



Factors Impacting Student Satisfaction with Blended Learning in College English Course: A Case Study of a Private University in Guangdong, China

Xiaohua Chen

Ph.D. Candidate, Graduate School of Human Sciences, Assumption University, Bangkok, Thailand
E-mail: 351017478@qq.com, ORCID ID: <https://orcid.org/0009-0000-3372-3182>

Received 23/01/2025

Revised 31/01/2025

Accepted 27/02/2025

Abstract

Background and Aim: Student satisfaction with blended learning plays a pivotal role in enhancing learning outcomes and fostering academic success. This study examines the impact of five independent variables—teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation—on the dependent variable of student satisfaction within the context of blended learning in a college English course. Furthermore, it seeks to identify significant differences among these variables.

Materials and Methods: This study, conducted at Zhanjiang University of Science and Technology (ZUST), utilized both qualitative and quantitative research methods across three stages to investigate factors influencing student satisfaction with blended learning in a college English course. In the first stage, a survey was administered to 303 students from four schools to assess key variables, including teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation. The validity and reliability of the survey were confirmed using the IOC method and Cronbach's alpha, with data analyzed through multiple linear regression. The second stage involved a 16-week strategic intervention with 30 participants aimed at enhancing the identified factors. In the final stage, qualitative data from interviews and quantitative data from surveys were collected, and paired-sample t-tests were used to compare pre- and post-intervention results, evaluating the effectiveness of the strategic plan in improving student satisfaction.

Results: In multiple linear regression, the study revealed that teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation significantly impacted students' satisfaction, though the degree of influence varied among these factors. Finally, the results from the paired-sample t-test for comparison demonstrated a significant difference in all variables between the current situation and the expected situation.

Conclusion: This study underscores the critical role of teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation in fostering student satisfaction in blended learning environments. The implementation of the strategic plan significantly enhanced these aspects, highlighting their importance. These findings provide valuable insights for improving student satisfaction in blended learning.

Keywords: Teaching Presence; Cognitive Presence; Learner-learner Interactions; Learner-facilitator Interactions; Learning Motivation; Students Satisfaction

Introduction

Student satisfaction with blended learning plays a pivotal role in enhancing learning outcomes and fostering academic success. Blended learning, which integrates online and face-to-face instructional methods, provides a flexible and personalized learning environment that meets the diverse needs of students (Boelens et al., 2017; Kilag et al., 2023). Zhanjiang University of Science and Technology (ZUST) has implemented blended learning in the college English course as part of its ongoing educational reform (Huang, 2021). This approach leverages online resources, multimedia tools, and traditional classroom interactions to optimize teaching effectiveness within limited class hours. Despite the advantages of blended learning, such as increased engagement, accessibility to resources, and tailored learning experiences, challenges persist, including students' weak English foundation, lack of motivation, limited interaction, and technological constraints (Boelens et al., 2017; Huang, 2021).

Moreover, the significance of understanding factors influencing student satisfaction with blended learning cannot be overstated. Previous research highlights the importance of teaching presence, cognitive presence, and learner interactions in shaping satisfaction levels (Mirabolghasemi et al., 2021; Nyathi, 2022). In addition, dimensions such as perceived usefulness, ease of use, and learning motivation are critical in

determining satisfaction (Huang, 2021). However, limited studies have explored these factors in the context of private universities in China, particularly in college English courses.

To address this gap, this study focuses on identifying key factors that impact student satisfaction with blended learning at ZUST. By analyzing the experiences of freshmen and sophomores from various schools within the university, the research aims to provide actionable insights for improving course design, teaching strategies, and support systems. Consequently, the findings will contribute to the development of effective blended learning practices and policies, ensuring high-quality education in private universities (Kilag et al., 2023). Ultimately, this research not only enriches the literature on blended learning but also addresses the practical challenges faced by students and educators, ultimately enhancing learning outcomes and student satisfaction (Mirabolghasemi et al., 2021).

Objectives

The objectives of this study were to improve student satisfaction in blended learning environments by examining the impact of five key variables: teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation. It assessed the significance of each variable and analyzed the current and expected levels of these variables. Based on this analysis, a strategic plan was developed to enhance these variables and address any gaps. The effectiveness of the plan was then evaluated through questionnaires and interviews with respondents, ensuring it met their needs and expectations for an improved blended learning experience.

Literature review

1. Student Satisfaction

Satisfaction is the fulfillment of needs and desires following participation in an activity, with learning satisfaction being pivotal in online education (Lin et al., 2019). In particular, student satisfaction is defined as the perception of enjoyment and accomplishment in the learning environment or as a favorable evaluation of experiences and outcomes related to education. It reflects the degree to which students' expectations and needs are met through teaching methods, course content, and the learning process (Topala & Tomozii, 2014). This sense of satisfaction arises from comparing expectations with perceived outcomes.

Furthermore, key factors shaping satisfaction include internal aspects like self-regulated learning and course ease, and external factors such as teaching quality and course design. Socialization, sense of community, and institutional reputation also contribute (Rezaei & Jeddi, 2020). In addition, Elliott and Shin (2002) emphasized engaging content, excellent instruction, and class availability as predictors. Moreover, Asoodar et al. (2016) highlighted six dimensions of e-learner satisfaction, with peer interaction being the strongest predictor. Specifically, in the context of blended learning, perceived usefulness, ease of use, and motivation positively influence satisfaction (Huang, 2021).

