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Student Satisfaction and Continued Usage of Cloud-Based Smart Platforms: An Analysis from Chengdu, China

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Abstract

Purpose: This article aimed to investigate the critical factors of the Cloud-Based Smart Platform that significantly impacted student satisfaction and continuance intention in Chengdu, China. The conceptual framework demonstrated the cause-and-effect relationships among perceived usefulness, confirmation, perceived ease of use, real-time interaction, perceived value, satisfaction, and continuance intention. **Research design, data, and methodology:** The researcher employed a quantitative approach (n=502) to distribute the questionnaire to students in Chengdu, the capital city of Sichuan Province, China. The non-probability sampling methods included judgmental sampling to select three representative information communication majors from the vocational college, quota sampling to determine the sample size, and convenience sampling to gather data and administer the questionnaires online. The researcher used structural equation modeling (SEM) and confirmatory factor analysis (CFA) to assess model fit, reliability, and construct validity for data analysis. **Results:** The results indicated that confirmation and real-time interaction significantly impacted satisfaction, an intermediary variable influencing students' continual intention. Perceived usefulness and perceived ease of use also notably affected teacher performance. Among these, perceived usefulness had a more substantial impact on students' continuance intention than perceived ease of use, with perceived value following closely. **Conclusions:** This study recommends the Cloud-Based Smart Platform (CBSP) as a viable solution for digital campus development. More campuses should consider increasing their investment in key factors to optimize student satisfaction and continuance intention.

Keywords: Perceived Ease of Use, Real-Time Interaction, Perceived Value, Satisfaction, Continuance Intention

JEL Classification Code: E44, F31, F37, G15

1. Introduction

As a novel educational technology, cloud-based smart platforms have gained widespread adoption in vocational education. They offer abundant teaching resources, convenient interactive communication, and flexible learning methods, greatly facilitating the learning experience for vocational college students. However, concurrently, vocational college students' utilization of cloud-based smart platforms has revealed certain potential issues. This section delves into the potential challenges vocational college students face in using cloud-based smart platforms. The exploration aims to identify and summarize distinct issues, providing insights through referenced cases. The analysis underscores the importance of effectively understanding and addressing these challenges to integrate cloud-based smart platforms in vocational education.

A significant challenge arises from the varying levels of technological proficiency among vocational college students, which can hinder the effective use of cloud platforms. Johnson (2017) found that students with limited exposure to cloud technologies struggled with interactive features. Additionally, Singh and Miah (2020) highlighted that many vocational students need more digital literacy to use collaborative cloud-based features optimally. Thus, improving cloud-based smart platform capabilities is essential to enhance learning efficiency and integrate traditional activities effectively.

Designers of cloud-based smart platforms often overlook factors affecting learner acceptance. Aligning technology

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with educational goals is challenging, as noted by Wang et al. (2021), who found that mismatches between platform features and course content hinder effective use in vocational education. Despite easy access and diverse content, low continuous utilization and high dropout rates persist, especially in free online courses. This reduces resource-sharing efficiency. Learners face technical interaction difficulties and lack motivation for sustained learning, leading to resource wastage. Therefore, addressing factors influencing learner acceptance is crucial.

The exploration of influencing factors regarding Chinese vocational students' engagement with cloud-based smart platform learning commenced relatively recently. Access to essential hardware, software, and reliable internet connectivity is a substantial challenge for vocational students. Brown and Miller (2017) research underscore that discrepancies in resource access among students can hinder their full participation in interactive cloud-based activities. Despite increasing studies over the past decade, the focus on resource design and application modes remains insufficient. Although many scholars have directed attention to mobile learning participation, none have systematically analyzed the behavioral intention of mobile learning or proposed a comprehensive strategy.

With the evolution of technology, perspectives on cloud-based smart platforms among vocational students constantly change. Since students engage with these platforms autonomously, understanding their willingness to adopt this technology is crucial. This insight aids learners, developers, and educational institutions enhance interactive learning. A thorough understanding of these factors supports effective application, improving the learning experience. Thus, investigating factors influencing vocational students' behavioral intentions is vital for integrating cloud-based smart platforms into education.

Enhancing the performance of vocational students involves learning new knowledge from teaching activities such as classes provided by the college and, more importantly, through the more effective interaction platform to learn and reconfigure existing knowledge to enhance study performance (Chang, 2016). In this study, we considered perceived usefulness (PU), confirmation (CON), perceived ease of use (PEOU), real-time interaction (RTI), and perceived value (PV) as factors influencing satisfaction (SAT) and continual intention (CI).

In the 2010s, digital campus construction launched many kinds of schools, universities, and vocational colleges, such as the Cloud-Based Smart Platforms (CBSP). By the end of 2018, the revenue scale of China's cloud computing application in the education industry reached RMB9.81 billion. With the policies shaping the smart education industry in 2023, the demand of the CBSP for classroom teaching services has reached 428,000 individuals. (Investment Planning and Future Forecast Report on China's Smart Education Industry for 2023-2028).

Consequently, the researcher identified Cloud-Based Smart Platforms (CBSP) as a crucial initiative to enhance students' professional literacy in cloud-based services and support innovation in information technology applications in China. This study investigated the factors influencing satisfaction and continual intention among students from three representative information communication majors at a vocational college in Chengdu, China, using CBSP. Additionally, the study explored the operational mechanisms of CBSP.

2. Literature Review

2.1 Perceived Usefulness

The influence of a learner's perceived usefulness towards e-learning on their corresponding satisfaction with the learning process has been established (Kashive et al., 2020). Framed within the expectancy confirmation paradigm, our study contends that students' perceived usefulness (PU) about e-learning has the potential to significantly bolster their satisfaction, thereby establishing a foundational context for confirmation judgments. Moreover, it is underscored that PU exercises a constructive influence on the enduring adoption of e-learning (Alami & El Idrissi, 2022).

