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Factors Impacting Student Satisfaction with Blended Learning in English Courses: A Case Study of a Higher Vocational and Technical University in Sichuan, China

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Abstract

Background and Aim: This study investigates key factors influencing student satisfaction with blended English learning at a higher vocational and technical college in Sichuan, China. Against the backdrop of digital transformation in vocational education, the research focuses on five variables: system quality, information quality, course design quality, perceived ease of use, and perceived usefulness. Grounded in the Technology Acceptance Model (TAM) and Information Systems Success Theory, the study aims to validate their mechanisms of impact on satisfaction and enhance blended learning outcomes through strategic interventions. It particularly examines the practical application of the U-Campus platform in language courses, providing empirical insights for optimizing vocational education models.

Materials and Methods: A mixed-methods approach was employed, combining 90 valid questionnaires and 12 in-depth interviews with first-year students from three colleges (Materials Engineering, Economics & Management, and Arts). The questionnaire utilized a 29-item 5-point Likert scale, validated through expert content validity checks (IOC > 0.6) and reliability tests (Cronbach's $\alpha > 0.7$). A 16-week strategic intervention was implemented, with Structural Equation Modeling (SEM) revealing that course design quality ($\beta = 0.290$) and perceived usefulness ($\beta = 0.282$) were the strongest predictors of satisfaction, explaining 61.7% of variance ($R^2 = 0.617$). Paired t-tests confirmed significant post-intervention improvements across all variables (e.g., system quality mean increased from 3.81 to 4.02, $p < .001$), demonstrating the feasibility of pedagogical optimization.

Results: Findings reveal that system quality, information quality, and course design quality positively influence perceived ease of use and perceived usefulness, which subsequently impact student satisfaction. Course design quality (CDQ) and perceived usefulness (PU) were the strongest predictors of student satisfaction. The strategic interventions implemented led to significant improvements in these areas.

Conclusion: To improve student satisfaction in blended learning, institutions should focus on enhancing system functionality, optimizing course design, and increasing the perceived usefulness of learning activities. Future research should expand to additional vocational universities to enhance generalizability.

Keywords: Blended Learning; Student Satisfaction; System Quality; Information Quality; Course Design Quality; Perceived Ease of Use; Perceived Usefulness; Vocational Education

Introduction

Blended learning, which integrates online digital tools with traditional face-to-face instruction, has become an essential pedagogical approach in higher education, particularly in vocational and technical universities. It provides students with flexible learning opportunities, allowing them to access educational resources beyond physical classrooms and fostering a more interactive learning environment (Garrison & Vaughan, 2008). In China, vocational and technical universities play a crucial role in equipping students with industry-relevant skills, and the incorporation of blended learning in English courses has been widely adopted to improve language proficiency and engagement (Wang & Sun, 2021).

One of the prominent learning platforms used in blended learning settings is the U-Campus system, an online platform designed to support various digital learning activities. U-Campus offers features such as interactive course materials, automated assessments, and real-time feedback, enabling a more structured and student-centered learning experience (Zhang et al., 2022). However, the success of blended learning through U-Campus depends on several factors, including system quality, information quality, course design

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quality, perceived ease of use, and perceived usefulness, all of which collectively influence student satisfaction (DeLone & McLean, 2003).

The Technology Acceptance Model (TAM) (Davis, 1989) and the Information Systems Success Model (DeLone & McLean, 2003) provide a theoretical foundation for understanding how students perceive and interact with blended learning systems. TAM posits that perceived ease of use and perceived usefulness are key determinants of technology adoption, while the Information Systems Success Model emphasizes the role of system quality and information quality in shaping user satisfaction. Prior research has highlighted the importance of these factors in ensuring the effectiveness of digital learning platforms (Al-Fraihat et al., 2020).

Despite the growing implementation of blended learning in vocational education, challenges remain in optimizing system design, enhancing course quality, and ensuring student engagement. This study investigates the key factors influencing student satisfaction with blended learning in English courses at a higher vocational and technical university in Sichuan, China, with a particular focus on the U-Campus platform. By analyzing how system quality, information quality, course design quality, perceived ease of use, and perceived usefulness interact to affect student satisfaction, this study aims to provide practical recommendations for improving blended learning strategies in vocational education.

Objectives

Identify Key Factors: To examine the impact of system quality, information quality, course design quality, perceived ease of use, and perceived usefulness on student satisfaction in blended English learning.

Validate Hypotheses: To test five hypotheses (H1-H5) regarding the relationships between these variables and satisfaction using structural equation modeling (SEM).