2. Teaching Presence

Anderson et al. (2001) defined teaching presence as the design, facilitation, and direction of cognitive and social processes to achieve meaningful learning outcomes. Specifically, it includes three components: design and organization, facilitating discourse, and direct instruction. In the design phase, course structure, activity planning, and assessment creation are key, while discourse facilitation sustains motivation and engagement. Moreover, direct instruction uses content delivery and feedback to promote reflection (Anderson et al., 2001). As a result, a strong teaching presence fosters higher-order thinking, participation, and interaction (Kozan & Richardson, 2014; Watson et al., 2016) and bridges social and cognitive presences. In addition, course design is central to teaching presence, as effective structuring and facilitation enhance understanding and collaboration (Garrison, 2011; Wang & Liu, 2019). The Community of Inquiry (CoI) model underscores the roles of teaching, cognitive, and social presence in learning outcomes and satisfaction (Garrison & Arbaugh, 2007). Furthermore, Nortvig et al. (2018) found that teaching presence significantly impacts learner satisfaction, supported by methods like feedback, video lectures, and collaborative activities (Szeto, 2015).

These studies have led to the following hypothesis:

H1: Teaching Presence has a significant impact on student satisfaction with blended learning.

3. Cognitive Presence

Garrison et al. (1999) defined cognitive presence as the ability to construct meaning through sustained communication within a Community of Inquiry (CoI). Specifically, it involves practical inquiry through discourse and reflection, characterized by four stages: triggering, exploration, integration, and resolution (Garrison & Vaughan, 2008). This process enables participants to identify problems, explore ideas, integrate knowledge, and apply solutions (Garrison, 2017). Consequently, cognitive presence reflects critical reflection and collaboration aimed at constructing and confirming understanding (Garrison, 2007).

Moreover, high levels of social and teaching presence support cognitive presence, creating an integrated and effective learning environment (Kozan & Richardson, 2014). In particular, structured discussions, clear guidelines, and active facilitation enhance cognitive presence by encouraging engagement and critical thinking (Richardson & Ice, 2010). In addition, regular feedback further supports progress through the inquiry stages. Furthermore, Garrison (2011) emphasized the role of design and facilitation in fostering cognitive presence, highlighting technology's potential to enable reflection and collaboration. Despite these benefits, challenges in measurement remain; however, cognitive presence is essential for meaningful learning and critical thinking, particularly in online settings (Garrison et al., 2010).

These studies have led to the following hypothesis:

H2: Cognitive Presence has a significant impact on student satisfaction with blended learning.

4. Learner-Learner Interactions

Moore (1989) classified educational interactions into three types: learner-content, learner-instructor, and learner-learner. In particular, learner-learner interaction involves students exchanging ideas, feedback, and knowledge, fostering diverse perspectives and enriching the learning experience (Hesrcu-Kluska, 2019; Goh et al., 2017). For example, discussions, peer reviews, and group projects enhance learning through collaboration and support (Kuo et al., 2014). Moreover, the Community of Inquiry (CoI) framework (Garrison et al., 2010) emphasizes social presence as essential for creating a collaborative learning environment driven by learner-learner interactions. In line with this, Tinto (1997) noted that such interactions foster a supportive classroom community, while Smith and MacGregor (1992) highlighted their role in promoting critical thinking and active learning. Additionally, cooperative learning methods, as reviewed by Johnson et al. (1998), improve outcomes and retention through structured group work. However, Worku and Alemu (2020) cautioned against low-quality tasks that hinder effective collaboration.

In the context of blended learning, well-structured learner-learner interactions enhance engagement, understanding, and performance (Means et al., 2010; Vaughan, 2010). To achieve this, effective use of technology, such as forums and collaborative tools, is crucial for facilitating interactions (Kishabale, 2019). Despite these opportunities, challenges include technology access, varying participation levels, and group coordination (Bliuc et al., 2007). To mitigate these issues, clear collaboration guidelines, a mix of activities, and regular feedback support meaningful interactions (Garrison & Vaughan, 2008).

These studies have led to the following hypothesis:

H3: Learner-learner interactions have a significant impact on student satisfaction with blended learning.

5. Learner-Facilitator Interactions

Learner-facilitator interactions involve communication between learners and facilitators through synchronous or asynchronous platforms, such as emails, forums, and feedback on assignments (Anderson, 2008; Ng, 2017). These interactions aim to guide, support, and engage learners, enhancing the learning process. Specifically, key aspects include communication, guidance, feedback, mentorship, and assessment, which are critical in online and blended learning contexts. In line with this, Moore's (1993) transactional distance theory highlights that effective learner-facilitator interactions reduce psychological distance, improving the learning experience. As a result, these interactions are considered the most vital among the three interaction types (Rhode, 2009; Queiros & de Villiers, 2016). Furthermore, high levels of interaction

correlate with improved assessments, participation, and cognitive engagement (Taib et al., 2021). In addition, they also positively influence learning outcomes and grades. Research further emphasizes their role in student satisfaction and retention as facilitators drive the learning process, offer motivation, and connect learners with peers (Mohan et al., 2022). Indeed, evidence shows they enhance higher-order thinking, grades, and overall satisfaction (Elfeky, 2018).

These studies have led to the following hypothesis:

H4: Learner-facilitator interactions have a significant impact on student satisfaction with blended learning.

6. Learning Motivation

According to Maslow's theory of human needs (1981), motivation stems from the drive to satisfy needs, influencing learning attitudes and behaviors (Harun, 2006). In this context, learning motivation involves both internal and external factors that drive students to engage and succeed (Deci & Ryan, 2000; Ryan & Deci, 2020). Furthermore, self-efficacy, a key component, reflects confidence in one's abilities, boosting persistence and resilience (Honicke & Broadbent, 2016). Additionally, goal orientation shapes effort and achievement, which is crucial in determining how students approach learning tasks. For example, intrinsic motivation fosters autonomy, competence, and engagement, leading to deeper learning (Ryan & Deci, 2020). Moreover, the Self-Determination Theory highlights that autonomy-supportive environments enhance motivation and academic performance (Jeno & Diseth, 2014). In line with this, Benlahcene et al. (2021) found that mastery-oriented goals and intrinsic motivation predict better outcomes. Furthermore, motivation plays a critical role in student satisfaction. Le and Nguyen (2023) noted that motivation, mediated by engagement, drives satisfaction in EMI courses. Finally, Basuony et al. (2020) identified factors like motivation and self-motivation as key to online learning satisfaction, emphasizing the importance of fostering internal motivation for higher satisfaction levels.