Within the scope of social media, a salient connection is identified between users' perception of enhanced access to knowledge, information, and facilitated interactions and their heightened satisfaction with the platform (Limayem & Cheung, 2008). Drawing from the classic expectation confirmation model (ECM), a positive linkage is discerned between a user's perceived usefulness and satisfaction, consequently impacting their intent to sustain usage. This tenet extends to social media, indicating that users' satisfaction is elevated when they perceive it as affording expedited access to pertinent information and seamless interpersonal interactions (Al-Maroof et al., 2021).

In consonance with these premises, the present paper posits that a parallel paradigm applies to users of social media platforms. Specifically, if users ascribe credibility and validity to the information from social media sources, it engenders an upswing in their satisfaction with the platform. Thus, the construct of perceived usefulness emerges as a catalyst for fostering platform-based satisfaction among users (Wang & Xie, 2022). Based on the above literature, this paper formulates the following research hypotheses.

H1: Perceived usefulness has a significant impact on satisfaction.

2.2 Confirmation

Expectation confirmation theory suggests that users' successful technology experiences enhance user satisfaction. Indeed, if students believe that the digital system is advantageous and the user experience matches or exceeds their initial expectations, then the confirmation leads to user satisfaction (Daneji et al., 2019). Confirmation positively impacts students' satisfaction regarding e-learning (Alami & El Idrissi, 2022). It is surmised that these benefits are increased by confirmation on a Vietnamese social media platform called Zalo. Otherwise, researchers theorized that confirmation determines satisfaction (Park, 2020). Confirmation positively impacts satisfaction (Le, 2022). Positive confirmation of customer expectations expresses customer satisfaction. Recent studies verify the relationship between confirmation of customer expectations and customer satisfaction (Dai et al., 2020; B. Kim, 2018). Based on the above arguments, Eren (2021) proposed and verified the hypothesis that confirmation of customer expectations from using chatbots significantly and positively impacted customer satisfaction with chatbot use.

The theoretical framework of expectation confirmation theory posits that favorable encounters with technology significantly enrich users' satisfaction. Specifically, when students hold the perception that a digital system offers advantages and their actual experience aligns with or surpasses their initial expectations, the ensuing confirmation effectuates a strong sense of user satisfaction (Daneji et al., 2019). This positive impact of confirmation on user satisfaction is a key aspect of the theory that we will delve into further.

Confirmation, as we have seen, plays a pivotal role in shaping user satisfaction, particularly in the context of e-learning and social media platforms (Alami & El Idrissi, 2022; Park, 2020). This role of confirmation in these specific contexts is an area of interest that we will explore in detail. Notably, this phenomenon extends to the context of Zalo, a social media platform in Vietnam, where the benefits reaped from user confirmation are amplified (Daneji et al., 2019). These findings underscore the underpinning significance of confirmation in shaping the trajectory of user satisfaction (Park, 2020). These findings are substantiated by studies revealing that positive confirmation of customer expectations aligns with heightened customer satisfaction (Le, 2022).

Recent empirical investigations further corroborate the correlation between the confirmation of customer expectations and the resultant customer satisfaction (Dai et al., 2020; Kim, 2018). Building upon the arguments above, Eren (2021) undertook the proposition and subsequent verification of a hypothesis: the affirmation of customer expectations through using chatbots significantly and positively influences customer satisfaction with using chatbot services. Based on the above literature, this paper formulates the following research hypotheses.

H2: Confirmation has a significant impact on satisfaction.

2.3 Perceived Ease of Use

Consequently, internet-based services perceived as possessing greater ease of use are prone to evoke a higher degree of perceived satisfaction. This phenomenon is rooted in the understanding that Perceived Ease of Use (PEOU) represents a pivotal cognitive belief that significantly influences users' affective disposition—where satisfaction is classified as a form of affect—toward the adoption of internet-based services (Cheng, 2020; Hong et al., 2006; Thong et al., 2006).

In a study by Lee et al. (2005), perceived ease of use is observed to indirectly affect students' intention to adopt internet-based learning, mediated by perceived usefulness and enjoyment. Furthermore, a learner's perceived effectiveness in e-learning impacts their overall satisfaction with the learning experience (Kashive et al., 2020).

This assertion gains particular relevance in a study centered on a specific platform, where the direct correlation between Perceived Ease of Use (PEoU) and learning satisfaction is underscored. This is substantiated by findings indicating that students' inclination to discontinue certain courses, especially non-mandatory ones, might be prompted by perceived difficulties associated with the online learning platform (Liaw, 2008). The empirical landscape reinforces this connection, with Perceived Ease of Use (PEoU) exhibiting a substantive and favorable influence on students' e-satisfaction (Salimon et al., 2021). Considering these established foundations, the researchers posit the ensuing assumptions as a logical extension of the insights gleaned from prior scholarly investigations.

H3: Perceived ease of use has a significant impact on satisfaction.

2.4 Real-time Interaction

Previous research has shown that engaging in real-time interactions with audiences can foster social relationships, leading to enhanced consumer satisfaction. Hu and Chaudhry (2020) found that such interactions can create positive feelings, including attachment and contentment. Similarly, Bao and Zhu (2023) demonstrated a strong correlation between customer happiness and real-time engagement on a live streaming commerce platform.

According to the findings of Harper et al. (2023), interaction factors play a crucial role in influencing the satisfaction levels of undergraduate students when utilizing YouTube as an online learning platform. These interaction

factors are delineated as comprising two distinct components: perceived provider interaction and perceived user interaction. Perceived provider interaction denotes how undergraduate students perceive interactions within YouTube's platform as favorable, encompassing a sense of connection with the video creator, as expounded upon by Zhang (2009). Conversely, perceived user interaction pertains to the degree to which students experience a sense of connection with fellow video viewers, as elucidated by Clifton and Mann (2011).

