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Analyzing Factors of Undergraduates' Satisfaction in Blended Learning in Chengdu, China

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Abstract

Purpose: The study investigates the influence of five independent variables (Teaching Presence, Information Quality, Self-Efficacy, Emotional Engagement, and Perceived Usefulness) on one dependent variable (Students' Satisfaction) in blended learning. **Research design, data, and methodology:** The research employed the Index of Item-Objective Congruence (IOC) for validity and a Cronbach's Alpha in a pilot test (n=30) for reliability. Eighty valid responses from students at Chengdu Normal University were analyzed by multiple linear regression to verify the significant relationship between variables. Following this, 30 students underwent a 14-week Strategic Plan (SP). Afterward, the quantitative results from pre-SP and post-SP were analyzed in the paired-sample t-test for comparison. **Results:** In multiple linear regression, the study revealed that teaching presence, information quality, self-efficacy, emotional engagement, and perceived usefulness significantly impacted students' satisfaction. Finally, the results from the paired-sample t-test for comparison demonstrated significant differences in teaching presence, information quality, self-efficacy, emotional engagement, perceived usefulness, and student satisfaction. **Conclusions:** This research endeavors to improve students' satisfaction with blended learning by cultivating their teaching presence, information quality, self-efficacy, emotional engagement, and perceived usefulness.

Keywords: Information Quality, Self-Efficacy, Emotional Engagement, Perceived Usefulness, Satisfaction

JEL Classification Code: I23, J28, L2

1. Introduction

The Chinese government aimed to foster a thorough integration of information technology into instruction and learning in the "Education Modernization 2035" plan. It places a strong emphasis on enhancing education via the use of contemporary information technologies. This demonstrates how the advancement of information technology has greatly aided the development of blended learning in Chinese universities, the need for education reform, changes in the learning needs of students, the need to improve the quality of education, international trends, and policy support. The deliberate blending of in-person classroom instruction with online learning is known as blended learning (Garrison & Kanuka, 2004). It is described as maximizing the advantages of both virtual and in-person learning. Using blended learning as an educational supplement has necessitated research into the critical elements motivating students to use it and raise their satisfaction.

Chengdu Normal University (CDNU), which became a member of the "China East-West University Course Sharing Alliance" in 2014, has dedicated itself to advancing blended learning programs. In order to gauge undergraduate students' current levels of satisfaction with blended learning, researchers saw blended learning in action in the classroom. They conducted random interviews with 11 students who had participated in the practice and with seven on-campus blended learning specialists. The assessment uncovered two primary problems that impact learners' satisfaction with

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blended learning at CDNU. The faculty's capacity to teach is the first problem. In addition to being skilled with blended learning tools and platforms, teachers must be able to plan and organize both online and offline instruction, effectively communicate course material, interact with students efficiently, provide feedback to them throughout the course, and create a positive learning environment. The pupils' capacity for self-directed learning is the second problem. Students enrolled in blended learning must possess excellent self-management and self-regulation abilities and high self-efficacy.

There are two main perspectives on the research's call for action. On one hand, enhancing student satisfaction with blended learning is an inevitable trend in the evolution of education. On the other hand, there is a clear need for improvement at CDNU to increase student satisfaction with blended learning. Therefore, finding effective ways to enhance student satisfaction with blended learning at CDNU is a pressing issue that requires serious consideration from the university's administration and faculty.

2. Literature Review

2.1 Students' Satisfaction

A key sign of a successful blended learning deployment is students' satisfaction. According to some studies (Thurmond et al., 2002), satisfaction is the outcome of reflecting on the binary reciprocity between mentors and students. In order to ensure that students are learning in the correct direction, the mentor acts as a double-checker by monitoring their progress and informing them of the learning materials that will be covered. An alternative definition of student satisfaction emphasizes performance, academic success, and experience-related enjoyment and satisfaction. We use the concept of satisfaction provided by Magolda and Astin (1993) in the context of this study. How students feel about their educational experiences at any institution measures their satisfaction.

