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COMPARISON OF THE OUTCOMES BETWEEN BLENDED LEARNING AND TRADITIONAL PRONUNCIATION COURSE IN THE EFL CONTEXT

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Abstract: *This study investigates the comparative effectiveness of Blended Learning (BL) and traditional instructional methods in an English as a Foreign Language (EFL) pronunciation course in China. Despite the growing adoption of BL, its impact on specific outcomes in pronunciation instruction relative to traditional teaching remains underexplored. The research employed a comparative design with the freshman students, assessing three core dimensions: learner satisfaction, student engagement (behavioral, cognitive, and emotional), and course outcomes (grades, online activities, attendance, and dropout rates). The results indicated that the BL approach led to significantly higher levels of learner satisfaction and overall student engagement across all three sub-dimensions compared to the traditional classroom. Regarding course outcomes, while both groups showed significant improvement in pronunciation test scores from pre-test to post-test, the BL group demonstrated a substantially greater gain. Furthermore, the BL group significantly outperformed the traditional group in online activity scores and attendance. However, no statistically significant difference was found in dropout rates between the two instructional methods. The study concludes that the blended learning model is more effective than the traditional approach in enhancing student satisfaction, engagement, and key learning outcomes in an EFL pronunciation context. These findings provide empirical evidence supporting the integration of BL in pronunciation teaching, while also highlighting the need for thoughtful course design to maximize its benefits and address variations in student satisfaction and engagement.*

Keywords: *Blended Learning, Traditional Learning, EFL Pronunciation Outcomes*

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Introduction

The English pronunciation course is a fundamental course in foreign language teaching that is closely related to students' oral communication skills and the effectiveness of intercultural communication. It provides knowledge of phonetics, which helps learners to decode the articulation rules of sounds, understand the alphabetic principle, and master stress and intonation, which is essential for effective communication (Adlakha, 2021).

Traditional pronunciation courses underscored the pronunciation accuracy. The teachers demonstrated the pronunciation by themselves or the audio clips while the students imitated the pronunciation and practice to master the pronunciation. Normally, the instructor followed the audio-lingual method and the direct method to impart the pronunciation knowledge and practice the pronunciation skills.

However, traditional pronunciation instruction exhibited numerous limitations in teaching practices. Initially, the teaching time is limited in a traditional class, leading to insufficient practical training of the pronunciation course (Martin, 2020). Furthermore, due to the variety of the students' cognitive features and linguistic proficiency, it is difficult to meet the individual needs as the traditional teaching undergoes a uniform teaching procedure and utilizes uniform teaching resources (Wu, 2024). In addition, traditional classes overly rely on the teacher's demonstration, which mitigates the learners' enthusiasm for participating actively in the class (Dogani, 2023).

Notably, under the impact of further integration of digitalization into education, the teaching paradigm of pronunciation is undergoing profound vicissitude, among which the rise of blended learning (BL) is particularly eye-catching. Blended learning combines the flexibility of online teaching and the interaction of the offline teaching, reconstructing the teaching and learning process and resource allocation (Siddiqui et al., 2024). The BL method extends the learning time and space via online activities such as online micro-courses learning, online pronunciation training and virtual situation simulations (Gao, 2024). Moreover, the offline class of the BL method focuses on in-depth pronunciation correction, interactive exercises and contextualized expression, achieving resource allocation optimization and precise teaching (Chen, 2020).

In addition, BL is extensively applied in pronunciation classes in China to improve pronunciation teaching. BL combines online and offline classes and offers a new approach to improve the outcomes of the pronunciation class (Li, 2022). However, the effectiveness of the BL method in improving the outcomes of pronunciation courses compared to the traditional class remain underexplored.

However, despite the widespread application of blended learning in pronunciation teaching in China, its actual effectiveness remains controversial and lacks clear empirical conclusions. Specifically, existing research findings on the effectiveness of blended learning show significant inconsistencies. For example, some meta-analyses indicate that the effect size of blended learning varies greatly across different disciplines and contexts (Cao, 2023). Particularly in the specific context of EFL pronunciation courses in China, there is a lack of systematic comparative studies on whether blended learning, compared to traditional teaching, can consistently produce positive effects on key dimensions such as learner satisfaction, student engagement, and course outcomes. Most existing studies either focus on other language skills (such as reading and vocabulary) or fail to strictly control variables for direct comparison, making it difficult to directly apply their conclusions to pronunciation teaching.

