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Driving Forces of Students' Learning Outcome of EFL Blended Learning in Sichuan, China

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Abstract

Purpose: The study investigates how students' learning outcomes in EFL (English as a Foreign Language) blended learning is affected by five independent variables: intrinsic motivation, self-efficacy, teacher behavior, behavioral engagement, and the quality of the e-learning system. **Data, methodology, and research design:** The study adopted Cronbach's Alpha in a pilot test (n=30) for the reliability test and the Index of Item-Objective Congruence (IOC) for the validity test. Multiple linear regression analysis was applied to confirm the substantial link between variables in 80 valid replies from SUMC (Sichuan University of Media and Communications). After that, 30 students participated in the strategic plan process outlining the precise steps of a 14-week intervention plan. Comparisons were made about the current and expected situations through paired-sample t-tests. **Results:** The study's multiple linear regression analysis showed that each of the five independent variables strongly impacted students' learning outcomes. Paired-sample t-test results suggested a substantial difference in learning outcomes between the current and expected situations. **Conclusions:** By examining five influential elements in the setting of private institutions in Sichuan, China, this study shed insight on how to effectively improve students' blended learning outcomes in EFL education.

Keywords: Learning Outcome, Blended Learning, Self-Efficacy, Teacher Behavior, Behavioral Engagement

JEL Classification Code: I23, J28, L2

1. Introduction

Building on the success of our institution-wide educational reform in 2018, which introduced 'stratified teaching' placing students in Class A, Class B, and Class C based on their English language proficiency, we now aim to further enhance the quality of English teaching.

Among the 6000 first-year students taking EFL courses, 1600 students in C-level classes who scored less than 60 in NCEE (National College Entrance Examination) are reported to generally need more interest in learning English as a foreign language. Short of confidence is another urgent issue that needs to be addressed for these learners in Class C. An effective and prompt transformation from the present instruction model is essential to promote a more efficient learning system among those students. Within the framework of an innovative brand-new education model, students are supposed to be highly motivated and better understand both the necessity and possibility of learning English efficiently. They will be engaged in the learning process more efficiently. The inconveniences and difficulties of traditional face-to-face instruction must be addressed by combining online learning and offline teaching. Time and space limits will be relieved since teaching can be extended into after-class assignments. Students are encouraged to refer to the internet for learning resources before class begins. There would be more prompt evaluation and feedback on performance than that of the traditional model, as well. Therefore, this study is an effort to explore the factors that significantly influence EFL blended learning outcomes for students in C-level classes.

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2. Literature Review

2.1 Learning Outcome

The notion of learning outcomes is rooted in outcome-based education. Bloom's Taxonomy of Cognitive Objectives significantly contributed to introducing learning outcomes in education (Bloom et al., 1956). Allan (1996) Klein and Melton (1996) expounded on their roots, historical context, and evolutionary process. According to Otter (1992), outcome evaluation and recognition are crucial for accrediting systems. More stringent and transparent quality assurance procedures can be implemented when higher education strongly focuses on results. However, the best way to measure learning outcomes is still disputed. While some academics advocated for test-based evaluation, others place greater weight on self-reported information. To demonstrate how the five variables affect students' learning results via blended learning in EFL education, we primarily adopt a self-reported evaluation approach in this study.

2.2 Intrinsic Motivation

Deci (1971) defined intrinsic motivation as the manifestation of a behavior motivated only by the satisfaction and pleasure it provides. Intrinsically motivated conduct has been shown in numerous research studies to impact students' learning outcomes positively. Hsieh (2014) asserts that students' intrinsic motivation determines their learning outcomes, attitudes, and behavior during the learning process. According to Vansteenkiste et al. (2006), learners are more profoundly engaged and persistent when learning activities are motivated by intrinsic factors. Cerasoli et al. (2014) elucidated the relationship between intrinsic motivation and people's experiences of joy, autonomy, and energy, which provide a sustained personal commitment and, consequently, enable optimal performance and learning outcomes. Based on previous literature review, the study's initial hypothesis is formulated:
H1: Intrinsic motivation has a significant impact on learning outcome.