2.2 Teaching Presence

As teaching presence increases students' awareness of both their and other people's contributions to the learning process, it is crucial for assisting students in actualizing cognitive presence (Garrison & Akyol, 2013). Students' impression of a teacher or instructor's virtual "visibility" in an online learning environment may be used to define instructional presence (Credence, 2010). The teaching presence is conceptualized using the three subdimensions that follow. Design fosters the development of social communication and critical discourse, both of which are cognitive. Establishing community and inquiry dynamics are facilitation goals (social and cognitive). The main components of direction include respecting social responsibility and obligation and engaging in cognitive inquiry and resolution (social). Almost all subfactors must be carefully thought out and purposefully developed, as each contributes separately to the instructional presence construct.

It is common knowledge that addressing technology-related issues, online discussions, and course organization all require a teaching presence. The emphasis on teaching presence highlights the teacher's duties in the classroom, which is essential for online learning. According to Croxton (2014) (Thurmond et al., 2002), the teaching presence significantly impacted students' satisfaction with their online education. For example, Bush et al. (2010) assessed social, instructional presences, and cognitive. This study aimed to determine whether community inquiry frameworks were used in online and hybrid university environments. The relationship between a teaching presence and students' satisfaction piqued their interest. Thirty-three women and 64 men, totaling 97 pupils, participated in the survey. High satisfaction ratings were demonstrated by students who thought there was a strong teaching presence. The teaching presence appears to favor students' satisfaction with an online course of study, according to Ladyshewsky's (2013) findings.

H1: Teaching presence has a significant impact on students' satisfaction.

2.3 Information Quality

Information is "data with recognizable patterns of meaning," according to Higgins (1999). There are many different venues to find information, including online resources and tangible media like newspapers. Information quality, as defined by Larasati and Andayani (2019), is the value that information with content, form, and temporal characteristics provides its consumers. Information quality is the term used to describe conventional system performance measurements. Reports produced by the system include significant data. A system has to have information that is accurate, timely, reliable, precise, and so forth. Since people's perceptions of the quality of online information are subject to change, the information quality may vary over time. On the other hand, in the offline setting, people develop their mostly static assessments of information quality by assessing the common information quality metrics. This complexity underscores the need for a comprehensive understanding of information quality.

A comprehensive analysis of the research on the evaluation tools of user information system satisfaction indicates that system and information quality are the common elements of information user satisfaction

assessment tools (Li & Zhu, 2022). According to McGill et al. (2003), there is strong evidence between user satisfaction and the caliber of the information provided to them. In an unpredictable context, major universities need help implementing an e-learning system. Information quality is a critical problem that constantly comes up and affects satisfaction. Studies have demonstrated that because e-learning platforms offer high-quality material, students are more satisfied with their higher education (Chaudhry et al., 2021). When making judgments regarding the quality of information they obtain online, DeLone and McLean (2004) stress how important it is for individuals to consider the numerous dimensions of information quality, such as timeliness, relevance, and accuracy. Put differently, when higher-quality material is provided, an e-learning system is judged superior, and its users are happier. Consequently. The following theory is put forth:

H2: Information quality has a significant impact on students' satisfaction.

2.4 Self-Efficacy

Self-efficacy, a prominent theory of motivation, pertains to an individual's belief in their capacity to organize and execute the activities required to accomplish specific objectives (Bandura, 1977). Long-term behavior, internal drive, and interpersonal relationships are all governed by self-efficacy (Bandura, 2012). Compeau and Higgins (1995) provided an early definition of self-efficacy in blended learning situations, characterizing it as an individual's belief in their ability to use computers to accomplish tasks. One measure of students' confidence in their ability to succeed in the learning process is their self-efficacy. Indicators of students' self-efficacy during their online learning process include their general expectations and confidence. Shen et al. (2013) defines it as the extent to which students believe they can successfully finish an online course.