Assess Strategic Interventions: To evaluate the effectiveness of a 16-week strategic plan in improving system functionality, course design, and perceived value of blended learning.

Provide Practical Recommendations: To offer evidence-based strategies for optimizing blended learning environments in vocational education, focusing on platform usability and pedagogical relevance.

Literature Review

1. Theories Used in the Study

In this study, the Technology Acceptance Model (TAM), Information Systems Success Theory, and Expectation Confirmation Theory (ECT) were employed to develop the research framework. The Technology Acceptance Model (TAM), proposed by Davis (1989), explains individuals' acceptance of technology, highlighting two critical factors—perceived ease of use and perceived usefulness—as essential predictors of technology adoption. Hsu and Lu (2004) later expanded the TAM to include social influence, underscoring its significant role in shaping users' technology adoption behaviors. DeLone and McLean (1992) introduced the Information Systems Success Theory, which emphasizes that user satisfaction and the successful adoption of information systems are influenced by both system quality and information quality. They further revised this theory in 2003 to incorporate service quality as an additional determinant of system success. Additionally, Oliver (1993) noted that consumer satisfaction significantly influences attitudes, which subsequently affect behavioral intentions. Collectively, these theories contribute to understanding the multiple factors influencing student satisfaction in blended learning environments.

2. Introduction of Variables

2.1 Student Satisfaction in Blended Learning

Student satisfaction in blended learning of English courses refers to the degree to which students feel content and fulfilled with their learning experience in a hybrid educational environment. Blended learning combines traditional face-to-face instruction with online learning components, providing students with greater flexibility and accessibility (Graham, 2006). In this context, student satisfaction becomes a critical measure of the effectiveness of the educational approach, as it reflects students' overall perceptions of the learning experience, including their engagement, motivation, and outcomes.

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Several studies have highlighted the importance of student satisfaction in blended learning environments, particularly in language acquisition. Research indicates that when students are satisfied with their blended learning in English courses, they are more likely to engage actively with the material, participate in discussions, and seek additional resources to enhance their learning (Zhang et al., 2020). Factors contributing to student satisfaction in this context include the quality of course materials, the effectiveness of instructional strategies, and the perceived relevance of the content to their language learning goals.

Moreover, student satisfaction is linked to positive learning outcomes. When students report high levels of satisfaction, they are more inclined to achieve their language proficiency goals and maintain motivation throughout the course (Jiang & Zhang, 2017). Conversely, low levels of satisfaction can lead to disengagement, decreased performance, and higher dropout rates, underscoring the importance of addressing student needs and preferences in blended learning in English courses.

2.2 System Quality

System quality is critical in blended English learning, encompassing the reliability, availability, and performance of the learning management system (LMS) used for course delivery. A high-quality LMS facilitates seamless access to course materials, enabling students to navigate online resources effectively (DeLone & McLean, 2003). In blended English courses, where both face-to-face and online interactions are essential, system quality directly influences students' engagement and learning outcomes. An efficient LMS that is easy to use and responsive enhances the overall learning experience, allowing students to focus on their language acquisition without being hindered by technical difficulties.

Research has shown that system quality significantly impacts student satisfaction in blended learning environments. For example, Shroff et al. (2011) demonstrated that students who perceive the LMS as user-friendly and reliable report higher levels of satisfaction with their English courses. This positive relationship suggests that when students have a dependable system at their disposal, they are more likely to engage fully in their blended learning experience, ultimately leading to better language learning outcomes.

H1: System quality has a significant impact on student satisfaction with blended learning in English courses.

2.3 Information Quality

Information quality in the context of blended English learning refers to the accuracy, relevance, and timeliness of the learning materials and resources provided to students. In a blended learning environment, where students often rely on both online resources and in-person instruction, high-quality information is crucial for effective language acquisition. Wang and Wang (2017) emphasize that clear and relevant information helps students understand course content more thoroughly, making it easier for them to apply their knowledge in both online and offline settings.

Studies indicate a strong link between information quality and student satisfaction in blended English courses. Zhang et al. (2019) found that students who receive high-quality, timely information regarding their coursework are more likely to report satisfaction with their learning experience. This heightened satisfaction can foster a sense of confidence and motivation among students, encouraging them to actively participate in their language studies and seek additional resources to enhance their skills.

H2: Information quality has a significant impact on student satisfaction with blended learning in English courses.