Liu and Shrum (2002) introduced a specific dimension of interactivity known as synchronicity, which quantifies the simultaneous nature of user input and the responses received within a communication context. This dimension can be effectively construed as "real-time" interactivity. Building upon this, Steuer (1992) emphasized the real-time dimension and defined interactivity as "the extent to which users can actively participate in modifying the structure and content of a mediated environment in real-time."

Van Noort et al. (2012) posited that a heightened level of website interactivity augments website visitors' online flow experience, resulting in a range of favorable outcomes pertinent to marketers. These outcomes encompass favorable attitudes toward both the website and the associated brand, an increased generation of product-relevant thoughts, and positive intentions toward desired behaviors. Based on the collective insights from previous scholarly investigations, the researchers propose the following assumptions as a coherent and informed extension of this existing knowledge base.

H4: Real-time Interaction has a significant impact on satisfaction.

2.5 Perceived Value

The positive relationship between perceived value and satisfaction has been a subject of discussion within the ES (Enterprise Software) success model, as outlined by Wang (2008). In this model, it is posited that when an ES offers tangible benefits, commonly called "value," customers are likelier to express high satisfaction levels. Notably, Bao and Zhu (2023) affirm this proposition by establishing a positive correlation between perceived value and customer satisfaction.

Within the realm of Business-to-Business (B2B) transactions, it has been observed that when B2B buyers form favorable perceptions of an online B2B platform, primarily through comparative assessments against prior expectations and experiences with competing platforms, they tend to experience satisfaction with the platform. Consequently, they are more inclined to remain loyal to the platform and recommend it to others, as articulated by Cen and Li (2019). Earlier research also suggests that users' satisfaction with technology is positively influenced by the value they derive from its usage. Thus, scholars have postulated that perceived value is pivotal in shaping user satisfaction and intention to continue using the technology (Kim et al., 2013).

In alignment with the abovementioned discussions, Kirmani et al. (2023) examined the influence of post-adoption perceived value (PAPV). They discerned that PAPV significantly and positively impacts user satisfaction with the Unified Payment Interface (UPI)-based payment system platform.

The relationship between perceived value and satisfaction is theoretically grounded in the Expectancy-Disconfirmation model, which posits that clients use cognitive comparisons before and after an event, such as a purchase. Any discernible increase or decrease in costs or benefits following the purchase leads to alterations in perceived value, subsequently influencing changes in customer satisfaction levels (Omar et al., 2011). In light of the literature presented, Demir et al. (2021) proposed that customer satisfaction is a consequence of perceived value, leading to the formulation of the following hypothesis: Perceived value significantly impacts the satisfaction of users of online meeting platforms. Building upon this foundation, the present research posits a hypothesis about a Cloud-Based Smart Platform (CBSP).

H5: Perceived value has a significant impact on satisfaction.

2.6 Satisfaction

Kumari and Biswas (2023) illuminated a positive correlation between user satisfaction with M-payment platforms and the intention to sustain usage of such platforms. This discovery highlights the pivotal role of satisfaction in the realm of online services, as it significantly influences users' deliberations regarding the continuation of their engagement with the service at hand (Lin & Sun, 2009).

The scholarly discourse espoused by Szymanski and Hise (2000) contends that e-satisfaction encapsulates users' holistic evaluation of their cumulative online experiences within a specific timeframe. Drawing from the Expectation Confirmation Model (ECM), it is posited that users' intention to persist in using an Information System (IS) is inherently linked to their satisfaction with its utilization. Notably, Oliver (1993) and Lee (2010) assert that the satisfaction of adult learners with using an IS is pivotal in shaping their intent to continue its usage.

In the context of adult learners' satisfaction with Mobile Learning Apps (MLA), it is conjectured that this satisfaction engenders their intention to persist in using these applications (Hossain et al., 2021). Substantiating this notion, a series of empirical investigations underscore that student satisfaction holds the status of a critical determinant

influencing the sustained utilization and comprehensive adoption of e-learning platforms (M.-C. Lee, 2010; Nikou, 2021). Drawing upon the collective insights garnered from preceding scholarly inquiries, the researchers posit the ensuing assumptions as a coherent and informed extension of this existing knowledge base.

H6: Satisfaction has a significant impact on continuance intention.

3. Research Methods and Materials

3.1 Research Framework

The conceptual framework of this paper integrated the Technology Acceptance Model (ECM), the Information System Success Theory (ISST), and the Technology Acceptance Model (TAM). The synthesis of these three theories and conceptual frameworks collectively underpinned the establishment of the conceptual framework within this study. This paper has explored factors impacting students' Continuance Intention and Satisfaction using the Cloud-Based Smart Platform (CBSP) at College in Chengdu, China. The conceptual framework was methodically formulated to scrutinize the intricate interplay and effects of the five identified independent variables on the two specific dependent variables. The researcher has developed a conceptual framework for this study, described in Figure 1.

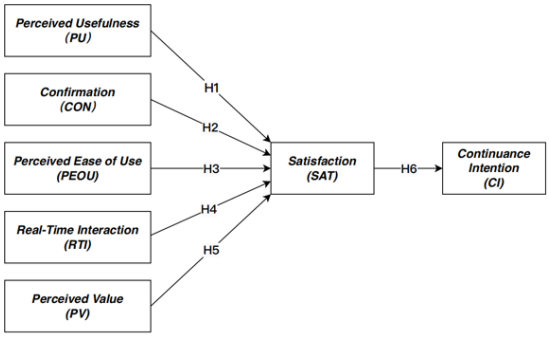

Figure 1: Conceptual Framework

H1: Perceived usefulness has a significant impact on satisfaction.

H2: Confirmation has a significant impact on satisfaction.

H3: Perceived ease of use has a significant impact on satisfaction.

H4: Real-time Interaction has a significant impact on satisfaction.

H5: Perceived value has a significant impact on satisfaction.

H6: Satisfaction has a significant impact on continuance intention.