The study (Liang & Tsai, 2008) found that students who were highly confident in their internet-using skills expressed greater satisfaction with an online learning environment that allowed them to use the internet freely, explore a wide range of resources, and expand their knowledge. How English language learners at universities can sustain their self-efficacy, engagement, and sense of pleasure in virtual learning settings was examined by Han et al. (2021). The findings demonstrated how self-efficacy was a mediating factor in the relationship between student cohesion and participation and emotional, behavioral, and satisfaction. Bismala (2022) assessed the degree of student self-efficacy, the caliber of e-learning, and the degree of student satisfaction with e-learning. The study demonstrated a relationship between user happiness, e-learning quality, and self-efficacy. Consequently. The following theory is put forth:

H3: Self-efficacy has a significant impact on students' satisfaction.

2.5 Emotional Engagement

According to Lane et al. (2021), emotional engagement is the sentimental attachment that students have to their instructors, other students, or the school, and it influences their drive to complete tasks. It is described as a student's emotional reaction to lessons, surroundings, peers, or professors. Feelings of identity, interests, delight, boredom, etc. can all be part of this reaction. This includes the number and quality of these interactions as viewed by the students, both positively and negatively (Fredricks et al., 2004). The current conceptualizations generally concur that there are two main manifestations of emotional engagement: (1) positivity, which includes learners' emotions of interest and satisfaction in the subject matter or work being accomplished, and negativity, which includes feelings of worry and social disconnection. Moreover, (2) displaying comparable symptoms, including satisfaction, worry, and curiosity.

Luo et al. (2019) found that learners' emotional engagement lessened the impact of their cognitive engagement on their pleasure. According to El-Sayad et al. (2021), college students' emotional engagement significantly influenced their satisfaction with online learning during COVID-19. Nevertheless, studies have discovered that emotional involvement during blended learning is a highly significant element in predicting students' performance and satisfaction. According to Gao et al. (2020), who investigated the topic, emotional engagement functions as a mediator between perception and satisfaction. Because they believed that involvement was a potent tool for enhancing learning, it showed that most undergraduates were satisfied with their experiences in blended learning. Consequently. The following theory is put forth:Top of Form

Bottom of Form

H4: Emotional engagement has a significant impact on students' satisfaction.

2.6 Perceived Usefulness

Perceived usefulness is the main component in the original and modified versions of the Technology Acceptance Model (TAM) (Alrafi, 2007). Perceived usefulness is "the extent to which a person believes that using a particular system would enhance his/her job performance," according to Davis (1989). Perceived usefulness in blended learning is the degree to which students feel participating in this type of education would improve their learning results (Wu & Liu, 2013). Three components of perceived usefulness were identified by Saadé (2007): learning goal orientation, intrinsic motivation, and extrinsic motivation.

They identified the three elements of perceived usefulness: learning goal orientation, intrinsic motivation, and extrinsic motivation.

According to Bataineh et al. (2015), perceived usefulness is a key factor in determining user satisfaction among Facebook users. Similarly, the study of Hadji and Degoulet (2016) provided empirical evidence that the perceived usefulness of a clinical information system significantly affects user satisfaction. Additionally, several studies have demonstrated a positive relationship between perceived usefulness and satisfaction in technology-based mobile systems (Maryanto & Kaihatu, 2021). Zhou (2017) further supports this, showing that perceived usefulness has a major impact on students' satisfaction with massive open online courses (MOOCs). These findings underscore the significant role of perceived usefulness in enhancing user satisfaction in various technology-based systems.Top of FormBottom of Form

H5: Perceived usefulness has a significant impact on students' satisfaction.

3. Research Methods and Materials

3.1 Research Framework

The researcher employed four model theories: Mirabolghasemi et al. (2021), Han et al. (2021), Gao et al. (2020), and Cheng (2021). The conceptual framework in Figure 1 is constructed and supported by all four previously described theoretical frameworks.