These studies have led to the following hypothesis:

H5: Learning Motivation has a significant impact on student satisfaction with blended learning.

Conceptual Framework

Based on the studies by Mirabolghasemi et al. (2021), Nyathi (2022), and Huang (2021), this research framework integrates teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation as key factors influencing student satisfaction in blended learning environments. These theoretical frameworks collectively support and develop the conceptual framework presented in Figure 1.

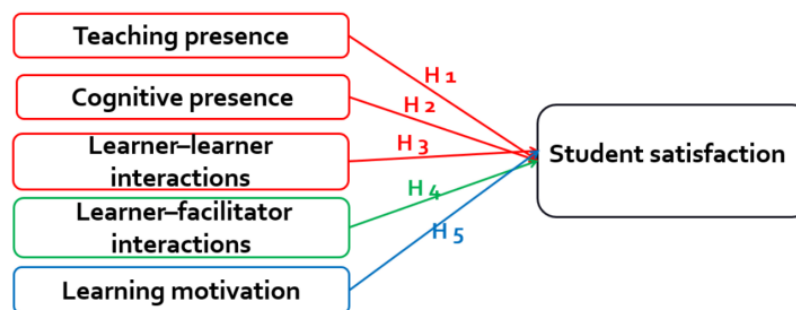


Figure 1 Conceptual Framework

According to the conceptual framework, this study puts forward five research hypotheses. Therefore, The research hypotheses are outlined as follows:

H1: Teaching Presence (TP) has a significant impact on student satisfaction with blended learning.

H2: Cognitive Presence (CP) has a significant impact on student satisfaction with blended learning.



H3: Learner–Learner Interactions (LLI) have a significant impact on student satisfaction with blended learning.

H4: Learner–Learner-Learner-Learner-facilitator interactions (LFI) have a significant impact on student satisfaction with blended learning.

H5: Learning Motivation (LM) has a significant impact on student satisfaction with blended learning.

Methodology

1. Research Phases and Analysis

The research methodology comprises three stages to explore factors influencing student satisfaction with blended learning in a college English course. In the first stage, 303 students from four schools at ZUST were surveyed to assess teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation. The survey's validity was confirmed using IOC scores, while reliability was evaluated through Cronbach's alpha. Multiple linear regression analysis was performed to test hypotheses. In the second stage, strategic interventions were implemented with 30 participants over 16 weeks, focusing on enhancing key factors identified in the first stage. The interventions aimed to improve blended learning experiences and increase student satisfaction. In the final stage, 30 intervention participants completed a survey, generating the necessary data for conducting a paired-sample t-test analysis to compare the current situation and expected situation results. This analysis validated the effectiveness of the strategic plan in improving satisfaction levels and provided evidence for achieving the research objectives and hypotheses.

2. Research Population

This study targeted 303 students enrolled in the College English Course at ZUST, which includes first-year and second-year students who are not majoring in English. In the 2023-2024 academic year, there were 8,198 students in the College English Course, including 4,216 freshmen and 3,982 sophomores. To ensure a representative sample, stratified random sampling was used, selecting 175 freshmen and 128 sophomores. This approach ensures the sample meets the requirements for regression analysis. The study aimed to represent students from various disciplines, thereby enhancing the applicability of the results.

3. Sample size

To ensure the robustness of the regression analysis and consider the cost-effectiveness of the questionnaire survey, this study has determined a final sample size of 303. During the preliminary diagnostic phase, 10 students were randomly chosen for in-depth interviews. For the strategic plan phase, 30 students were randomly selected to participate. In the expected situation, the same 30 students were surveyed with questionnaires, and 10 of them were randomly selected for additional interviews.

4. 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 students to fill out the survey questionnaire and to give feedback for a pilot survey and pilot test.

Sampling 2: Sampling for Pre-survey

The researcher sampled 303 students enrolled in the college English course at ZUST from non-English majors for a pre-survey by distributing a survey questionnaire via the Wenjuanxing platform. Afterward, the researcher checked all responses and confirmed that all 303 responses were valid.

Sampling 3: Sampling for the strategic plan

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

5. Design of Questionnaire

The researcher designed the survey questionnaire through a structured three-step process. First, relevant questionnaire items were identified from four openly published articles (Mirabolghasemi, 2021; Nyathi, 2022; Queiros & Villiers, 2016; Huang, 2021) to ensure a solid theoretical foundation. Next, the survey items were adjusted and tailored to align with the specific context of blended learning, ensuring their relevance and applicability. Finally, the IOC method was implemented to evaluate and confirm the alignment and validity of the questionnaire items with the research objectives.

6. Components of Questionnaire

Survey questionnaire items were composed of the following two parts:

Part 1: Basic Info Questions. There were questions to gain basic info on the research population, including gender, age, school, and so on.

Part 2: Pre-survey Questions. Each variable was represented by 3 to 5 items, resulting in a total of 26 items in the pre-survey questionnaire. These questions aimed to assess the current levels of both the independent and dependent variables among 303 students at ZUST.

7. Strategic Plan Implementation Stage

The researcher carried out a 16-week strategic plan designed to improve student satisfaction. Quantitative data were collected and analyzed in a paired manner, comparing results from before and after the plan's implementation. The specific steps of the strategic plan are illustrated in Figure 2.