3.2 Research Methodology

This study examines factors influencing the continuance intentions and satisfaction of Information Communication major students using the Cloud-Based Smart Platform (CBSP) at a vocational college in Chengdu, China, aiming to promote digital education reform and guide digital campus development. The target population consisted of students who had used the CBSP for over a year and voluntarily participated in the survey. Data were collected through a meticulously selected sample using standardized tools. The questionnaire included screening questions, a 5-point Likert scale measuring six hypotheses, and demographic questions about gender, age range, and effections. A pilot test with 50 respondents ensured the questionnaire's validity, achieving a satisfactory Item-Objective Consistency Index (IOC) score. The collected data underwent thorough cleaning and coding for detailed statistical analysis.

3.3 Population and Sample Size

This study used quantitative research methods to examine factors influencing the continuance intention and satisfaction of Information Communication students at a vocational college in Chengdu, China, using the Cloud-Based Smart Platform (CBSP). Data from the Electronic Information Institute at Sichuan Modern Vocational College were analyzed using confirmatory factor analysis (CFA) and structural equation modeling (SEM). CFA validated the constructs, ensuring the measurement model's robustness, while SEM clarified the complex interrelationships among the factors. Factor analysis and correlation regression analysis provided empirical insights, highlighting continuance intention and satisfaction determinants. These rigorous quantitative techniques ensured the study's methodological rigor and scientific validity.

3.4 Sampling Technique

Utilizing non-probability sampling methods, specifically judgmental and quota sampling, the researchers selected three representative Information Communication majors from a vocational college in Chengdu, China. Questionnaires were distributed via an online platform. Table 1 details the specific sampling methodology used in this study.

Table 1: Sample Units and Sample Size

Main Subject	Population Size	Proportional Sample Size
Digital Media Technology students	442	260
Modern Mobile Communication Technology students	81	48
Software Technology students	327	192
Total	**850**	**500**

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

Demographic information gathered from participants included the gender of the teachers and the grade level they were teaching (Rowland, 2003). The study focused on college students majoring in information communication in Chengdu, China, specifically those who use the Cloud-Based Smart Platform (CBSP). The target group included individuals with at least one year of academic experience in these programs. A total of 502 questionnaires were collected using a five-point Likert scale. Demographic data showed that 289 women (57.6%) and 213 men (42.4%) participated voluntarily. The feedback data contributed to understanding factors influencing satisfaction and continual intentions among CBSP users at Sichuan Modern Vocational College in Chengdu, China.

Table 2: Demographic Profile

Demographic and General Data (N=502)		Frequency	Percentage
Gender	female	289	57.6%
	male	213	42.4%
Age	18-19	127	25.3%
	20-21	187	37.3%
	21--22	116	23.1%
	Over 23	72	14.3%

4.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was employed to examine factors affecting the Continual Intentions and Satisfaction of information communication students using the Cloud-Based Smart Platform (CBSP) at a college in Chengdu, China. The factors analyzed included Perceived Usefulness, Confirmation, Perceived Ease of Use, Real-Time Interaction, Perceived Value, Satisfaction, and Continuance Intention. The factor loading values for each scale item were acceptable, demonstrating that the conceptual framework of this study fit well. All factor loadings exceeded 0.30, with p-values below 0.05, construct reliabilities above 0.70, and average variances extracted over 0.50, indicating significance, showed in Table 3.

Table 3: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Perceived Usefulness (PU)	Adela et al. (2012)	4	0.884	0.795-0.845	0.885	0.658
Confirmation (CON)	Muhammad (2019)	3	0.818	0.726-0.825	0.820	0.603
Perceived Ease of Use (PEOU)	Sevda and Sigrid (2016)	4	0.839	0.703-0.774	0.841	0.570
Real-Time Interaction (RTI)	Abdul et al. (2019)	4	0.855	0.725-0.807	0.856	0.597
Perceived Value (PV)	Amlan et al. (2020)	4	0.846	0.702-0.788	0.847	0.581
Satisfaction (SAT)	Frauke and Sven (2020)	4	0.840	0.727-0.767	0.841	0.571
Continuance Intention (CI)	Muhammad (2019)	4	0.821	0.707-0.751	0.821	0.535

Table 4 displays the square roots of the extracted average variances, showing that all variables' correlations were appropriate. The study employed GFI, AGFI, NFI, CFI, TLI, and RMSEA as model fit indicators in the CFA test.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	<3 (Hair et al., 2006)	480.395/303 or 1.585
GFI	≥0.85 (Sica & Ghisi, 2007)	0.935
AGFI	≥0.80 (Sica & Ghisi, 2007)	0.919
NFI	>0.80 (Wu & Wang, 2006)	0.929
CFI	>0.90 (Hair et al., 2006)	0.973
TLI	>0.90 (Hair et al., 2006)	0.968
RMSEA	<0.08 (Pedroso et al., 2016)	0.034
Model Summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

Table 5 presents the convergent and discriminant validity results, both of which were acceptable. Overall, all measurements confirmed the validity of the structural model used in this study.

Table 5: Discriminant Validity

	PU	CON	PEOU	RTI	PV	SAT	CI
PU	**0.857**						
CON	0.189	**0.835**					
PEOU	0.393	0.262	**0.842**				
RTI	0.289	0.330	0.424	**0.848**			
PV	0.307	0.231	0.363	0.369	**0.847**		

	PU	CON	PEOU	RTI	PV	SAT	CI
SAT	0.405	0.425	0.457	0.505	0.446	**0.843**	
CI	0.251	0.359	0.335	0.392	0.293	0.480	**0.824**

Note: The diagonally listed value is the AVE square roots of the variables
Source: Created by the author.