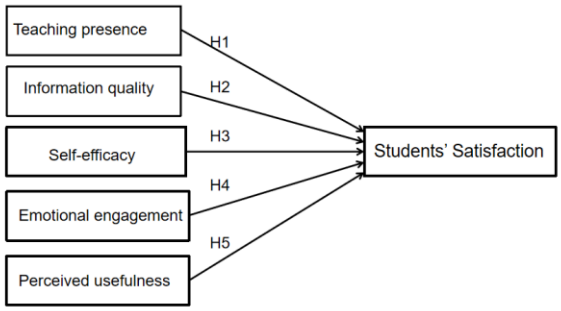

Figure 1: Conceptual Framework

H1: Teaching presence has a significant impact on students' satisfaction.
H2: Information quality has a significant impact on students' satisfaction.
H3: Self-efficacy has a significant impact on students' satisfaction.
H4: Emotional engagement has a significant impact on students' satisfaction.
H5: Perceived usefulness has a significant impact on students' satisfaction.

3.2 Research Methodology

There are four main stages in the research process. To gather information for the suggested conceptual framework, a survey of the whole research population (n = 80) was first conducted. The significance of each hypothesis was then assessed using multiple linear regression with a p-value threshold of less than 0.05. Consequently, theories that met the criteria for retention were kept, while those that did not were deleted.

In the second stage of the study, pre-strategic plan questionnaires were administered to the remaining 80 students who fell within the supported hypotheses. Subsequently, the third phase presented the strategic strategy, executed with 30 participants.

The final stage of the research process involves having 30 strategic plan participants complete a survey. This survey provides the information needed to compare the pre-strategic plan and post-strategic plan outcomes using a paired-sample t-test methodology. The aims and hypotheses of the research were thoroughly examined, ensuring a comprehensive understanding of the research outcomes.

3.3 Research Population, Sample Size, and Sampling Procedures

3.3.1 Research Population

In order to conduct a pre-survey, the researcher chose 80 CDNU students as the research population. Based on CDNU (2023), the research fraction represented 0.47% of the overall student population, with around 17,000 students enrolled. The three grade levels that the students are from are freshman, sophomore, and junior. 80 CDNU students in all got an online questionnaire. Following that, the researcher verified that 80 replies were genuine by reviewing each one.

3.3.2 Sample size

The researcher used a pilot survey that was administered at random to thirty students in order to confirm its dependability. Following identifying 80 CDNU students as the study population and collecting 80 valid replies, the researcher conducted multiple linear regression analyses to determine the connection between the independent and dependent variables. Ultimately, the researcher chose 30 willing students who participated in the strategy plan stage.

3.3.3 Sampling Procedures

The researcher conducted several sampling and related sampling procedures as follows:

Sampling 1: Sampling for pilot survey and pilot test

The researcher sampled 30 students randomly by asking them to fill out the questionnaire and give feedback on the pilot survey and pilot test.

Sampling 2: Sampling for Pre-survey

The researcher sampled 80 CDNU students from different student years for the pre-survey by distributing a survey questionnaire online. Afterward, the researcher checked all responses and confirmed that 80 responses were valid.

Sampling 3: Sampling for strategic plan

The researcher randomly selected and sampled 30 voluntary students to implement the strategic plan.

3.4 Research Instruments

3.4.1 Design of Questionnaire

The researcher designed a survey questionnaire by following three steps:

Step 1: Identifying questionnaire sources from six openly published articles (Cheng, 2019; Freeze et al., 2010; Gao et al., 2020; Han et al., 2021; Mirabolghasemi et al., 2021; Swan et al., 2008)

Step 2: Adjusting and presenting survey questionnaires on Chinese university students' context.

Step 3: Implementing IOC.

3.4.2 Components of Questionnaire

Survey questionnaire items were composed of the following three parts:

Part 1: Screening Questions. There were screening questions to filter out the non-research population.