2.4 Course Design Quality

Course design quality is a pivotal factor in blended English learning, encompassing the organization of course content, the effectiveness of instructional strategies, and the diversity of learning activities. A well-designed blended course provides a balanced integration of online and face-to-face components, engaging students and facilitating their language development (Garrison & Vaughan, 2008). When the course structure is logical and includes varied instructional methods, students are more likely to remain motivated and engaged in their learning process.

Research has highlighted the impact of course design quality on student satisfaction in blended learning environments. For instance, Baker et al. (2019) found that students in well-structured blended

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English courses report higher satisfaction levels. Elements such as clear learning objectives, interactive activities, and relevant assessments contribute to a positive learning experience. When students perceive the course design as meeting their needs, their satisfaction with the overall learning process increases significantly.

H3: Course design quality has a significant impact on student satisfaction with blended learning in English courses.

2.5 Perceived Ease of Use

Perceived ease of use refers to students' subjective assessments of how easy it is to navigate and utilize the technologies employed in blended English learning. Higher perceived ease of use is associated with a greater willingness to engage with online components of the course (Davis, 1989). In the context of blended learning, where students interact with various digital tools for language practice and assessment, an easy-to-use platform is essential for enhancing their learning experience.

Research supports the positive correlation between perceived ease of use and student satisfaction in blended English courses. Venkatesh and Bala (2008) found that when students view the LMS and other technological tools as user-friendly, their overall satisfaction with the learning experience improves. This satisfaction is crucial for fostering student engagement and promoting successful language acquisition in a blended environment, as students are more likely to explore and utilize the available resources effectively.

H4: Perceived ease of use has a significant impact on student satisfaction with blended learning in English courses.

2.6 Perceived Usefulness

Perceived usefulness refers to students' beliefs regarding the effectiveness of the technology and resources in enhancing their language learning outcomes within a blended English learning framework. A high level of perceived usefulness generally leads to increased motivation and engagement, as students recognize the value of the tools provided to them (Davis, 1989). When students believe that the blended learning approach can improve their language proficiency, they are more inclined to participate actively in both online and offline learning activities.

Research highlights the significance of perceived usefulness in shaping student satisfaction within blended English courses. Lee et al. (2019) found that students who perceive the technology as beneficial to their learning report higher satisfaction levels. This perception of usefulness reinforces their commitment to the blended learning experience, ultimately leading to improved language skills and greater overall satisfaction with the course.

H5: Perceived usefulness has a significant impact on student satisfaction with blended learning in English courses.

Research Methods and Materials

1. Research Conceptual Framework

The research framework is based on four theoretical models: Mirabolghasemi et al. (2021), Cheng (2020), Roca et al. (2006), and Davis (1989). These frameworks collectively support the conceptual framework presented in Figure 1.

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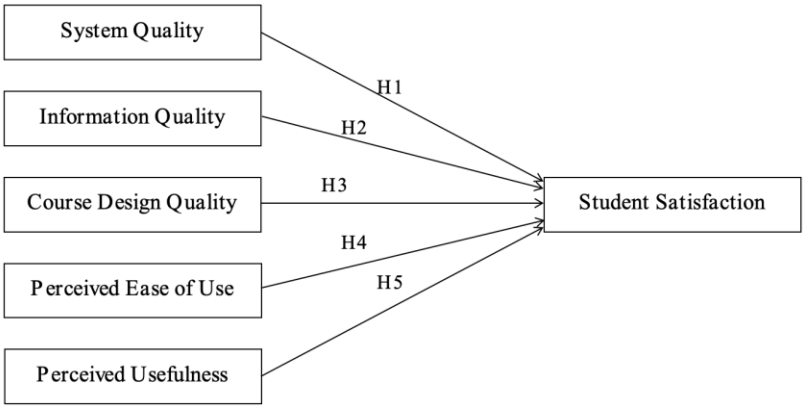

Figure 1 Conceptual Framework

H1: System quality has a significant impact on student satisfaction with blended learning in English courses.

H2: Information quality has a significant impact on student satisfaction with blended learning in English courses.

H3: Course design quality has a significant impact on student satisfaction with blended learning in English courses.

H4: Perceived ease of use has a significant impact on student satisfaction with blended learning in English courses.

H5: Perceived usefulness has a significant impact on student satisfaction with blended learning in English courses.