4.3 Structural Equation Model (SEM)

Hair et al. (2006) recommended that the Chi-square/degrees-of-freedom (CMIN/DF) ratio for model fit measures should be less than 3.00, a criterion supported by Kline (2023) and Olorunju et al. (2018). Sica and Ghisi (2007) suggested that GFI should be greater than 0.85 and AGFI should be greater than 0.80. Wu and Wang (2006) indicated that NFI should exceed 0.90. Arbuckle (1995) recommended CFI should exceed 0.90, Hair et al. (2006) proved it. He also recommended that TLI should be greater than 0.90. Hu and Bentler (1999) proposed that RMSEA should be less than 0.08, and Pedroso et al. (2016) did one research study to enhance it.

The researchers used SPSS AMOS version 26 for the SEM calculations and model adjustments. The fit index results indicated a good fit: CMIN/DF = 2.777, GFI = 0.873, AGFI = 0.847, NFI = 0.872, CFI = 0.914, TLI = 0.903, and RMSEA = 0.060. These values are presented in Table 6.

Table 6: Goodness of Fit for Structural Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	<3 (Hair et al., 2006)	889.220/313 or 2.777
GFI	≥0.85 (Sica & Ghisi, 2007)	0.873
AGFI	≥0.80 (Sica & Ghisi, 2007)	0.847
NFI	>0.80 (Wu & Wang, 2006)	0.872
CFI	>0.90 (Hair et al., 2006)	0.914
TLI	>0.90 (Hair et al., 2006)	0.903
RMSEA	<0.08 (Pedroso et al., 2016)	0.060
Model Summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

4.4 Research Hypothesis Testing Result

The researcher determined the significance of the study model based on the regression weights and R^2 variances for each variable. Table 7 shows the results, which supported all the study's hypotheses. Specifically, Perceived Usefulness affected Satisfaction (β=0.226), Confirmation affected Satisfaction (β=0.333), Perceived Ease of Use affected Satisfaction (β=0.228), Real-time Interaction affected Satisfaction (β=0.334), Perceived Value affected Satisfaction (β=0.271), and Satisfaction affected Continuance Intention (β=0.324).

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: PU→SAT	0.226	4.759*	Supported
H2: CON→SAT	0.333	6.462*	Supported
H3: PEOU→SAT	0.228	4.674*	Supported
H4: RATI→SAT	0.334	6.602*	Supported
H5: PV→SAT	0.271	5.485*	Supported
H6: SAT→CI	0.324	4.269*	Supported

Note: *** p<0.001, ** p<0.01, * p<0.05
Source: Created by the author

Based on the findings presented in Table 7, the researcher inferred the following:

1. Perceived usefulness emerged as a significant determinant of satisfaction, evidenced by a criterion coefficient value of 0.226 in the structural path, confirming Hypothesis 1 (H1).
2. Confirmation was identified as a crucial factor influencing satisfaction, with a criterion coefficient value of 0.333 in the structural path, supporting Hypothesis 2 (H2).
3. Perceived ease of use was a major contributor to satisfaction, indicated by a criterion coefficient value of 0.228 in the structural path, thus validating Hypothesis 3 (H3).
4. Real-time interaction was recognized as an important driver of satisfaction, with a criterion coefficient value of 0.334 in the structural path, establishing Hypothesis 4 (H4).
5. Perceived value significantly affected satisfaction, with a standard coefficient value of 0.271 in the structural path, affirming Hypothesis 5 (H5).
6. Satisfaction was determined to be a key predictor of continuance intention, with a standard coefficient value of 0.324 in the structural path, confirming Hypothesis 6 (H6).

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This study aimed to thoroughly examine how the Cloud-Based Smart Platform (CBSP) impacts student satisfaction and continual intention in Chengdu, China. With the advent of digital campus initiatives in the 2010s, institutions across various educational levels, including universities and vocational colleges, have embraced CBSPs to foster students' proficiency in cloud-based services and drive innovation in IT applications in China. Given these advancements, a detailed investigation into the factors and

mechanisms influencing CBSPs on student satisfaction and continual intention became imperative. The study formulated six hypotheses to explore and establish relationships among these factors.

This study investigated the factors impacting the continual intentions and satisfaction of Information Communication major students using the Cloud-Based Smart Platform (CBSP) at a vocational college in Chengdu, China—the research aimed to promote digital education reform and guide the deployment and utilization of digital campuses. The target population consisted of students who had used the CBSP for over a year and voluntarily participated in the study. Data were collected systematically using a meticulously designed questionnaire based on a five-point Likert scale, validated through an item-goal congruence test and a pilot test involving 50 participants. The sample of 502 respondents was carefully selected to ensure representativeness. The data underwent thorough cleaning, coding, and statistical analysis using SPSS and JAMOVI. The conceptual framework was validated through AMOS and Confirmatory Factor Analysis (CFA), confirming a good fit with the data. Satisfaction was incorporated as a mediating variable to explore the relationship between independent and dependent variables, emphasizing the role of confirmation and real-time interaction within the digital technology model.

The study employed hierarchical regression and structural equation modeling (SEM) to analyze the data, drawing from prior empirical studies to formulate six hypotheses. Including satisfaction and continual intention, they enhanced the model's explanatory power, as indicated by changes in R2. Quantitative methodologies, including CFA and SEM, were utilized to validate constructs and elucidate the complex interrelationships among the factors. Feedback data from the Electronic Information Institute at Sichuan Modern Vocational College ensured a comprehensive understanding of continual intention and satisfaction determinants. The rigorous quantitative techniques underscore the structural model's methodological rigor and scientific validity, providing systematic insights into the relationships among the studied factors.