2.3 Self-Efficacy

Self-efficacy is the subjective evaluation of one's ability to organize and plan before engaging in real activities to achieve a certain goal (Bandura, 1977). Students' learning process, academic achievement, and school performance are all impacted by their educational self-efficacy or their evaluation of their capacity to carry out educational activities and attain their projected learning objectives (Bandura, 1982). Numerous studies across various disciplines attest to the favorable relationship between students' academic success and their sense of self-efficacy. According to Khorrami-Arani (2001), employees' self-efficacy influences their choices, their effort to finish a task, and the time allotted to overcome problems. Three e-learning-related factors—perceived usefulness, e-learner satisfaction, and self-efficacy- correlate positively (Womble, 2008). In their study on simulation games, Zulfiqar et al. (2021) found that their self-efficacy positively influenced learners' tendencies toward entrepreneurship. Building upon all of the earlier findings, the study's second hypothesis is formulated:
H2: Self-efficacy has a significant impact on learning outcome.

2.4 Behavioral Engagement

According to Sun and Rueda (2012), behavioral engagement is the behavior students exhibit when participating in class and following behavioral norms, including paying attention, completing their tasks, and following the rules. Academic results are positively impacted by the multidimensional engagement construct, including behavioral engagement (Kuh, 2009). The research findings by Fredricks et al. (2004) demonstrate that behavioral engagement leads to involvement in academic activities. The most important overall outcome of a behavioral engagement, according to Finn and Rock (1997), is raising students' academic performance, assisting them in becoming better readers and engaging in extracurricular activities. As a result, the following hypothesis is put forth:
H3: Behavioral engagement has a significant impact on learning outcome.

2.5 Teacher Behaviors

When evaluating students' learning results, teacher behaviors are frequently taken into account. Teaching behaviors can limit or enhance cognitive presence by highlighting the teacher's role and duties in the learning environment, including creating course materials, learning activities, and assignments. Teachers have primarily demonstrated two behaviors within the context of the Self-Determination Theory (SDT): motivating teacher behavior and demotivating teacher behavior (Cents-Boonstra et al., 2021). Haakma et al. (2017) elaborated on the differences between the two types of teacher behaviors and the subclasses of discouraging teacher practices—the "dark" side of education. Additionally, studies show that encouraging teachers creates a positive learning environment and encourages student participation and involvement, increasing student engagement. Conversely, students who experience discouraging teacher behaviors feel alienated from the classroom, which encourages disconnection. Consequently, the following hypothesis is posited:

H4: Teacher behavior has a significant impact on learning outcome.

2.6 E-learning System Quality

According to Sedera and Dey (2013), system quality is the capacity of a system that satisfies certain requirements, such as being simple to operate, reliable, adjustable, accessible, and flexible. "Perceived ease of use" is the most widely used indicator of "system quality" (Davis, 1989). Numerous studies in the body of current literature support that some e-learning system features promote better learning behaviors, such as reading, searching, browsing, interacting, or higher levels of learning motivation. Kamal et al. (2016) claimed that system quality significantly increases end-user attentiveness. Customer satisfaction has increased dramatically thanks to the new, user-friendly graphical interfaces. According to Rui-Hsin and Lin (2018), the system's quality has a major impact on its effectiveness. That quality also directly impacts how beneficial students perceive the system to be. Therefore, one can easily conclude that an e-learning system's effectiveness significantly impacts learners' accomplishments and educational behaviors. As a result, the subsequent hypothesis is developed:

H5: E-learning system quality has a significant impact on learning outcome.

3. Research Methods and Materials

3.1 Research Framework

The conceptual framework of this study is constructed based on three existing theoretical frameworks: Oraif (2018), Yang et al. (2022), and Dahleez et al. (2021). All four theoretical frameworks mentioned above supported and developed the conceptual framework in Figure 1.

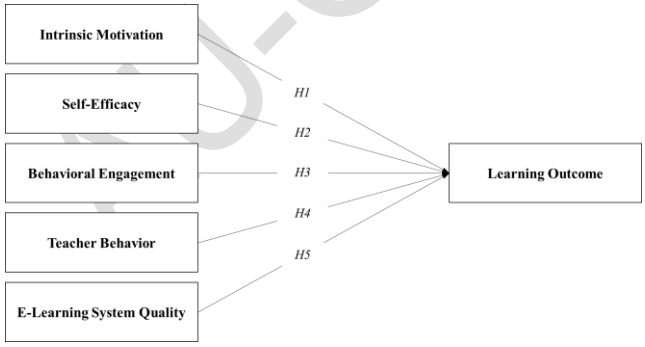

Figure 1: Conceptual Framework

H1: Intrinsic motivation has a significant impact on learning outcome.

H2: Self-efficacy has a significant impact on learning outcome.

H3: Behavioral engagement has a significant impact on learning outcome.

H4: Teacher behavior has a significant impact on learning outcome.