Part 2: Basic information Questions. These questions are crucial in gaining a comprehensive understanding of the research population, including gender, age, and other key demographics.

Part 3: Pre-survey Questions. A total of 80 CDNU students were asked questions to determine their current IV and DV levels.

3.4.3. IOC Results

The researcher invited three independent experts, including scholars and doctors, to implement IOC (Index of item-objective congruence); one was a Chinese professor, and two were Chinese assistant professors. In this IOC process, independent experts, scholars, or doctors are marked +1 for Congruent, 0 for Questionable, and -1 for Incongruent. All questionnaires were greater than 0.67 in this research, so the researcher retained all questionnaire items.

3.4.4 Pilot survey and Pilot test results

The researcher's researcher randomly implemented a pilot survey of 30 students by asking them to fill out the survey questionnaire and give feedback. Afterward, the researcher implemented Cronbach's Alpha's internal consistency reliability test, in which values should be equal to or greater than 0.7 (Nunnally & Bernstein, 1994). Therefore, the table below demonstrates the approved results for the high reliability of each construct.

Table 1: Pilot Test Result

Variables	No. of items	Sources	Cronbach's Alpha	Strength of association
Teaching Presence (TP)	13	Swan et al. (2008)	0.926	Excellent
InformationQuality (IQ)	5	Freeze et al. (2010)	0.864	Very Good
Self-Efficacy (SE)	5	Han et al. (2021)	0.919	Excellent
Emotional Engagement (EE)	4	Gao et al. (2020).	0.871	Very Good
Perceived Usefulness (PU)	4	Cheng (2019)	0.905	Excellent
Students' Satisfaction (SS)	3	Mirabolghasemi et al. (2021)	0.929	Excellent

4. Results and Discussion

4.1 Results

4.1.1 Demographic Profile

The researcher demonstrated the demographic profile of the entire research population (n=80), followed by the selected students' group (n=30), who participated in the strategic plan as shown in Table 2.

Table 2: Demographic Profile

Entire Research Population (n=80)		Frequency	Percent
Gender	Male	20	25.00%
	Female	60	75.00%
Year	First Year	33	41.25%
	Second Year	30	37.50%
	Third Year	17	21.25%
Age	17	1	1.250%
	18	18	22.50%
	19	29	36.25%
	20	24	30.00%
	21	8	10.00&
Total		**80**	**100%**

Entire Research Population (n=80)		Frequency	Percent
IDI Participants (n=30)		Frequency	Percent
Gender	Male	8	26.67%
	Female	22	73.33%
Year	First Year	12	40.00%
	Second Year	11	36.67%
	Third Year	7	23.33%
Age	17	1	3.33%
	18	3	10%
	19	11	36.67%
	20	12	40%
	21	3	10%
Total		**30**	**100%**

4.1.2 Results of multiple linear regression

The researcher conducted Multiple Linear Regression (MLR) on 80 survey questionnaire results and found out whether each hypothesis was supported. There were five research hypotheses, among which all were related to the Dependent Variable, Students' Satisfaction (SS). Based on the variance inflation factor (VIF) analysis, it can be concluded that multicollinearity is not a concern since the VIF value is below 5 (Hair et al., 1998). The R-squared (R^2) in a multiple linear regression model with five independent variables can account for 87.77% of the variability in creativity.

Table 3: The multiple linear regression of five independent variables on student students' satisfaction

Variables	Standardized Coefficients Beta value	t-value	p-value	VIF	R^2
Teaching Presence (TP)	0.2366	2.624	0.011*	4.916	0.8777
Information Quality (IQ)	0.1281	1.897	0.062	2.759	
Self-Efficacy (SE)	0.2029	2.659	0.010*	3.521	
Emotional Engagement (EE)	0.1778	2.369	0.020*	3.408	
Perceived Usefulness (PU)	0.2933	-3.685	<0.01*	3.832	

Note: p-value <0.05*

In sum, H1, H3, H4, and H5 were supported for the first five hypotheses, while H2 was not. Information Quality (IQ) had no significant impact on Students' Satisfaction (SS), which meant Information Quality (IQ) as an independent variable had no significant impact on Students' Satisfaction (SS). In these circumstances, the researcher removed the independent variable Information Quality (IQ) and made related adjustments. Therefore, the hypotheses were

developed in stages based on results from multiple linear regression analyses. Afterward, a strategic plan was conducted to follow below hypotheses:

H6: There is a significant mean difference in teaching presence between the pre- and post-strategic plans.