Based on the findings, this study confirmed that confirmation and real-time interaction significantly influence student satisfaction, mediating their continual intention. Moreover, perceived usefulness emerged as the strongest predictor of continual intention, surpassing perceived ease of use and closely followed by perceived value. These results validate the research hypotheses and underscore the effectiveness of the Cloud-Based Smart Platform (CBSP) in fostering digital campus development. To enhance student satisfaction and continuation, educational institutions should prioritize investments in technologies that facilitate real-time interaction, such as cloud-based tools. This strategic alignment with key influential factors identified in the study promises to optimize the CBSP's impact on educational outcomes and student engagement. Despite its modest impact, this quantitative study offers valuable support and a foundation for policymaking regarding the Cloud-Based Smart Platform (CBSP). Additionally, it introduces innovative ideas for implementing CBSPs, guiding the efficient allocation of resources to enhance their effectiveness.

5.2 Recommendation

The Cloud-Based Smart Platform (CBSP) represents a significant deployment of digital smart campus technology in mainland China. It serves as a crucial solution for Chinese vocational college students to develop professional skills and enhance the interactive model of vocational education. College students majoring in Information Communication are unique users with a foundational understanding of various smart platforms. This distinctiveness arises from the unique presentation of their research and work, which also encourages the development of technology-proficient usage habits. Based on the study's findings, the following recommendations are proposed to enhance the continual intention and satisfaction of Information Communication major students using the Cloud-Based Smart Platform (CBSP) at vocational colleges:

1. Optimize Real-Time Interaction:

Enhance Management of Skill Practice Software: Optimizing the management of skill practice software can improve real-time interaction and significantly increase users' continual intention and satisfaction with the platform.

Incorporate Advanced Features: Introduce advanced features that align with students' academic and professional needs to boost perceived usefulness.

2. Improve User Interface Design:

Enhance Perceived Ease of Use: Streamline the interface design to make the platform more intuitive and user-friendly, improving perceived ease of use.

Update and Expand Content: Regularly update and expand the content to ensure it remains relevant and valuable, thereby increasing perceived value.

3. Strengthen Confirmation Through Feedback:

Provide Timely and Relevant Feedback: Ensure that students receive timely and relevant feedback to strengthen their sense of confirmation and trust in the platform.

Reinforce Student Trust and Satisfaction: Consistent and meaningful feedback can reinforce students' satisfaction and trust, encouraging sustained use of the CBSP.

4. Integrated Conceptual Framework:

Understand Variable Interrelationships: Recognize and utilize the integrated conceptual framework that elucidates the relationships among perceived usefulness, confirmation, perceived ease of use, real-time interaction, perceived value,

continual intention, and satisfaction.

Target Mediating Elements: Focus on optimizing the mediating elements (perceived usefulness, confirmation, perceived ease of use, real-time interaction, perceived value) to positively impact user intention and satisfaction.

5. Enhance Overall User Experience:

Improve Operational Mechanism: By understanding and improving the operational mechanism within the integrated conceptual framework, operators can enhance the overall user experience and ensure sustained engagement.

Promote Sustainable Development: Targeted improvements based on the identified factors can significantly impact the CBSP's sustainable development.

By implementing these recommendations, operators can ensure the CBSP remains a vital tool in the educational landscape, tailored to meet the unique needs of Information Communication major students and enhance their educational and professional development.

5.3 Limitation and Further Study

This study has two notable limitations. Firstly, it concentrated on Information Communication major students at a vocational college in Chengdu, China, which may limit the generalizability of the findings to other student populations or educational contexts. These students' specific characteristics and academic needs may not apply to other disciplines or regions. Secondly, the study's cross-sectional design, capturing data at a single point in time, restricts the ability to observe changes in user perceptions and behaviors over time.

Despite these limitations, the study provides a solid foundation and underscores the potential for further research. Future studies, with an expanded sample size and longitudinal designs, hold the promise of a more comprehensive understanding of the factors influencing continual intention and satisfaction. Moreover, the exploration of emerging technologies like AI and VR could open up new avenues for enhancing the CBSP.

In conclusion, this study highlights the importance of addressing the specific needs of vocational college students in the Information Communication major. By optimizing key factors influencing user satisfaction and continual intention, the CBSP can be developed into a more effective and user-centric platform, significantly contributing to the advancement of digital smart campuses.

References

Abdul, W. A., Sundar, V., Siva, R. N., & Ghani, M. (2019). Smart decision-making: Factors influencing behavioral intention to adopt e-learning in higher education. *Journal of Systems and Information Technology, 21*(1), 85-100. https://doi.org/10.1108/JSIT-05-2018-0085

Adela, M., Lojan, C., Córdova, M., & Peñafiel, C. (2012). Learning, e-learning and educational technology: Review of experiences and lessons learned. *International Journal of Engineering and Technology, 2*(6), 463-469. https://doi.org/10.7763/IJET.2012.V2.167

Alami, Y., & El Idrissi, I. (2022). Students' adoption of e-learning: Evidence from a Moroccan business school in the COVID-19 era. *Arab Gulf Journal of Scientific Research, 40*(1), 54-78. https://doi.org/10.1108/AGJSR-05-2022-0052

Al-Maroof, R., Ayoubi, K., Alhumaid, K., Aburayya, A., Alshurideh, M., Alfaisal, R., & Salloum, S. (2021). The acceptance of social media video for knowledge acquisition, sharing, and application: A comparative study among YouTube users and TikTok users for medical purposes. *International Journal of Data and Network Science, 5*(3), 197-214. https://doi.org/10.5267/j.ijdns.2021.6.013

Amlan, D., Mishra, M., & Sinha, S. (2020). A study of factors influencing the adoption of e-learning systems in higher education institutions. *Journal of Educational Technology & Society, 23*(1), 45-58.

Arbuckle, J. L. (1995). *Amos 3.0 user's guide* (1st ed.). Smallwaters Corporation.

Bao, Z., & Zhu, Y. (2023). Understanding customers' stickiness of live streaming commerce platforms: An empirical study based on modified e-commerce system success model. *Asia Pacific Journal of Marketing and Logistics, 35*(3), 775-793. https://doi.org/10.1108/APJML-09-2021-0707

Brown, A., & Miller, J. (2017). Cloud infrastructure for virtual labs in education. *International Journal of Information and Communication Technology Education, 13*(4), 68-79.