2. Action Research Framework

This action research aims to implement an effective strategic plan at a public polytechnic university in China to enhance student satisfaction with blended learning in English courses. The study investigates the relationships among system quality, information quality, course design quality, perceived ease of use, perceived usefulness, and student satisfaction, particularly in the context of blended English courses. It focuses on optimizing the learning environment, fostering a positive learning attitude, and ultimately improving overall student satisfaction. Additionally, the research design includes the proposal of five hypotheses to examine the changes in the impact of these variables on satisfaction before and after the implementation of the strategic plan. The action research framework is as follows.

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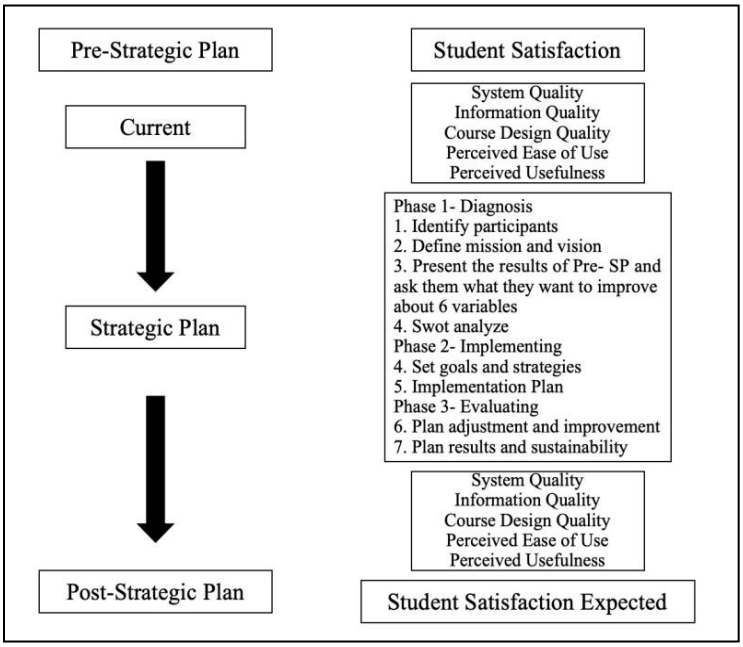

Figure 2 Action Research Framework

3. Research Methodology

This study utilized a quantitative approach, employing online questionnaires to gather data from first-year students at a higher vocational university in Sichuan. The questionnaire included screening questions, scale items assessing factors influencing student satisfaction with blended English courses, and demographic questions, using a 5-point Likert scale (Likert, 1932).

The research process consisted of four stages. First, a survey was conducted with the entire research population (n=90) to gather data for the conceptual framework. Before distribution, an Index of Item-Objective Congruence (IOC) test was performed with three experts to ensure content validity (Waltz et al., 2010), followed by a pilot test with 30 students to assess reliability using Cronbach's Alpha (Cronbach, 1951).

After confirming reliability and validity, 150 questionnaires were distributed, yielding 116 valid responses. Hypotheses were tested using multiple linear regression analysis at a significance level of $p < 0.05$. Supported hypotheses were retained, while unsupported ones were eliminated.

In the second stage, 90 students were utilized for the pre-strategic plan surveys. Five hypotheses were formulated for evaluation following the implementation of the strategic plan. The third stage focused on executing the strategic plan (SP) with 30 selected participants.

In the final stage, these participants completed a follow-up survey, providing data for a paired-sample t-test analysis to compare pre- and post-strategic plan results. The data were analyzed using Jamovi software, focusing on results from confirmatory factor analysis (CFA) and structural equation modeling (SEM). This comprehensive approach facilitated an in-depth examination of the research objectives and hypotheses.

4. Research Population, Sample Size, and Sampling Procedures

4.1.Research Population

The target population for this study comprises first-year students from three colleges at Sichuan Polytechnic University (SCPU): the School of Materials Engineering, the School of Economics and Management, and the School of Art. This demographic is suitable as they are engaged in their studies and familiar with blended learning environments for English courses, allowing for a comprehensive assessment of factors influencing their satisfaction. A sample size of 90 students was determined, as outlined by Milic

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(2008). Initially, 12 students were randomly selected for interviews, followed by 30 students participating in the pre-strategic plan phase, who will be re-interviewed post-implementation. Ultimately, 90 valid questionnaires were collected for analysis to ensure the validity of the findings.