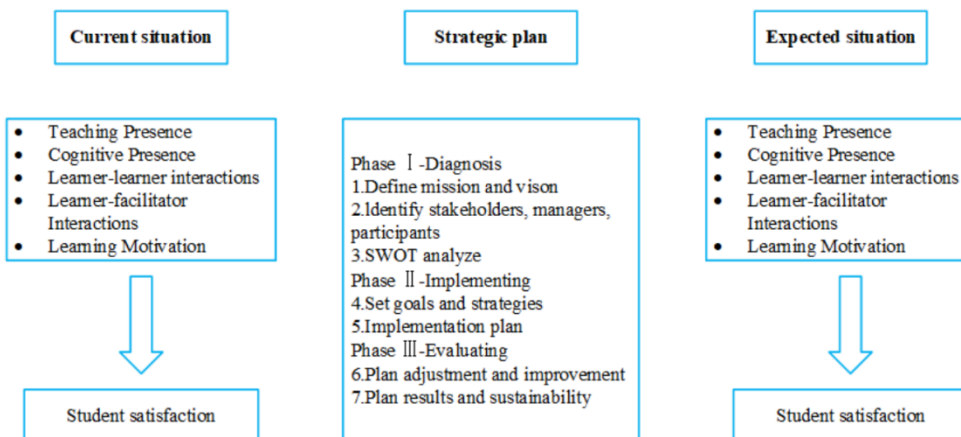


Figure 2 The strategic plan model is finalized

Results

1. IOC Results

The researcher engaged five independent experts to conduct an IOC (Index of Item-Objective Congruence) evaluation. Among them, three were foreign language education specialists from Guangdong Ocean University, and two held doctoral degrees in educational management and leadership. During the IOC process, the experts rated each item using the following scale: +1 for Congruent, 0 for Questionable, and -1 for Incongruent. As all questionnaire items achieved scores exceeding the threshold of 0.67, it was determined that all items would be retained in the final questionnaire.

2. Pilot survey and Pilot test results

The researcher conducted a pilot survey with 30 randomly selected students, requesting them to complete the survey questionnaire and provide feedback. Following this, the researcher performed a Cronbach's Alpha internal consistency reliability test, with a recommended threshold of 0.7 or higher (Nunnally & Bernstein, 1994). The table below presents the approved results, demonstrating the high reliability of each construct.

Table 1 Pilot Test Result

Variables	No. of Items	Cronbach's Alpha	Strength of Association
Teaching Presence (TP)	5	0.888	Good
Cognitive Presence (CP)	4	0.876	Good
Learner-Learner Interactions (LLI)	3	0.916	Excellent
Learner-Facilitator Interactions (LFI)	4	0.950	Excellent
Learning Motivation (LM)	5	0.863	Good



Variables	No. of Items	Cronbach's Alpha	Strength of Association
Student Satisfaction (SS)	5	0.961	Excellent

3. Demographic Profile

The researcher presented the demographic profile of the entire research population (n=303), followed by a detailed analysis of a selected group of students (n=30) who participated in the strategic plan, as shown in Table 2.

Table 2 Demographic Profile

Entire Research Population (n=303)		Frequency	Percent
Gender	Male	142	46.86%
	Female	162	53.14%
Grade	Freshmen	175	57.76%
	Sophomores	128	42.24%
School	School of Accounting	78	25.74%
	School of Culture and Media	82	27.06%
	School of Intelligent Manufacturing	77	25.42%
	School of Art and Design	66	21.78%
Total		303	100%
Strategic Plan Participants (n=30)		Frequency	Percent
Gender	Male	12	40.00%
	Female	18	60.00%
Grade	Freshmen	20	66.67%
	Sophomores	10	33.33%
School	School of Accounting	8	26.67%
	School of Culture and Media	7	23.33%
	School of Intelligent Manufacturing	8	26.67%
	School of Art and Design	7	23.33%
Total		30	100%

4. Results of multiple linear regression

The study tested five research hypotheses using Multiple Linear Regression (MLR) analysis on data collected from 303 survey responses to determine whether each hypothesis was supported. As shown in Table 3, the regression analysis highlights significant positive effects of all independent variables on student satisfaction, with p-values less than 0.05. Among these, learning motivation exhibits the strongest influence (standardized coefficient=0.600), followed by learner-facilitator interactions (0.247), learner-learner interactions (0.209), and cognitive presence (0.209), while teaching presence has the lowest impact (0.167).

The overall regression model demonstrates an excellent fit ($R^2=0.811$), explaining 81.1% of the variance in student satisfaction, and is highly significant ($p<0.001$). These findings confirm the robust relationship between the independent variables and student satisfaction.

Table 3 The Multiple Linear Results of The Five Independent Variables on Student Satisfaction



Variables	Standardized Coefficients Beta	t	P-value	R	R ²
Teaching Presence	0.167	2.46	0.014	0.901	0.811
Cognitive Presence	0.209	2.79	0.006		
Learner–Learner Interactions	0.209	4.02	< 0.001		
Learner–facilitator Interactions	0.247	4.27	< 0.001		
Learning Motivation	0.600	9.21	< 0.001		
Dependent variable: Student satisfaction					

In summary, all five hypotheses (H1, H2, H3, H4, and H5) were supported. Consequently, the hypotheses were developed in stages based on the results of the multiple linear regression analysis. Following this, a strategic plan was implemented in alignment with the hypotheses outlined below:

H6: There is a significant difference in teaching presence between the current situation and the expected situation.

H7: There is a significant difference in cognitive presence between the current situation and the expected situation.

H8: There is a significant difference in learner-learner interactions between the current situation and the expected situation.

H9: There is a significant difference in learner-facilitator interactions between the current situation and the expected situation.

