report 2023*. <http://www.miit.gov.cn/>

MIIT. (2011). SME classification standard (MIIT Lianqiye [2011] No. 300). Ministry of Industry and Information Technology of the People's Republic of China.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17(4), 460–469. <https://doi.org/10.2307/3150499>

Roca, J. C., Chiu, C. M., & Martínez, F. J. (2006). Understanding e-learning continuance intention: An extension of the Technology Acceptance Model. *International Journal of Human-Computer Studies*, 64(8), 683–696. <https://doi.org/10.1016/j.ijhcs.2006.01.003>

Tam, C., Santos, D., & Oliveira, T. (2020). Exploring the influential factors of continuance intention to use mobile apps: Extending the expectation-confirmation model. *Information Systems Frontiers*, 22(1), 243–257. <https://doi.org/10.1007/s10796-018-9864-5>

Tornatzky, L. G., & Fleischer, M. (1990). The processes of technological innovation. Lexington Books.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186–204. <https://doi.org/10.1287/mnsc.46.2.186.11926>

Widjaja, A., & Widjaja, Y. G. (2022). The influence of interaction, learner characteristics, perceived usefulness, and perceived satisfaction on continuance intention in e-learning system. *International Journal of Research in Business and Social Science* (2147-4478). <https://doi.org/10.20525/ijrbs.v11i2.1665>



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