Table 1 Research Population

No.	College	Total Students	Sample Size	Proportion
1	School of Materials Engineering	853	42	46.7%
2	School of Economics & Management	638	32	35.6%
3	School of Art	320	16	17.7%
Total		1811	90	100.00%

Source: Sichuan Polytechnic University (2024)

4.2. Sample size

The researcher conducted a pilot survey with 30 randomly selected students to verify the reliability of the instrument. Subsequently, the research population was identified as 1,811 students from Sichuan Polytechnic University, yielding 116 valid responses. From this, a sample size of 90 was chosen (Hair et al., 2014). The researcher then employed multiple linear regression analysis to investigate the relationships between the independent and dependent variables. Finally, 30 voluntary students were selected to participate in the strategic plan stage.

5. Sampling Procedures

The researcher conducted several sampling procedures as follows:

Sampling 1: Pilot Test Sampling

The researcher randomly selected 30 students to complete a survey questionnaire and provide feedback for the pilot test.

Sampling 2: Pre-Strategic Plan Survey Sampling

For the pre-strategic plan survey, the researcher sampled 150 students from Sichuan Polytechnic University (SCPU) across different academic years by distributing the questionnaire via QQ and WeChat. After reviewing the responses, 116 were confirmed as valid. 90 students were utilized for the pre-strategic plan surveys.

Sampling 3: Strategic Plan Sampling

The researcher randomly selected 30 voluntary students to participate in the implementation of the strategic plan.

6. Research Instruments

6.1 Design of Questionnaire

The researcher designed a survey questionnaire by following three steps.

Step 1: Literature Review & Scale Selection: Identified relevant measurement scales from published English literature and adapted them to measure factors influencing student satisfaction with blended learning.

Step 2:Content Validity (IOC Test): Three field experts evaluated the scale using the Index of Item-Objective Congruence (IOC).

Step 3:Translation & Validation: A certified translator (CATTI Level 3) translated the questionnaire to ensure clarity and accurate comprehension for respondents.

Step 4:Online Distribution: The questionnaire was converted into an online survey and distributed via QQ and WeChat.

6.2 Components of Questionnaire

The survey questionnaire consisted of three sections:

Screening Questions: Used to filter out respondents who do not belong to the research population.

Demographic Information: Collected basic details of participants, including gender and age.

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Pre-Strategic Plan Survey Questions: Assessed the initial levels of independent and dependent variables among 90 SCPU students before implementing the strategic plan.

6.3 IOC Results

The researcher invited three independent experts from Sichuan Polytechnic University, all of whom are leading figures in English teaching with extensive academic achievements, to conduct the Item-Objective Congruence (IOC) Index evaluation. Each expert independently assessed the 29 questionnaire items using the following rating scale: +1 for Congruent, 0 for Questionable, and -1 for Incongruent.

According to the IOC Index proposed by Rovinelli and Hambleton (1977), items with an IOC score below 0.6 require modification or removal. Based on this criterion, three items (SQ4, IQ6, and PEOU3) were discarded, while the remaining items were retained for the final questionnaire.

Convenience sampling was employed to recruit accessible respondents who could complete the questionnaires and contribute to the research. This approach is widely used in educational research to efficiently collect data from readily available participants (Etikan, 2016). The researcher distributed the questionnaires through online platforms such as WeChat and QQ, gathering responses for further analysis.

6.4 Pilot survey and Pilot test results

The researcher conducted a pilot survey with 30 randomly selected students, asking them to complete the questionnaire and provide feedback. Following this, the researcher assessed the internal consistency reliability using Cronbach's Alpha, where a reliability coefficient of 0.7 or higher is considered acceptable (Nunnally & Bernstein, 1994). The results presented in the table below confirm the high reliability of each construct.

Table 2 Pilot Test Result

Variables	No. of items	Sources	Cronbach's Alpha	Strength of association
System Quality (SQ)	4	(Mirabolghasemi et al., 2021)	0.834	Good
Information Quality (IQ)	5	(Mirabolghasemi et al., 2021)	0.858	Good
Course Design Quality (CDQ)	4	(Cheng, 2020)	0.870	Good
Perceived Ease of Use (PEOU)	4	(Roca et al., 2006)	0.784	Acceptable
Perceived Usefulness (PU)	5	(Cheng, 2019)	0.910	Excellent
Student Satisfaction (SS)	4	(Mirabolghasemi et al., 2021)	0.850	Good

Results

1. Demographic Profile

The researcher demonstrated the demographic profile of the entire research population (n=90), followed by a selected group (n=30), who participated in the strategic plan, as shown in Table 3.