H10: There is a significant difference in learning motivation between the current situation and the expected situation.

H11: There is a significant difference in student satisfaction between the current situation and the expected situation.

5. Results comparison between the current situation and the expected situation

The researcher conducted a paired-sample t-test analysis on all six variables to determine whether there were significant differences between the current situation and the expected situation in terms of teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, learning motivation, and student satisfaction. The results of the paired-sample t-test analysis for these six variables are presented in the table below.

Table 5 Paired-Sample T-Test Results

Variables	Mean	SD	t-value	DF	p-value
Teaching Presence					
Current Situation	3.34	0.401	-15.33	29.0	p<0.001
Expected Situation	4.39	0.273			
Cognitive Presence					
Current Situation	3.86	0.494	-8.40	29.0	p<0.001
Expected Situation	4.63	0.269			
Learner-Learner Interactions					
Current Situation	3.67	0.561	-8.27	29.0	p<0.001
Expected Situation	4.49	0.259			



Variables	Mean	SD	t-value	DF	p-value
Learner-Facilitator Interactions					
Current Situation	3.65	0.628			
Expected Situation	4.53	0.299	-9.62	29.0	p<0.001
Learning Motivation					
Current Situation	4.14	0.554			
Expected Situation	4.65	0.227	-5.81	29.0	p<0.001
Student Satisfaction					
Current Situation	3.78	0.646			
Expected Situation	4.59	0.260	-8.20	29.0	p<0.001

Table 5 illustrates the results of the paired-sample t-test analysis of the current situation and expected situation comparison as follows:

There was a significant difference in teaching presence between the current situation ($M = 3.34$, $SD = 0.401$) and the expected situation ($M = 4.39$, $SD = 0.273$); $t(29) = -15.33$, $p < 0.001$. The mean difference was -1.05 , indicating a substantial improvement in teaching presence following the intervention. These results suggest that the implemented strategies were effective in enhancing students' perception of teaching presence.

There was a significant difference in cognitive presence between the current situation ($M = 3.86$, $SD = 0.494$) and the expected situation ($M = 4.63$, $SD = 0.269$); $t(29) = -8.40$, $p < 0.001$. The mean difference was -0.77 , indicating a substantial improvement in cognitive presence following the intervention. These results suggest that the implemented strategies were effective in enhancing students' perception of cognitive presence.

There was a significant difference in learner-learner interactions between the current situation and the expected situation. The mean score increased from 3.67 ($SD = 0.561$) in the current situation to 4.49 ($SD = 0.259$) in the expected situation, with a t-value of -8.27 and $p < 0.001$. The mean difference of -0.82 highlights the effectiveness of the implemented strategies in enhancing peer interactions among students.

There was a significant difference in learner-facilitator interaction between the current situation ($M = 3.65$, $SD = 0.628$) and the expected situation ($M = 4.53$, $SD = 0.299$); $t(29) = -9.62$, $p < 0.001$. The mean difference was -0.88 , indicating a substantial improvement in learner-facilitator interaction following the intervention. These results suggest that the strategies implemented were highly effective in enhancing students' interactions with facilitators.

There was a significant difference in learning motivation between the current situation and the expected situation. The pre-intervention mean was 4.14 ($SD = 0.554$), which increased to 4.65 ($SD = 0.227$) after the intervention. Statistical analysis showed a t-value of -5.81 and $p < 0.001$, with a mean difference of -0.51 . These findings underscore the success of the implemented strategies in boosting students' learning motivation.

There was a significant difference in student satisfaction between the current situation and the expected situation. The pre-intervention mean of 3.78 ($SD = 0.646$) increased to 4.59 ($SD = 0.260$) post-intervention. Statistical analysis revealed a t-value of -8.20 and $p < 0.001$, with a mean difference of -0.81 . These results confirm the success of the implemented strategies in significantly enhancing students' satisfaction.

In summary, the quantitative results above revealed significant differences between the current situation and the expected situation across multiple dimensions, including teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, learning motivation, and student



satisfaction. The findings demonstrate that the intervention strategies were highly effective in improving these key aspects of the learning experience. The substantial improvements in these areas highlight the success of the measures implemented, which not only enhanced the quality of interactions and motivation but also positively impacted overall student satisfaction with the learning process.

Discussion

The results indicate that all five independent variables significantly influenced student satisfaction, with learning motivation exhibiting the strongest effect. This finding aligns with prior research (Ryan & Deci, 2000) emphasizing the central role of intrinsic and extrinsic motivation in driving student engagement. However, while learning motivation was the most influential factor, it is worth questioning whether this effect is sustainable over time or whether it is contingent on specific intervention strategies. Therefore, future studies should explore whether external motivational factors, such as grades or rewards, play a more significant role than intrinsic motivation in shaping long-term satisfaction in blended learning.

In addition, the hierarchy of influences—learner-facilitator interactions, learner-learner interactions, cognitive presence, and teaching presence—suggests that interpersonal engagement is more critical than instructional design alone. While this finding underscores the importance of social dynamics in blended learning, it also raises concerns about the extent to which institutions can standardize and scale these interactions. Unlike course content or pedagogical frameworks, learner interactions are inherently variable, making it challenging to ensure consistent student satisfaction across different contexts.

Furthermore, the paired-sample t-test results revealed significant improvements across all variables after the intervention, with teaching presence showing the highest increase. This suggests that strengthening instructional support has immediate and measurable effects on student satisfaction. However, the emphasis on teaching presence may overshadow the role of student agency in the learning process. While instructor guidance is crucial, an overreliance on structured support could reduce opportunities for students to develop independent learning skills, which are essential in blended and autonomous learning environments.