H5: E-learning system quality has a significant impact on learning outcome.

3.2 Research Methodology

There are four main steps in the research process. In order 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. As a result, items that met the criteria for retention were kept, while those that did not were deleted. In the second phase, surveys about the current situation were given to 80 students as the research population. Subsequently, the third phase presented the Strategic Plan process, with a target of 30 student participants. All the 30 participants engaged in the strategic plan process made responses to the last stage's survey, providing the information needed for a paired sample t-test analysis to compare the outcomes of the existing and expected situations. The objectives and hypotheses of this research could be thoroughly examined owning to this comprehensive methodology.

3.3 Research Population, Sample Size, and Sampling Procedures

3.3.1 Research Population

To conduct a pre-survey, the researcher chose 100 SUMC students as the research population, making up 6.25% of the total first-grade student body, among which around 1,600 C-level students were enrolled in EFL courses, according to the SUMC report (2023). As the research target, students with varying major backgrounds from 5 schools in SUMC were chosen. A total of 88 students applied to the Questionnaire Star applet to complete the online survey. Following that, the researcher confirmed that 80 of the responses were valid.

3.3.2 Sample size

With 30 volunteer student participants, a pilot test was launched to confirm the reliability of the questionnaire adopted for the survey. After that, the researcher used multiple linear regression analysis to uncover the

relationships between the independent and dependent variables, collecting 80 valid replies out of the 100 students from C-level classes. Ultimately, 30 students were chosen out of the previously mentioned 80 participants by the researcher, and they participated in the strategic plan process.

3.3.3 Sampling Procedures

The following sampling procedures were related to the multiple samplings that the researcher conducted:

Sampling 1: Pilot survey and test

Researchers randomly selected a sample of 30 students from the research population. Student participants were requested to complete a questionnaire survey and provide feedback for the pilot test.

Sampling 2: Pre-survey sampling

88 of the 100 C-level class students responded to the online pre-survey using the Questionnaire Star applet. Following that, the researcher verified that 80 of the responses were valid by reviewing each.

Sampling 3: Strategic plan process sampling

Out of the 80 students who participated in the prior pre-survey phase, 30 students got involved in the strategic plan process.

3.4 Research Instruments

3.4.1 Design of Questionnaire

The researcher took three steps when designing the survey questionnaire.

Step 1: Selecting the sources for the questionnaire from four publicly available articles (Dahleez et al., 2021; Oraif, 2018; Yang et al., 2022)

Step 2: Modifying and confirming survey questions regarding the context of Chinese university students.

Step 3: Conducting the survey.

3.4.2 Components of Questionnaire

The survey questionnaire applied in this study consists of three components:

Part 1. Screening questions. Screening questions were designed to identify the non-research population. This study's target population was first-year students studying in C-level classes at SUMC.

Part 2: Questions about basic information. This part included questions that gathered basic information about the research population, such as gender and years of English language acquisition.

Part 3: Pre-survey inquiries. All the student participants were asked pre-survey questions to determine their current IV and DV levels.

3.4.3 IOC Results

The researcher invited Three independent experts, an associate professor and a doctor, for the IOC (Index of item-objective congruence) test. Independent experts scored +1 for congruent, 0 for questionable, and -1 for incongruent during the IOC process. As a result, every questionnaire item in this study received a score of more than 0.67. Hence, the researcher kept every item for the final version of the survey questionnaire.

3.4.4 Pilot survey and Pilot test results

A pilot survey was administered by the researcher to 30 students at random, requesting them to complete the questionnaire and provide feedback. After that, the researcher analyzed the internal consistency reliability test of Cronbach's Alpha, the results of which are supposed to be at least 0.7 (Nunnally & Bernstein, 1994). The table below shows the results that testified to each construct's high reliability.

Table 1: Pilot Test Result

Variables	No. of items	Sources	Cronbach's Alpha	Strength of association
Intrinsic Motivation	3	Oraif (2018)	0.901	Good
Self-efficacy	3	Yang et al. (2022)	0.889	Good
Behavioral Engagement	3	Yang et al. (2022)	0.926	Good
Teacher Behavior	9	Dahleez et al. (2021)	0.954	Good
E-learning System Quality	4	Sedera and Dey (2013)	0.957	Good
Learning Outcome	4	Dahleez et al. (2021)	0.970	Good

4. Results and Discussion

4.1 Results

4.1.1 Demographic Profile

As indicated in Table 2, the researcher presented the demographic profile of the overall research population (n =80) and the group of chosen students (n=30) who participated in the strategic plan process.