H7: There is a significant mean difference in self-efficacy between pre- and post-strategic plans.

H8: There is a significant mean difference in emotional engagement between the pre- and post-strategic plans.

H9: There is a significant mean difference in perceived usefulness between the pre- and post-strategic plans.

H10: There is a significant mean difference in students' satisfaction between pre- and post-strategic plans.

4.2 Strategic Plan Design Stage

The strategic plan lasted 14 weeks and was based on quantitative and qualitative data collected at the pre-strategic plan stage to achieve the purpose of this research, which was developing teaching presence, information quality, self-efficacy, emotional engagement, and perceived usefulness to enhance students' satisfaction. The researcher illustrated the strategic plan chronologically, as illustrated in Figure 2.

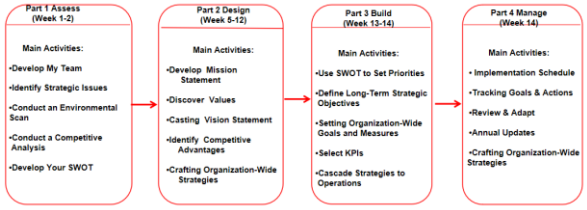

Figure 2: Strategic Plan Activities

4.3 Results Comparison between Pre-IDI and Post-IDI

The researcher implemented a paired-sample t-test analysis on all five variables to identify any differences between the pre-strategic and post-strategic plans. The below tables illustrate a paired-sample t-test analysis on five variables as follows:

Table 4: Paired-Sample T-Test Results

Variables	Mean	SD	SE	p-value
Teaching Presence				
Pre-strategic plan	3.697	0.6220	0.11355	<0.001*

Variables	Mean	SD	SE	p-value
Post-strategic plan	4.464	0.3878	0.07080	
Self- Efficacy				
Pre-strategic plan	3.580	0.6935	0.12662	<0.001*
Post-strategic plan	4.380	0.4180	0.07632	
Emotional Engagement				
Pre-strategic plan	3.575	0.8564	0.15635	<0.001*
Post-strategic plan	4.492	0.4020	0.07339	
Perceived Usefulness				
Pre-strategic plan	3.592	0.8343	0.15232	<0.001*
Post-strategic plan	4.458	0.4052	0.07397	
Students' Satisfaction				
Pre-strategic plan	3.633	0.8367	0.15275	<0.001*
Post-strategic plan	4.611	0.3722	0.06796	

Table 4 illustrates the results of the paired-sample t-test analysis of the pre-strategic plan and post-strategic plan comparison as follows:

There was a significant increase in Teaching Presence between post-strategic plan (M=4.464, SD=0.3878, SE=0.07080) stage and pre-strategic plan stage (M=3.697, SD=0.6220, SE=0.11355), while P<0.001 and mean value difference between post-strategic plan stage and pre-strategic plan stage was 0.767. Therefore, H6 supported that there is a significant mean difference in teaching presence between the pre-strategic plan and the post-strategic plan.

There was a significant increase in Self-Efficacy between post-strategic plan (M=4.380, SD=0.4180, SE=0.07339) stage and pre-strategic plan stage (M=3.575, SD=0.8564, SE=0.15635), while P<0.001 and mean value difference between post-strategic plan stage and pre-strategic plan stage was 0.800. Therefore, H7 supported that there is a significant mean difference in self-efficacy between the pre-strategic plan and the post-strategic plan.