Moreover, the observed enhancements in cognitive presence highlight the potential for blended learning to facilitate deeper understanding and meaningful engagement. Nevertheless, it remains unclear whether these cognitive gains translate into improved long-term retention and application of knowledge. While the intervention successfully fostered collaboration through improved learner-learner and learner-facilitator interactions, it is important to consider whether these interactions were merely instrumental in completing tasks or whether they contributed to a more profound academic and social experience.

In this context, by contextualizing the study within a private university in China, the findings provide valuable regionally specific insights into blended learning. However, the extent to which these results can be generalized beyond this context remains debatable. Factors such as institutional policies, cultural factors, and digital infrastructure differences may influence the effectiveness of blended learning strategies. Therefore, future research should examine whether similar patterns hold in public universities or institutions with varying levels of technological integration.

Overall, while the study's findings reinforce existing literature (Garrison et al., 2000; Anderson, 2003), they also highlight critical areas for further investigation. Specifically, the interplay between motivation, interaction, and instructional support warrants deeper exploration, particularly in determining how these factors evolve over time and across different educational settings.

Conclusion

This study investigated the impact of five independent variables—teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation—on the dependent variable of student satisfaction in a blended learning environment. Through a comprehensive research design, data collection, and analysis methodology, meaningful conclusions were drawn.

In terms of methodology, the research design employed rigorous validation and reliability testing to ensure credibility. The questionnaire was validated using the Index of Item-Objective Congruence (IOC), and a pilot test was conducted with Cronbach's Alpha to verify measurement consistency. Subsequently, data were collected from 303 valid responses from college English students at ZUST and analyzed using multiple linear regression (MLR) to examine the relationships between variables. In addition, a 16-week intervention was implemented with a selected group of 30 students. To assess the effectiveness of the strategic plan, current situation data were compared with expected situation data using paired-sample t-tests.

The study's findings have significant implications for both practice and policy in the context of blended learning. From a practical perspective, the study emphasizes the importance of focusing on teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation as core components that directly influence student satisfaction. In light of this, educators and instructional designers can use these insights to enhance the design of blended learning environments by integrating these elements more effectively into course content, delivery methods, and learner engagement strategies. For example, increasing the frequency of instructor-student interactions, fostering peer collaboration, and creating motivating learning tasks can all contribute to improving student satisfaction.

Regarding policy implications, the study advocates for institutions to adopt policies that prioritize these factors in their blended learning strategies. It is recommended that higher education institutions consider developing and promoting professional development programs for faculty members to enhance their skills in facilitating teaching presence and cognitive presence. Moreover, institutional policies should encourage the integration of interactive, learner-centered approaches and consider ways to support a collaborative learning culture both online and offline. By doing so, universities can create a more engaging and supportive learning environment that boosts student satisfaction and academic performance.

In conclusion, the findings provide crucial evidence for the need to rethink and reform current teaching practices and institutional strategies in the design and implementation of blended learning. Ultimately, these insights can guide educators and policymakers in creating more effective and student-centered blended learning experiences, fostering greater student satisfaction and success.

Recommendation

The results of this research indicate that teaching presence, cognitive presence, learner-learner interactions, learner-facilitator interactions, and learning motivation have indeed enhanced student satisfaction. The following will provide recommendations in five parts.

1. Strengthen Teacher Presence and Guidance in Blended Learning

Establishing mutual trust and respect between teachers and students forms the foundation for effective classroom interaction. Teachers should foster an inclusive and supportive environment by encouraging students to express their opinions freely and explore diverse perspectives. Engaging questions and interesting learning materials can stimulate curiosity and motivate participation. Moreover, creating a safe space where students feel valued and free from criticism encourages active engagement and collaborative communication.

2. Strengthening Cognitive Presence through Deep Learning and Critical Thinking

Deep learning and critical thinking can be promoted through challenging tasks such as case analyses and project-based assignments. Encouraging students to ask questions and participate in discussions fosters intellectual exchange and enhances understanding. Providing diverse learning resources, including video tutorials and interactive tools, supports self-directed learning and helps students apply theoretical knowledge to real-world problems, improving both comprehension and satisfaction.

3. Enhancing Learner-Learner Interactions for Greater Engagement

Collaboration is key to fostering engagement. Group projects, discussions, and online platforms create opportunities for peer interaction, enabling students to exchange ideas and solve problems together. Such activities build teamwork, a sense of collective responsibility, and social connections, which significantly contribute to a sense of belonging and satisfaction.

4. Enhancing Learner-Teacher Interaction to Boost Motivation

Personalized guidance and regular communication strengthen the bond between students and teachers. Virtual office hours, real-time video sessions, and interactive tools like online quizzes and discussion boards create a supportive learning environment. Empathetic engagement with students' challenges and achievements further enhances motivation and satisfaction.

5. Boosting Learning Motivation through Engaging Tasks and Personalization

Practical and personalized tasks with clear objectives spark interest and promote engagement. Showing the real-world relevance of course content through guest lectures or case studies connects students to their learning and fosters autonomy, boosting both motivation and satisfaction.

In summary, enhancing student satisfaction requires improvements in teaching presence, cognitive presence, learner-learner interaction, learner-teacher interaction, and learning motivation. By refining course design, fostering meaningful teacher-student interactions, deepening cognitive engagement, and



stimulating motivation, educators can cultivate a more dynamic and supportive learning environment. These efforts not only improve students' learning outcomes but also elevate their overall satisfaction. Implementing these strategies will enhance the quality of blended learning and provide students with a richer, more engaging educational experience.