Table 2: Demographic Profile

Entire Research Population (n=80)		Frequency	Percent
Gender	Male	33	41.3%
	Female	67	58.7%
Years of Learning English	Less than 3	7	8.8%
	3-6	22	27.5%
	More than 6	51	63.7%

Entire Research Population (n=80)		Frequency	Percent
School	School of Broadcasting and Hosting	19	23.7%
	School of Art and Design	18	22.5%
	School of Music and Dance	16	20.0%
	School of Film and Television	15	18.8%
	School of Digital Media	12	15.0%
Total		80	100.0%
Strategic Plan participants (n=30)		**Frequency**	**Percent**
Gender	Male	12	40.0%
	Female	18	60.0%
Years of Learning English	Less than 3	2	6.67%
	3-6	4	13.33%
	More than 6	24	80.0%
School	School of Art and Design	15	50.0%
	School of Digital Media	15	50.0%
Total		30	100.0%

4.1.2 Results of multiple linear regression

Five study hypotheses were developed to evaluate the connection between each independent variable and the dependent variable, Learning Outcome (LO). Eighty questionnaire responses were subjected to Multiple Linear Regression (MLR) to determine to what degree each of the hypotheses formulated in this study was supported. Considering that the variance inflation factor (VIF) value based on the analysis in this study is less than 10, it can be asserted that the multicollinearity of this study is reliable. R-squared (R^2), which accounts for 79.5%, demonstrates the effectiveness of a multiple linear regression model with five independent variables to explain variance in learning outcomes.

Table 3: The multiple linear regression of five independent variables on learning outcome

Variables	Standardized Coefficients Beta value	t-value	p-value	VIF	R^2
Intrinsic Motivation (IM)	0.339	3.350*	<0.001	4.23	0.795
Self-Efficacy (SE)	0.335	3.688*	<0.001	3.89	
Behavioral Engagement (BE)	0.270	2.462*	0.016	5.84	
Teacher Behavior (TB)	0.193	2.016*	0.047	1.96	
E-learning System Quality (ELSQ)	0.448	5.832*	<0.001	2.44	

Note: p-value <0.05*

In conclusion, the multiple linear regression analysis findings were used to support and develop each of the five hypotheses. Therefore, the following hypotheses were used to guide the strategic plan process:

H6: There is a significant mean difference in Intrinsic Motivation between the current and expected situation stages.

H7: There is a significant mean difference in Self-efficacy between the current and expected situation stages.

H8: There is a significant mean difference in Behavioral Engagement between the current and expected situation stages.

H9: There is a significant mean difference in Teacher Behavior between the current and expected situation stages.

H10: There is a significant mean difference in the quality of the E-learning System between the current situation and the expected situation stages.

H11: There is a significant mean difference in learning outcomes between the current and expected situation stages.

4.2 Strategic Plan Stage

The strategic plan was designed to meet the research goal of enhancing students' learning outcomes. It was based on quantitative and qualitative data gathered about the current situation. Figure 2 shows how the researcher depicted the strategic plan process chronologically.

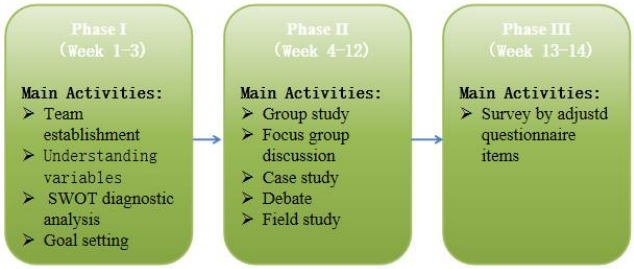

Figure 2: Strategic Plan Activities

4.3 Results Comparison between Pre and Post Strategic Planning Stage

In order to determine whether there were any changes between the existing and expected situations for students' learning outcomes, the researcher used paired-sample t-test analysis on all six variables. The following table provides illustrations of paired-sample t-test analyses for six variables:

Table 5: Paired-Sample T-Test Results

Variable	Mean	SD	SE	P-Value
Intrinsic Motivation				
Current Situation	3.81	0.598	0.1092	<0.001
Expected Situation	4.77	0.421	0.0769	