Table 3 Demographic Profile

Entire Research Population (n=90)		**Frequency**	**Percent**
Gender	Male	48	53.33%
	Female	42	46.67%
Age	18	20	7.72%
	19	66	25.48%
	20	69	26.64%
Total		**90**	100%
Strategic Plan Participants (n=30)		**Frequency**	**Percent**
Gender	Male	12	40.00%

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Entire Research Population (n=90)		Frequency	Percent
	Female	18	60.00%
Age	18	19	63.33%
	19	7	23.33%
	20	4	13.33%
Total		**30**	100%

2. Results of Multiple Linear Regression

The researcher conducted a Multiple Linear Regression (MLR) analysis on 90 survey responses to examine the relationship between independent variables and student satisfaction with blended learning courses. The analysis confirmed all five hypotheses. Variance inflation factor (VIF) analysis indicated no multicollinearity concerns, as all VIF values were below 5 (Hair et al., 1995).

The results showed that all independent variables significantly influenced student satisfaction ($p < 0.05$), with the model explaining 61.7% of the variance ($R^2 = 0.617$). Among the factors, Course Design Quality had the strongest impact ($\beta = 0.290$), followed by Perceived Usefulness ($\beta = 0.282$) and System Quality ($\beta = 0.219$). Perceived Ease of Use ($\beta = 0.205$) and Information Quality ($\beta = 0.155$) also contributed positively, but to a lesser extent.

These findings highlight the importance of course design and perceived usefulness in enhancing student satisfaction with blended learning, providing valuable insights for future research and strategic improvements.

Table 4 Multiple Linear Regression Results on Student Satisfaction

Variables	Standardized Coefficients Beta Value	t-value	p-value	VIF	R	R^2
System Quality (SQ)	0.219	2.92	0.005	1.24	0.785	0.617
Information Quality (IQ)	0.155	2.01	0.047	1.30		
Course Design Quality (CDQ)	0.290	3.55	< 0.001	1.46		
Perceived Ease of Use (PEOU)	0.205	2.48	0.015	1.50		
Perceived Usefulness (PU)	0.282	3.60	< 0.001	1.35		

Note: p-value <0.05

In sum, for the first five hypotheses, H1, H2, H3, H4, and H5 were all supported. Building on the previous analysis, the research hypotheses of this study have been validated and supported through the results of multiple linear regression (MLR). The final research hypothesis regarding the changes in all variables between the pre-strategic plan and post-strategic plan stages is as follows:

H6: There is a significant difference in System Quality between the pre-strategic plan and post-strategic plan stages.

H7: There is a significant difference in Information Quality between the pre-strategic plan and post-strategic plan stages.

H8: There is a significant difference in Course Design Quality between the pre-strategic plan and post-strategic plan stages.

H9: There is a significant difference in Perceived Ease of Use between the pre-strategic plan and post-strategic plan stages.

H10: There is a significant difference in Perceived Usefulness between the pre-strategic plan and post-strategic plan stages.

H11: There is a significant difference in Student Satisfaction between the pre-strategic plan and post-strategic plan stages.

3. Strategic Plan Process

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The comprehensive design of the strategic plan phase spans 16 weeks throughout the entire semester. This plan outlines details such as the time and location, the personnel involved, the objectives and tools of the strategic plan, as well as the specific activities carried out during this phase.

Table 5 Implementation Time and Activities as Strategic Plan

Phase	Time and Duration	Implementation keywords
Phase 1	Week 1-2	Team establishment
		Goal setting
		Understanding the learning objectives of the course
		SWOT diagnostic analytic tool
Phase 2	Week 3-13	Implementing (Setting strategies & implementing plan)
Phase 3	Week 4-14	Evaluating
Phase 4	Week 15-16	Summary

4. Results of Comparison between Pre-strategic Plan Stage and Post-strategic Plan Stage

The researcher conducted a paired-sample t-test to examine differences in system quality, information quality, course design quality, perceived ease of use, perceived usefulness, and student satisfaction with blended learning in English courses before and after implementing the strategic plan. The analysis aimed to determine whether significant changes occurred between the pre- and post-strategic plan phases. The results are presented in the following tables.

Table 6 Paired Sample Test Result of Six Variables, N=30

	Paired-sample	Mean	SD	t-value	p-value	SE
Pair 1	Pre-SQ	3.81	0.840	-4.48	< .001	0.0466
	Post-SQ	4.02	0.660			
Pair 2	Pre-IQ	3.63	0.779	-2.24	0.033	0.0477
	Post-IQ	3.74	0.728			
Pair 3	Pre-CDQ	3.74	1.16	-2.15	0.040	0.0967
	Post-CDQ	3.95	0.802			
Pair 4	Pre-PEOU	3.77	0.793	-2.19	0.036	0.0608
	Post-PEOU	3.84	0.712			
Pair 5	Pre-PU	3.39	1.15	-3.43	0.002	0.123
	Post-PU	3.81	0.806			
Pair 6	Pre-SS	3.52	1.16	3.90	<.001	0.0877
	Post-SS	3.87	0.900			

Table 6 presents the results of the paired-sample t-test analysis comparing the pre-strategic plan and post-strategic plan stages.