References

- Anderson, N. J. (2003). Teaching Reading. In D. Nunan (Ed.), *Practical English Language Teaching* (pp. 67-86). New York: McGraw-Hill Publishers.
- Anderson, T. (2008). Towards a theory of online learning. In *Theory and Practice of online learning* (Vol. 2, pp. 15-44). New York: McGraw-Hill Publishers.
- Anderson, T., Rourke, L., Garrison, D. R., & Archer, W. (2001). Assessing teaching presence in a computer conferencing context. *Journal of Asynchronous Learning Networks*, 5(2), 1-17.
- Asoodar, M., Vaezi, S., & Izanloo, B. (2016). Framework to improve e-learner satisfaction and further strengthen e-learning implementation. *Computers in Human Behavior*, 63, 704-716.
<https://doi.org/10.1016/j.chb.2016.05.060>
- Basuony, M. A., EmadEldeen, R., Farghaly, M., El-Bassiouny, N., & Mohamed, E. K. (2020). The factors affecting student satisfaction with online education during the COVID-19 pandemic: An empirical study of an emerging Muslim country. *Journal of Islamic Marketing*, 12(3), 631-648.
<https://doi.org/10.1108/JIMA-06-2020-0172>
- Benlahcene, A., Lashari, T. A., Lashari, S. A., & Shehzad, M. W. (2021). The role of goal orientation and epistemological beliefs in intrinsic motivation among international engineering students. *Universal Journal of Educational Research*, 9(3), 683-692.
<https://doi.org/10.13189/ujer.2021.090305>
- Bliuc, A. M., Goodyear, P., & Ellis, R. A. (2007). Research focus and methodological choices in studies into students' experiences of blended learning in higher education. *Internet and Higher Education*, 10(4), 231-244. <https://doi.org/10.1016/j.iheduc.2007.08.001>
- Boelens, R., De Wever, B., & Voet, M. (2017). Four key challenges to blended learning design: A systematic literature review. *Educational Research Review*, 22, 1-18.
<https://doi.org/10.1016/j.edurev.2017.06.001>
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268.
- Elfeky, A. I. M. (2018). The effect of personal learning environments on participants' higher-order thinking skills and satisfaction. *Innovations in Education and Teaching International*, 56(4), 505-516. <https://doi.org/10.1080/14703297.2018.1534601>
- Elliott, K. M., & Shin, D. (2002). Student satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management*, 24(2), 197-209.
<https://doi.org/10.1080/1360080022000013518>
- Garrison, D. (2011). *E-learning in the 21st century: A framework for research and practice* (2nd ed.). Routledge.
- Garrison, D. R., & Arbaugh, J. B. (2007). Researching the community of inquiry framework: Review, issues, and future directions. *The Internet and Higher Education*, 10(3), 157-172.
<https://doi.org/10.1016/j.iheduc.2007.04.001>
- Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: Framework, principles, and guidelines*. Jossey-Bass/Wiley.
- Garrison, D. R., Anderson, T., & Archer, W. (1999). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(3), 87-105.
[https://doi.org/10.1016/S1096-7516\(00\)00016-6](https://doi.org/10.1016/S1096-7516(00)00016-6)
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education model. *The Internet and Higher Education*, 2(2-3), 87-105.
- Garrison, D. R., Anderson, T., & Archer, W. (2010). The first decade of the community of inquiry framework: A retrospective. *The Internet and Higher Education*, 13, 1-2.
<https://doi.org/10.1016/j.iheduc.2009.10.003>



- Garrison, D.R. (2017). *E-Learning in the 21st Century; A Community of Inquiry Framework for Research and Practice*. New York: Routledge. <https://doi.org/10.4324/9781315667263>
- Goh, C., Leong, C., Kasmin, K., Hii, P., & Tan, O. (2017). Measuring teachers' and learners' learning outcomes and satisfaction in e-learning. *Journal of E-Learning and Knowledge Society*, 13, 117-128.
- Harun, H. (2006). Minat, Motivasi dan Kemahiran Mengajar Guru Pelatih. *Jurnal Pendidikan*, 31, 83-96.
- Hesrcu-Kluska, R. (2019). The interaction between learners and learner-facilitator in an online learning environment. *Creative Education*, 10(7), 1713-1730. <https://doi.org/10.4236/ce.2019.107123>
- Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, 17, 63-84. <https://doi.org/10.1016/j.edurev.2015.11.002>
- Huang, C. H. (2021). Using the PLS-SEM model to explore the influencing factors of learning satisfaction in blended learning. *Education Sciences*, 11(5), 249. <https://doi.org/10.3390/educsci11050249>
- Jeno, L. M., & Diseth, Å. (2014). A self-determination theory perspective on autonomy support, autonomous self-regulation, and perceived school performance. *Reflecting Education*, 9(1), 1-20.
- Johnson, D. W., Johnson, R. T., & Smith, K. A. (1998). Cooperative learning returns to college: What evidence is there that it works? *Change: The Magazine of Higher Learning*, 30(4), 26-35. <https://doi.org/10.1080/00091389809602629>
- Kilag, O. K., Obaner, E., Vidal, E., Castañares, J., Dumdum, J. N., & Hermosa, T. J. (2023). Optimizing Education: Building Blended Learning Curricula with LMS. *Excellencia: International Multi-Disciplinary Journal of Education (2994-9521)*, 1(4), 238-250.
- Kishabale, B. (2019). Modeling E-learning interactivity, learner satisfaction and continuance learning intention in Ugandan higher learning institutions. *International Journal of Education and Development using ICT*, 15(1). <https://doi.org/10.47985/ijedict.v15i1.493>
- Kozan, K., & Richardson, J. C. (2014). Interrelationships between and among social, teaching, and cognitive presence. *The Internet and Higher Education*, 21, 68-73. <https://doi.org/10.1016/j.iheduc.2013.10.007>
- Kuo, Y. C., Walker, A. E., Belland, B. R., & Schroder, K. E. (2013). A predictive study of student satisfaction in online education programs. *International Review of Research in Open and Distributed Learning*, 14(1), 16-39. <https://doi.org/10.19173/irrodl.v14i1.1338>
- Le, N. T., & Nguyen, D. T. (2023). Student satisfaction with EMI courses: The role of motivation and engagement. *Journal of Applied Research in Higher Education*, 15(3), 762-775. <https://doi.org/10.1108/JARHE-09-2022-0376>
- Lin, S., Salazar, T. R., & Wu, S. (2019). Impact of academic experience and school climate of diversity on student satisfaction. *Learning Environments Research*, 22, 25-41. <https://doi.org/10.1007/s10984-018-9204-6>
- Maslow, A. H. (1981). *Motivation and personality: Unlocking your inner drive and understanding human behavior*. Prabhat Prakashan.
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. Washington DC: US Department of Education.
- Mirabolghasemi, M., Shasti, R., & Choshaly, S. H. (2021). An investigation into the determinants of blended learning satisfaction from EFL learners' perspective. *Interactive Technology and Smart Education*, 18(1), 69-84.
- Mohan, M., Rajendiran, K., Gunasekaran, V., & Cassinadane, A. (2022). Face-to-face education in the virtual classroom in the health sector during the COVID pandemic. *Journal of Education Technology in Health Sciences*, 8(3), 105-110.
- Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22-38). Routledge.
- Ng, J. C. (2017). Interactivity in virtual learning groups: Theories, strategies, and the state of literature. *International Journal of Information and Education Technology*, 7(1), 46-52. <https://doi.org/10.7763/IJiet.2017.V7.832>