Variable	Mean	SD	SE	P-Value
Self-Efficacy				
Current Situation	3.76	0.606	0.1107	<0.001
Expected Situation	4.69	0.428	0.0782	
Behavioral Engagement				
Current Situation	3.72	0.701	0.1279	<0.001
Expected Situation	4.71	0.336	0.0613	
Teacher Behavior				
Current Situation	4.26	0.476	0.0870	<0.001
Expected Situation	4.75	0.262	0.0478	
E-learning System Quality				
Current Situation	3.93	0.682	0.1245	<0.001
Expected Situation	4.75	0.328	0.0599	
Learning Outcome				
Current Situation	3.98	0.614	0.1122	<0.001
Expected Situation	4.77	0.300	0.0548	

The findings of the paired-sample t-test analysis are displayed in Table 5: The comparison between the current situation (M=3.81, SD=0.598, SE=0.01092) and the expected situation (M=4.77, SD=0.421, SE=0.0769) showed a substantial rise in intrinsic motivation, with a mean value difference of 0.96 and a P<0.001 between them. Consequently, it was determined that there is a significant mean difference in intrinsic motivation between the current and expected situations, supporting hypothesis H6.

Between the current condition (M=4.3.76, SD=0.606, SE=0.1107) and the expected circumstance (M=4.69, SD=0.428, SE=0.0782), there was a substantial rise in self-efficacy; the mean value difference between the two situations was 0.93 and P<0.001. Consequently, it was determined that there is a significant mean difference in self-efficacy between the current and expected situations, supporting hypothesis H7.

The comparison between the current condition (M=3.72, SD=0.701, SE=0.1279) and the expected situation (M=4.71, SD=0.336, SE=0.0613) showed a substantial increase in behavioral engagement, with a mean value difference of 0.99 and a P<0.001 between them. Therefore, H8, which states a significant mean difference in Behavioral Engagement between the current and expected situation, was supported.

The mean value difference between the current and expected situation was 0.48 with P<0.001, which means that there was a substantial increase in Teacher Behavior between the current situation (M=4.26, SD=0.476, SE=0.0870) and the expected situation (M=4.74, SD=0.262, SE=0.0478). Consequently, it was proved that there is a significant mean difference in teacher behavior between the actual and expected situations, supporting hypothesis H9.

The results of the existing situation (M=3.93, SD=0.682, SE=0.1245) and the expected situation (M=4.75, SD=0.328, SE=0.0599) showed a significant rise in E-learning System Quality, with a mean value difference of 0.82 and a P<0.001 between them. As a result, H10 was supported, which states that there is a significant mean difference in the quality of the e-learning system between the existing and expected situations.

The mean value difference between the current and expected situation was 0.79 with P<0.001, which means that there was a substantial increase in learning outcome between the current situation (M=3.98, SD=0.614, SE=0.1122) and the expected situation (M=4.77, SD=0.300, SE=0.0548). Consequently, it was proved that there is a significant mean difference in learning outcomes between the actual and expected situations, supporting hypothesis H11.

Based on the results of the paired-sample t-test presented above, the following deduction might be made: First, there was a significant difference for each of the five variables between the current and expected situations. Second, the researcher discovered that, compared to the current situation, there was a considerable boost in the student's learning outcomes in the expected situation.

5. Conclusions, Recommendations and Limitations

5.1 Conclusions & Discussions

The study examined how the dependent variable, learning outcome, was affected by five independent variables: intrinsic motivation, self-efficacy, behavioral engagement, teacher behavior, and e-learning system quality. The study adopted a comprehensive methodology, data collecting, and effective research design to obtain relevant findings. The research design included a pilot test that used Cronbach's Alpha to confirm the measurement equipment's reliability, and the Index of Item-Objective Congruence (IOC) was applied to attest to the validity of items in the survey questionnaire. This delicate measurement method increased the research's legitimacy. In order to confirm the substantial correlations between the independent and dependent variables, data from 80 valid responses from students at SUMC were gathered and subjected to multiple linear regression analysis.

Additionally, a strategic plan for an intervention that was supposed to last 14 weeks was implemented with 30 chosen students. The paired-sample t-test was used to compare the expected situation data with data gathered with the current situation. The findings of the study showed that all of the five variables had a significant impact on students' learning outcomes. Statistics show that students' learning outcomes can be improved with progress in intrinsic motivation, self-efficacy, behavioral engagement, teacher behavior, and e-learning system quality. The results of the paired-sample t-

test also revealed a significant difference between the current situation and the expected situation in terms of students' learning outcomes, which demonstrated that students' learning outcomes were positively and statistically significantly impacted by the 14-week Intervention Design and Implementation.