Cen, Y., & Li, L. (2019). Effects of network externalities on user loyalty to online B2B platforms: An empirical study. *Journal of Enterprise Information Management, 33*(2), 309-334. https://doi.org/10.1108/JEIM-02-2019-0050

Chang, V. (2016). Review and discussion: E-learning for academia and industry. *International Journal of Information Management, 36*(3), 476-485. https://doi.org/10.1016/j.ijinfomgt.2015.12.007

Cheng, Y.-M. (2020). Why do customers intend to continue using internet-based sharing economy service platforms? Roles of network externality and service quality. *Journal of Asia Business Studies, 15*(1), 128-152. https://doi.org/10.1108/JABS-05-2019-0142

Clifton, A., & Mann, C. (2011). Can YouTube enhance student nurse learning? *Nurse Education Today, 31*(4), 311-313. https://doi.org/10.1016/j.nedt.2010.10.004

Dai, H. M., Teo, T., Rappa, N. A., & Huang, F. (2020). Explaining Chinese university students' continuance learning intention in the MOOC setting: A modified expectation confirmation model perspective. *Computers & Education, 150*, 103850. https://doi.org/10.1016/j.compedu.2020.103850

Daneji, A. A., Ayub, A. F. M., & Khambari, M. N. M. (2019). The effects of perceived usefulness, confirmation, and satisfaction on continuance intention in using massive open online course (MOOC). *Knowledge Management & E-Learning, 11*, 201-214.

Demir, A., Maroof, L., Sabbah Khan, N. U., & Ali, B. J. (2021). The role of e-service quality in shaping online meeting platforms: A case study from the higher education sector. *Journal of Applied Research in Higher Education, 13*(5), 1436-1463. https://doi.org/10.1108/JARHE-08-2020-0253

Eren, B. A. (2021). Determinants of customer satisfaction in chatbot use: Evidence from a banking application in Turkey. *International Journal of Bank Marketing, 39*(2), 294-311. https://doi.org/10.1108/IJBM-02-2020-0056

Frauke, H., & Sven, H. (2020). The role of digital transformation in the success of new business models. *Journal of Business Research, 121*, 202-212. https://doi.org/10.1016/j.jbusres.2020.09.048

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2006). *Multivariate data analysis* (6th ed.). Pearson.

Harper, L. M., James, E. D., Joo, S., & Kim, Y. (2023). System and content factors associated with college students' adoption of YouTube for learning purposes. *The Electronic Library, 3*(7), 40-67. https://doi.org/10.1108/EL-04-2023-0083

Hong, S., Thong, J. Y. L., & Tam, K. Y. (2006). Understanding continued information technology usage behavior: A comparison of three models in the context of mobile internet. *Decision Support Systems, 42*(3), 1819-1834. https://doi.org/10.1016/j.dss.2006.03.009

Hossain, M. N., Talukder, M. S., Khayer, A., & Bao, Y. (2021). Investigating the factors driving adult learners' continuous intention to use M-learning application: A fuzzy-set analysis. *Journal of Research in Innovative Teaching & Learning, 14*(2), 245-270. https://doi.org/10.1108/JRIT-09-2019-0071

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Hu, M., & Chaudhry, S. S. (2020). Enhancing consumer engagement in e-commerce live streaming via relational bonds. *Internet Research, 30*(3), 1019-1041. https://doi.org/10.1108/INTR-03-2019-0082

Johnson, L. D. (2017). Exploring cloud computing tools to enhance team-based problem solving for challenging behavior. *Topics in Early Childhood Special Education, 37*(3), 176-188. https://doi.org/10.1177/0271121417715318

Kashive, N., Powale, L., & Kashive, K. (2020). Understanding user perception toward artificial intelligence (AI) enabled e-learning. *The International Journal of Information and Learning Technology, 38*(1), 1-19. https://doi.org/10.1108/IJILT-05-2020-0090

Kim, B. (2018). Understanding the role of conscious and automatic mechanisms in social networking services: A longitudinal study. *International Journal of Human-Computer Interaction, 34*(9), 805-818. https://doi.org/10.1080/10447318.2017.1392079

Kim, Y. H., Kim, D. J., & Wachter, K. (2013). A study of mobile user engagement (MoEN): Engagement motivations, perceived value, satisfaction, and continued engagement intention. *Decision Support Systems, 56*, 361-370. https://doi.org/10.1016/j.dss.2013.07.002

Kirmani, M. D., Haque, M. A., Sadiq, M. A., & Hasan, F. (2023). Cashless preferences during the COVID-19 pandemic: Investigating user intentions to continue UPI-based payment systems in India. *Journal of Science and Technology Policy Management, 14*(4), 758-779. https://doi.org/10.1108/JSTPM-08-2021-0127

Kline, R. B. (2023). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.

Kumari, N., & Biswas, A. (2023). Does M-payment service quality and perceived value co-creation participation magnify M-payment continuance usage intention? Moderation of usefulness and severity. *International Journal of Bank Marketing, 6*(4), 45-67. https://doi.org/10.1108/IJBM-11-2022-0500

Le, X. C. (2022). Charting sustained usage toward mobile social media application: The criticality of expected benefits and emotional motivations. *Asia Pacific Journal of Marketing and Logistics, 34*(3), 576-593. https://doi.org/10.1108/APJML-11-2020-0779

Lee, M.-C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation-confirmation model. *Computers & Education, 54*(2), 506-516. https://doi.org/10.1016/j.compedu.2009.09.002

Lee, M. K. O., Cheung, C. M. K., & Chen, Z. (2005). Acceptance of Internet-based learning medium: The role of extrinsic and intrinsic motivation. *Information & Management, 42*(8), 1095-1104. https://doi.org/10.1016/j.im.2003.10.007