There was a significant increase in Emotional Engagement between post-strategic plan (M=4.492, SD=0.4020, SE=0.07339) stage and pre-strategic plan stage (M=3.575, SD=0.8564, SE=0.15635), while P<0.001 and mean value difference between post-strategic plan stage and pre-strategic plan stage was 0.917. Therefore, H8 supported that there is a significant mean difference in emotional engagement between the pre-strategic plan and the post-strategic plan.

There was a significant increase in Perceived Usefulness between post-strategic plan (M=4.458, SD=0.4052, SE=0.07397) stage and pre-strategic plan stage (M=3.592, SD=0.8343, SE=0.15232), while P<0.001 and mean value difference between post-strategic plan stage and pre-strategic plan stage was 0.866. Therefore, H9 supported that there is a significant mean difference in perceived usefulness between the pre-strategic plan and the post-strategic plan.

There was a significant increase in Students' Satisfaction between post-strategic plan (M=4.611, SD=0.3722, SE=0.06796) stage and pre-strategic plan stage (M=3.633, SD=0.8367, SE=0.06796), while P<0.001 and mean value difference between post-strategic plan stage and pre-strategic plan stage was 0.978. Therefore, H10 supported that there is a significant mean difference in students' satisfaction between the pre-strategic plan and the post-strategic plan.

As per the paired-sample t-test results, all five variables exhibited significant mean differences between the pre-strategic plan and post-strategic plan stages. This underscores the strategic plan's impact on these variables. Additionally, a significant increase in Students' Satisfaction was noted between the two phases of the strategic plan.

5. Conclusions, Recommendations and Limitations

5.1 Conclusions & Discussions

The study investigated the influence of five independent variables, namely teaching presence, information quality, self-efficacy, emotional engagement, and perceived usefulness, on one dependent variable, students' satisfaction. The researcher employed a comprehensive research design, data collection, and methodology to draw meaningful conclusions.

The researcher's design incorporated the use of the Item-Objective Congruence (IOC) index for validity and Cronbach's Alpha in a pilot test to ensure the reliability of the measurement instruments. This rigorous approach to measurement strengthened the credibility of the research. Data were collected from 80 valid responses from students at Chengdu Normal University. They were subjected to multiple linear regression analyses to verify the significant relationships between the independent and dependent variables. Moreover, a 14-week Strategic Plan was carried out with 30 selected student groups. Post-strategic plan data were collected and compared with pre-strategic plan data using a paired-sample t-test.

The study's results demonstrated that all factors significantly impacted students' satisfaction. Teaching presence, information quality, self-efficacy, emotional engagement, and perceived usefulness significantly influenced students' satisfaction. This suggests that positive teaching presence, information quality, self-efficacy, emotional engagement, and perceived usefulness can enhance students' satisfaction.

The findings from the paired-sample t-test for comparison showed a significant difference in both students' satisfaction between the post-strategic and pre-strategic plans. This suggests that the 14-week strategic plan had a positive and statistically significant impact on students' satisfaction, offering a promising avenue for improvement.

In conclusion, this research has made a valuable contribution by demonstrating the potential to improve students' satisfaction by cultivating their teaching presence, information quality, self-efficacy, emotional engagement, and perceived usefulness in the context of Chengdu Normal University, China. The study's robust methodology, comprehensive analysis, and practical implications offer insights into the factors that can enhance students' satisfaction with blended learning, empowering educators and policymakers with the knowledge to develop these vital competencies in students with blended learning, ultimately helping them adapt to the demands of the times and enhance their competitiveness in society.

5.2 Recommendations

The quest for nurturing students' satisfaction in blended learning has never been more pertinent. In light of a recent study that investigated the influence of several key variables on students' satisfaction, there is a growing body of knowledge to inform educational institutions on how to better help their students adapt to the demands of the times and enhance their competitiveness in society. In this essay, we will explore a set of recommendations derived from the study's findings, aiming to foster students' satisfaction.