In Pair 1, the comparison shows that system quality in the post-strategic plan stage (M = 3.81, SD = 0.840) is significantly higher than in the pre-strategic plan stage (M = 4.02, SD = 0.660). The t-value is -4.48, with a p-value less than 0.001, indicating a statistically significant difference. The mean difference is

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-0.208, with a standard error (SE) of 0.0466. Since the p-value is below 0.05, the results support Hypothesis 6, confirming a significant difference in system quality between the pre- and post-strategic plan stages.
In Pair 2, the comparison indicates that information quality in the post-strategic plan stage (M = 3.74, SD = 0.728) is significantly higher than in the pre-strategic plan stage (M = 3.63, SD = 0.779). The t-value is -2.24, with a p-value of 0.033, a standard error (SE) of 0.0967, and a mean difference of -0.107. Since the p-value is below 0.05, the results support Hypothesis 7, confirming a significant difference in information quality between the pre- and post-strategic plan stages.

In Pair 3, the comparison shows that course design quality in the post-strategic plan stage (M = 3.95, SD = 0.802) is significantly higher than in the pre-strategic plan stage (M = 3.74, SD = 1.16). The t-value is -2.15, with a p-value of 0.040, a standard error (SE) of 0.0967, and a mean difference of -0.208. Since the p-value is below 0.05, the results support Hypothesis 8, confirming a significant difference in course design quality between the pre- and post-strategic plan stages.

In Pair 4, the comparison indicates that the perceived ease of use in the post-strategic plan stage (M = 3.84, SD = 0.712) is significantly higher than in the pre-strategic plan stage (M = 3.77, SD = 0.793). The t-value is -2.19, with a p-value of 0.036, a standard error (SE) of 0.0608, and a mean difference of -0.133. Since the p-value is below 0.05, the results support Hypothesis 9, confirming a significant difference in perceived ease of use between the pre- and post-strategic plan stages.

In Pair 5, the comparison reveals that perceived usefulness in the post-strategic plan stage (M = 3.81, SD = 0.806) is significantly higher than in the pre-strategic plan stage (M = 3.39, SD = 1.15). The t-value is -3.43, with a p-value of 0.002, a standard error (SE) of 0.123, and a mean difference of -0.420. Since the p-value is below 0.05, the results support Hypothesis 10, confirming a significant difference in perceived usefulness between the pre- and post-strategic plan stages.

In Pair 6, the comparison indicates that student satisfaction in the post-strategic plan stage (M = 3.87, SD = 0.900) is significantly higher than in the pre-strategic plan stage (M = 3.52, SD = 1.16). The t-value is 3.90, with a p-value less than 0.001, a standard error (SE) of 0.0877, and a mean difference of -0.342. Since the p-value is below 0.05, the results support Hypothesis 11, confirming a significant difference in student satisfaction between the pre- and post-strategic plan stages.

In summary, significant changes were observed in variables such as system quality (SQ), information quality (IQ), course design quality (CDQ), perceived ease of use (PEOU), perceived usefulness (PU), and student satisfaction (SS) between the Post-strategic Plan Stage and the Pre-strategic Plan Stage. Hypotheses 6 through 11 were statistically supported.

Discussions

The findings of this study indicate that the strategic plan positively impacted student satisfaction with blended English courses. Paired t-test results showed significant improvements in system quality, information quality, course design quality, perceived ease of use, perceived usefulness, and student satisfaction, aligning with previous research.

Among the factors, the most notable improvements were observed in system quality, perceived usefulness, and student satisfaction, with p-values less than 0.01. This suggests that students perceived the system as more reliable and efficient post-intervention, confirming that the blended learning model became more beneficial.

However, relatively smaller improvements in information quality, course design quality, and perceived ease of use indicate that while the strategic plan enhanced these aspects, further refinements are needed. Overall, these findings confirm the hypotheses that the identified factors significantly influence student satisfaction in blended learning and highlight the practical benefits of strategic interventions in improving student perceptions and engagement with digital learning environments.