Liaw, S.-S. (2008). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system. *Computers & Education, 51*(2), 864-873. https://doi.org/10.1016/j.compedu.2007.09.005

Limayem, M., & Cheung, C. M. K. (2008). Understanding information systems continuance: The case of Internet-based learning technologies. *Information & Management, 45*(4), 227-232. https://doi.org/10.1016/j.im.2008.02.005

Lin, G. T. R., & Sun, C. (2009). Factors influencing satisfaction and loyalty in online shopping: An integrated model. *Online Information Review, 33*(3), 458-475. https://doi.org/10.1108/14684520910969907

Liu, Y., & Shrum, L. J. (2002). What is interactivity and is it always such a good thing? Implications of definition, person, and situation for the influence of interactivity on advertising effectiveness. *Journal of Advertising, 31*(4), 53-64. https://doi.org/10.1080/00913367.2002.10673685

Muhammad, M. A. (2019). *Investigating the role of perceived service quality, satisfaction, and loyalty in e-learning environments*. *Education and Information Technologies, 24*(4), 2047-2067. https://doi.org/10.1007/s10639-019-09932-3

Nikou, S. A. (2021). Web-based videoconferencing for teaching online: Continuance intention to use in the post-COVID-19 period. *Interaction Design and Architecture(s), 47*, 123-143. https://doi.org/10.55612/s-5002-047-006

Oliver, R. L. (1993). Cognitive, affective, and attribute bases of the satisfaction response. *Journal of Consumer Research, 20*(3), 418. https://doi.org/10.1086/209358

Olorunju, S. A., Akinsola, O. S., & Olutayo, A. O. (2018). Factors influencing customer satisfaction and loyalty in the Nigerian banking sector: A study of selected banks in Lagos State. *International Journal of Bank Marketing, 36*(6), 1098-1117. https://doi.org/10.1108/IJBM-09-2017-0156

Omar, N. A., Alam, S. S., Aziz, N. A., & Nazri, M. A. (2011). Retail loyalty programs in Malaysia: The relationship of equity, value, satisfaction, trust, and loyalty among cardholders. *Journal of Business Economics and Management, 12*(2), 332-352. https://doi.org/10.3846/16111699.2011.573297

Park, E. (2020). User acceptance of smart wearable devices: An expectation-confirmation model approach. *Telematics and Informatics, 47*, 101318. https://doi.org/10.1016/j.tele.2019.101318

Pedroso, M. R., Alves, P. A., & Santos, A. R. (2016). *The influence of quality dimensions on the use of mobile banking. Journal of Retailing and Consumer Services, 31*, 41-50. https://doi.org/10.1016/j.jretconser.2016.04.010

Rowland, D. T. (2003). *Demographic methods and concepts* (1st ed.). Oxford University Press.

Salimon, M. G., Sanuri, S. M. M., Aliyu, O. A., Perumal, S., & Yusr, M. M. (2021). E-learning satisfaction and retention: A concurrent perspective of cognitive absorption, perceived social presence and technology acceptance model. *Journal of Systems and Information Technology, 23*(1), 109-129. https://doi.org/10.1108/JSIT-02-2020-0029

Sevda, S., & Sigrid, S. (2016). Factors influencing e-learning satisfaction: A study on online learners in higher education. *Education and Information Technologies, 21*(3), 1017-1032. https://doi.org/10.1007/s10639-015-9402-5

Sica, C., & Ghisi, M. (2007). The Italian versions of the Beck Anxiety Inventory and the Beck Depression Inventory-II: Psychometric properties and discriminant power. In M. A. Lange (Ed.), *Leading-edge psychological tests and testing research* (pp. 27-50). Nova Science Publishers.

Singh, H., & Miah, S. J. (2020). Smart education literature: A theoretical analysis. *Education and Information Technologies, 25*(4), 3299-3328. https://doi.org/10.1007/s10639-020-10116-4

Steuer, J. (1992). Defining virtual reality: Dimensions determining telepresence. *Journal of Communication, 42*(4), 73-93.

Szymanski, D. M., & Hise, R. T. (2000). E-satisfaction: An initial examination. *Journal of Retailing, 76*(3), 309-322. https://doi.org/10.1016/S0022-4359(00)00035-X

Thong, J. Y. L., Hong, S.-J., & Tam, K. Y. (2006). The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance. *International Journal of Human-Computer Studies, 64*(9), 799-810. https://doi.org/10.1016/j.ijhcs.2006.05.001

Van Noort, G., Voorveld, H. A. M., & Van Reijmersdal, E. A. (2012). Interactivity in brand web sites: Cognitive, affective, and behavioral responses explained by consumers' online flow experience. *Journal of Interactive Marketing, 26*(4), 223-234. https://doi.org/10.1016/j.intmar.2011.11.002

Wang, J., Tigelaar, D. E. H., & Admiraal, W. (2021). Rural teachers' sharing of digital educational resources: From motivation to behavior. *Computers & Education, 161*, 104055. https://doi.org/10.1016/j.compedu.2020.104055

Wang, J., & Xie, J. (2022). Exploring the factors influencing users' learning and sharing behavior on social media platforms. *Library Hi Tech, 3*(3), 67-80. https://doi.org/10.1108/LHT-01-2022-0033

Wang, Y. S. (2008). Assessing e-commerce systems success: A respecification and validation of the DeLone and McLean model of IS success. *Information Systems Journal, 18*(5), 529-557. https://doi.org/10.1111/j.1365-2575.2007.00268.x

Wu, J., & Wang, Y. S. (2006). What drives mobile commerce? An empirical evaluation of the revised technology acceptance model. *Information & Management, 43*(5), 763-772. https://doi.org/10.1016/j.im.2006.06.002

Zhang, Q. (2009). User acceptance of e-learning: A study of the e-learning system from the perspective of students. *Journal of Computer Assisted Learning, 25*(2), 116-128. https://doi.org/10.1111/j.1365-2729.2008.00315.x