This study takes five factors affecting college students' satisfaction with blended learning as the starting point and provides suggestions for improving students' satisfaction with blended learning at Chengdu Normal University.

Teaching presence can significantly impact students' satisfaction. Teachers should develop clear outlines and learning objectives to help students understand the course structure and expected outcomes. Additionally, teachers should increase student-teacher interaction and enhance students' participation and presence through online discussions, real-time Q&A sessions, and group collaborations. Finally, teachers should provide timely feedback on students' assignments and questions, offering constructive suggestions to help students improve their learning methods.

Self-efficacy plays a vital role in students' satisfaction. Teachers should use self-assessment questionnaires and tests to help students understand their learning progress and areas for improvement, thereby enhancing their self-efficacy. Teachers should create an encouraging atmosphere for exploration and innovation, where students feel supported by teachers and peers, fostering confidence. They should also teach effective learning strategies to improve students' learning efficiency and self-management skills. Meanwhile, students can develop online and offline study plans to enhance self-management and discipline. Actively engaging with blended learning tools, participating in class discussions, and seeking feedback from teachers and peers proactively contribute to improving their self-efficacy in blended learning, ultimately aiming to enhance students' satisfaction with blended learning.

Emotional engagement, as the study underscores, is one of the essential factors in students' satisfaction. Teachers should not only encourage and praise students to stimulate their learning motivation and positive emotions, but also pay attention to students' emotional states. Providing psychological support and counseling to help them cope with learning stress and emotional fluctuations is equally important. Finally, teachers should build trust and supportive relationships with students through sincere communication and interaction, fostering a sense of belonging and emotional investment.

Fostering students' perceived usefulness is also crucial in enhancing students' satisfaction with blended learning. Firstly, teachers should integrate course content with real-world applications, enabling students to apply their learning to real-life situations and professions, thereby enhancing the practicality of the course. Secondly, by showcasing student learning outcomes and case studies, teachers can increase students' recognition and trust in the course, boosting their motivation to learn. It is particularly important to integrate students' career aspirations and provide relevant guidance and resources to help them perceive the course's assistance and value in future career development.

Educators and faculty members play a pivotal role in shaping students' satisfaction. The role of the school is equally important. The school should organize regular training sessions for teachers to participate in blended learning, where they can learn the latest teaching methods and technologies to enhance their teaching abilities. Encouraging teachers to share teaching experiences and practical cases fosters a positive learning and collaborative atmosphere. The school should also implement reward and recognition mechanisms to motivate teachers to engage in the design and implementation of blended learning actively. Providing necessary academic and technical support helps teachers overcome challenges encountered in blended learning environments.

In conclusion, the study's findings provide valuable insights for educational institutions seeking to cultivate student satisfaction. By implementing these recommendations, institutions can create a holistic and supportive blended learning environment that empowers students to take charge of their development and enhances their satisfaction. The emphasis on teaching presence,

information quality, self-efficacy, emotional engagement, and perceived usefulness can collectively prepare students to thrive in a competitive and innovative world. It is incumbent upon educational institutions to embrace these recommendations and equip their students with the skills necessary for success and personal growth.

5.3 Limitations for Future Research

While the study on the influence of independent variables on students' satisfaction offers valuable insights, it is essential to acknowledge its limitations to guide future research. These limitations suggest potential avenues for further investigation and research refinement:

Sample Size and Demographics: The study focused on a specific group of students from Chengdu Normal University. Future research should diversify the sample by including students from various educational backgrounds, age groups, and cultural contexts to assess the generalizability of the findings.

Variables and Relationships: The study focused on five specific independent variables and one dependent variable. Future research could explore additional independent variables and their potential interactions, offering a more holistic view of the factors influencing students' satisfaction with blended learning.

Strategic Plan: The study designed a specific strategic plan program. Future research should implement intervention designs, allowing for further validation of their efficacy in enhancing students' satisfaction with blended learning.

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