Conclusions

This study investigates the impact of the U-Campus online learning platform on blended English learning, focusing on five key factors: system quality, information quality, course design quality, perceived ease of use, and perceived usefulness, and their influence on student satisfaction. A strategic plan was developed to assess and enhance student satisfaction levels.

Before implementing the strategic plan, a SWOT analysis was conducted to evaluate the factors affecting student satisfaction and identify areas for improvement. The findings revealed significant potential for enhancement in course satisfaction, platform usage experience, and course design quality.

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The researchers distributed 120 questionnaires to students at Sichuan Engineering Vocational and Technical University, collecting 90 valid responses and conducting interviews with 12 selected students. Data analysis confirmed that the strategic plan positively impacted student satisfaction, particularly in terms of system quality, information quality, course design quality, perceived ease of use, and perceived usefulness.

Quantitative analysis indicated that independent variables explained 61.7% of the variance in student satisfaction, with course design quality and perceived usefulness having the most significant contributions. Overall, the implementation of the strategic plan led to substantial improvements in all key factors, especially in course design quality and perceived usefulness, demonstrating that an effective strategic plan can address challenges in blended learning environments and yield positive teaching and learning outcomes.

Recommendations

Based on the research findings, the following recommendations are proposed to enhance the effectiveness and students' satisfaction with blended learning in vocational education:

Enhancing System Quality: To build on the significant improvement in system quality (SQ), continuous optimization of the learning platform's performance is essential. Focus on improving navigation, loading speed, and mobile accessibility to enhance the student experience (Al-Fraihat et al., 2020).

Optimizing Course Design Quality: The positive response to course design quality (CDQ) improvements suggests a need for more interactive elements. Integrating discussion forums, multimedia content, and real-time quizzes can further enrich the learning experience (Garrison & Kanuka, 2004).

Improving Perceived Ease of Use: With a smaller increase in perceived ease of use (PEOU), students may face challenges in navigating the platform. Institutions should provide training sessions and user-friendly guides to enhance students' digital literacy (Venkatesh & Davis, 2000).

Increasing Perceived Usefulness through Real-World Applications: The rise in perceived usefulness (PU) indicates the need for course content to be more relevant to students' careers. Incorporating industry-related case studies, guest lectures, and practical assignments can strengthen students' perceptions of the course's relevance (Zhao & Breslow, 2013).

Addressing Student Engagement and Self-Discipline Issues: Despite significant improvements in student satisfaction (SS), qualitative feedback highlights challenges with self-motivation. Implementing mentorship programs, gamified learning activities, and peer collaboration projects can enhance student engagement and accountability (Ryan & Deci, 2000).

In conclusion, the implementation of these recommendations can significantly enhance the effectiveness of blended learning in vocational education. By focusing on improving system quality, course design, perceived ease of use, and the relevance of course content, institutions can foster a more engaging and supportive learning environment. Additionally, addressing student engagement and self-discipline challenges will further contribute to higher satisfaction levels and better learning outcomes. These strategic interventions aim to create a more dynamic and effective blended learning experience for students, ultimately preparing them for success in their future careers.

Limitations and Future Research

This study, while providing valuable insights into student satisfaction with blended learning in English courses at a vocational university, has several limitations that should be acknowledged.

Limited Generalizability: This study was conducted at a single institution with a relatively small sample size. This limits the generalizability of the findings to other universities with different contexts, technological infrastructures, and student demographics. Future studies should aim to include a larger and more diverse participant pool to enhance the applicability of the results across various educational settings.

Cross-Sectional Design: The research primarily employed a cross-sectional design, measuring student satisfaction at only two points: before and after the implementation of the strategic plan. This approach does not account for long-term effects or the sustainability of the improvements in student satisfaction over time. Longitudinal studies are needed to explore the enduring impact of blended learning strategies on student experiences and satisfaction.

Additional Influencing Factors: While the research focused on six key variables influencing student satisfaction, there may be additional factors that significantly affect the blended learning experience, such as teacher-student interactions and social presence. Future research should consider these elements to provide a more comprehensive understanding of what influences student satisfaction.

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Faculty Perspectives: The study did not examine faculty perspectives on blended learning, despite their critical role in the implementation and success of these educational models. Understanding instructors' experiences, challenges, and strategies could provide valuable insights for improving blended learning environments.

Addressing these limitations in future research will help deepen the understanding of blended learning and contribute to the development of more effective strategies for enhancing student satisfaction and learning outcomes in vocational education.

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