- Nortvig, A. M., Petersen, A. K., & Balle, S. H. (2018). A literature review of the factors influencing e-learning and blended learning about learning outcome, student satisfaction, and engagement. *Electronic Journal of E-Learning*, 16(1), 46–55. <https://doi.org/10.34190/EJEL.16.1.007>
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. McGraw-Hill.
- Nyathi, M., & Sibanda, E. (2022). E-learning: Substitutability of learner-learner and learner-facilitator interactions to enhance learner satisfaction in higher education. *Journal of Research in Innovative Teaching & Learning*, 16(2), 210–225. <https://doi.org/10.1108/JRIT-04-2022-0018>
- Queiros, D. R., & de Villiers, M. R. (2016). Online learning in a South African higher education institution: Determining the right connections for the student. *International Review of Research in Open and Distributed Learning*, 17(5), 165–185. <https://doi.org/10.19173/irrodl.v17i5.2590>
- Rezaei, A., & Jeddi, E. M. (2020). Relationship between wisdom, perceived control of internal states, perceived stress, social intelligence, information processing styles, and life satisfaction among college students. *Current Psychology*, 39, 927–933. <https://doi.org/10.1007/s12144-018-9885-7>
- Rhode, J. F. (2009). Interaction equivalency in self-paced online learning environments: An exploration of learner preferences. *International Review of Research in Open and Distance Learning*, 10(1), 1–23. <https://doi.org/10.19173/irrodl.v10i1.601>
- Richardson, J. C., & Ice, P. (2010). Investigating students' level of critical thinking across instructional strategies in online discussions. *The Internet and Higher Education*, 13(2), 52–59. <https://doi.org/10.1016/j.iheduc.2009.11.002>
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 101860. <https://doi.org/10.1016/j.cedpsych.2019.101860>
- Smith, B.L., & MacGregor, J.T. (1992). What is Collaborative Learning? In A. S. Goodsell, *Collaborative Learning: A Sourcebook for Higher Education* (p.p 10-30). University Park, PA: National Center on Postsecondary Teaching, Learning, and Assessment.
- Szeto, E. (2015). Community of inquiry as an instructional approach: What effects of teaching, social, and cognitive presences are there in blended synchronous learning and teaching? *Computers & Education*, 81, 191–201. <https://doi.org/10.1016/j.compedu.2014.10.027>
- Taib, N. A. M., Rahmat, N. H., Ismail, S., & Hassan, O. (2021). Teacher presence as mediator in online learning: The case for French as a foreign language. *European Journal of Foreign Language Teaching*, 5(5). <https://doi.org/10.46827/ejfl.v5i5.4106>
- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *The Journal of Higher Education*, 68(6), 599–623. <https://doi.org/10.1080/00221546.1997.11779003>
- Topala, I., & Tomozii, S. (2014). Learning satisfaction: Validity and reliability testing for students' learning satisfaction questionnaire (SLSQ). *Procedia - Social and Behavioral Sciences*, 128, 380–386. <https://doi.org/10.1016/j.sbspro.2014.03.175>
- Vaughan, N. D. (2010). A blended community of inquiry approach: Linking student engagement and course redesign. *The Internet and Higher Education*, 13(1-2), 60–65. <https://doi.org/10.1016/j.iheduc.2009.10.0005>
- Wang, Y., & Liu, Q. (2019). Effects of online teaching presence on students' interactions and collaborative knowledge construction. *Journal of Computer Assisted Learning*, 36, 370-382. <https://doi.org/10.1111/jcal.12408>
- Watson, S. L., Watson, W. R., Richardson, J., & Loizzo, J. (2016). Instructor's Use of Social Presence, Teaching Presence, and Attitudinal Dissonance: A Case Study of an Attitudinal Change MOOC. *The International Review of Research in Open and Distributed Learning*, 17(3), 54-74. <https://doi.org/10.19173/irrodl.v17i3.2379>
- Worku, H., & Alemu, M. (2020). Dialogic Teaching in a Teacher Education College: An Analysis of Teacher Educator and Pre-service Teacher Talk in Physics Classrooms. *African Journal of Research in Mathematics, Science and Technology Education*, 24(2), 169–179. <https://doi.org/10.1080/18117295.2020.1801019>