In conclusion, this study has demonstrated how students' intrinsic motivation, self-efficacy and behavioral engagement, teacher behavior, and e-learning system quality influence the learning outcome of EFL blended learning in the context of private universities in Chengdu, China. The sound methodology, thorough analysis, and useful conclusions in this study provide thoughtful insights into the factors that help enhance students' learning outcomes. These results can be applied to institutions where students are expected to improve their EFL learning motivation and confidence and engage in EFL blended learning more efficiently. Teachers could also be inspired by adjusting their attitudes and approaches for desirable teaching results. Additionally, the findings of this study highlight the necessity for institutions to invest in the construction and maintenance of a quality information system (IS).

5.2 Recommendations

In the modern era of a digital and globalized society, the need to enhance the English language proficiency of college students through improving the EFL blended learning outcome could never be more urgent. The recommendations made in this study add to the increasing body of knowledge that equips educational institutions and educators to prepare their students for a world of opportunities and challenges.

Since learning outcomes play a critical role in the learning process, instructors are encouraged to incorporate learning outcomes in developing syllabi for EFL courses. Universities should provide professional development programs to help teachers create and implement SMART (specific, measurable, achievable, relevant, and timely) learning objectives within the context of EFL curricula.

Since increased intrinsic motivation will result in higher learning effectiveness, educational institutions, and instructors should try to cultivate students' internal motivation in learning EFL. Instructors are urged to establish an ideal environment to enhance their intrinsic motivation. Those working with students in the EFL blended learning environment should understand the primary sources of intrinsic motivation that encourage students to become more actively involved in the educational program. In addition, they must attempt to draw in students who do not embrace intrinsic motivation by employing supplementary strategies, such as offering external stimuli in the form of material rewards or punishment.

Teachers must assess their students regularly and monitor their objective perceptions of their talents and potential for EFL blended learning. Institutions that implement ongoing assessments are more efficient in identifying areas where students may be struggling and providing targeted support. It takes teachers and other staff members to support students in creating a positive sense of who they are. Educators need to receive training in strategies and tactics that enhance these skills. Workshops may provide teachers with techniques to offer helpful criticism, help students adopt a growth mindset, and create a positive learning environment for EFL learners.

When necessary, instructors should use tactics to encourage student participation, such as cold calling, debating, voting, and quizzing students on the subject matter. Related learning tasks will be distributed to students before classes begin to maximize their engagement. To encourage prompt review and raise student engagement, instructors should also attach great importance to formative evaluations in the classroom and offer additional online resources for students' further reference after class. Meanwhile, the organization should also spare some effort to promote student engagement. For instance, in the software used to deliver the course material, functions could be designed to track attendance, review homework, and proctor to see if the students adhere to classroom regulations.

Educational organizations must support teachers who exhibit inspiring and encouraging behaviors that lead to positive outcomes for EFL learning. By promoting proactive behaviors, learning communities, seminars, and lectures can be organized to help teachers set and meet their objectives. At the same time, since frustrating teaching practices have been shown to have a detrimental impact on students' learning outcomes, effective steps should be taken to lessen their negative consequences.

E-learning system quality parameters should be emphasized in order to improve student engagement. It is important to include stakeholders like administrators and support personnel in establishing an integrated network that facilitates student learning online. The faculty could help instructors create updated, relevant, and meaty course material. Furthermore, the system must be quick, reliable, and flexible enough to give students feedback on their learning activities.

In summary, the study's findings offer insightful information to educational institutions and educators who seek ways to foster students' EFL blended learning outcomes. By understanding and implementing these implications and recommendations, they can provide EFL learners with a more encouraging and comprehensive learning environment through which fruitful learning outcomes can be ultimately achieved.

5.3 Limitations for Future Research

This study has a few limitations which can be addressed in future research.

First, only a small proportion of Sichuan University of Media and Communications students were chosen as the investigation's target population. Future research should aim to diversify the sample by including students from a wider range of age groups, major backgrounds, and educational experiences to assess the generalizability of the findings.

Second, this study investigated five distinct independent variables and one dependent variable. Future researchers may investigate other independent variables and determine how they combine to provide a more comprehensive understanding of the elements impacting learning outcomes.

Third, this study formulated a particular strategic plan. Future research should investigate and implement alternative intervention designs to examine how effective different strategies are at promoting learning outcomes.

Finally, this study mainly relied on a self-reported evaluation approach to identify factors that would affect the learning outcomes of EFL blended learning. We are still in the early stages of developing efficient measuring tools to assess learning outcomes. We need to look into more diversified, innovative approaches to ensure a more reliable and effective way of tracking learning outcomes in regular teaching practice.

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