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Based on the notions above, the study compares the outcomes of BL and traditional classes in pronunciation courses to gain a deeper insight into the effectiveness of the BL method in improving the outcomes in pronunciation courses compared to traditional classes in China. This study hopes to provide evidence-based guidance for the selection of teaching models in Chinese EFL pronunciation instruction and promote the precise application of blended learning in the field of language teaching.

Literature Review

Theoretical Framework

The study adopted the new framework by Jessica Bowyer and Lucy Chambers (2017) to assess the outcomes of BL and traditional class in a pronunciation course in an EFL context. The framework includes four dimensions to evaluate the effect of BL: situation, course, individual, and outcomes. As gauging all the dimensions is overwhelming and the core dimension of the framework is outcomes, the research focused on the outcomes of BL, which include learner satisfaction, student engagement and course outcomes. Learner satisfaction refers to the extent to which students feel content and fulfilled with their engagement and experiences in an e-learning environment (Rahman, 2024). Learner satisfaction is vital for the success of a BL course given that it significantly impacts the students' personal experience. Student engagement is the dedication and enthusiasm the students demonstrate in their academic study (Borup et al., 2020). It includes three sub-dimensions: behavioral, emotional, and cognitive (Weich, 2024). Student engagement was associated with the academic performance in learning (Meade & Parthasarathy, 2024). Course outcomes refer to the activities, grades or marks, dropout rates, and attendance (Jessica Bowyer & Lucy Chambers, 2017). It demonstrates students' achievement level following the teaching and learning process (Al Jubori et al., 2024).

The Outcomes of BL Worldwide and in China

Initially, several studies examined the effectiveness of BL worldwide and in China. (Abuejheisheh et al., 2022; Funa et al., 2024; Lu &Singh, 2024). The existing literature measured the outcomes of BL mainly through the following dimensions: students' perception, engagement, learning outcome, etc. However, the existing literature's results and findings are inconsistent in terms of these dimensions.

Prior studies investigated the outcomes of BL regarding the students' perception. Pei et al. (2022) pointed out that blended learning could improve student engagement and motivation. Nonetheless, other studies indicated that STEM students' perception of the BL method was negatively impacted because they may experience feelings of loneliness and isolation (Owston et al., 2020).

Furthermore, Pagcamaan (2024) exhibited that blended learning promoted student engagement in science courses by providing interactive, flexible and multimodal learning experiences. On the contrary, Gonowon (2024) found that blended learning in gamified statistics and probability classes did not foster student engagement inherently, highlighting that thoughtful redesign and combination of activities were needed to facilitate a more engaging learning atmosphere.

In addition, the outcomes of BL were measured in terms of the learning outcomes. Broeckelman-Post et al. (2020) revealed that there were no differences in exam grades, overall course performance, or the amount of growth in self-report competence measures between the BL class and the traditional class. Conversely, Siddiqui et al. (2024) claimed that the BL method

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could be effective to improve the student performance and satisfaction because it provided a comprehensive and flexible educational experience.

Based on the notions above, the existing research have revealed the outcomes of BL in terms of various dimensions like students' perception, engagement, learning outcomes and satisfaction, etc. Notwithstanding, the results of the research are not consistent. Therefore, the outcomes of the BL class regarding the elements such as learner satisfaction, student engagement and learning outcomes is to be further verified.

The Comparison of the Outcomes between BL Practice and Traditional Class Worldwide and in China

Previous studies have compared the outcomes of BL and traditional class in certain aspects. However, the results of current study were not consistent. Cai (2024) compared BL and traditional teaching in English education, which indicated that BL significantly facilitate student engagement and learning outcomes, especially in vocabulary acquisition, listening proficiency and reading comprehension. Additionally, according to Kariuki et al. (2023), BL promoted the accuracy of pronunciation correction and improved overall English learning outcomes compared to traditional class. Furthermore, Contaoi (2024) found that BL could foster greater engagement in comparison with traditional teaching. Conversely, other research in the existing literature reported opposite findings. Suwannaphisit et al. (2021) discovered that there are no statistical differences between the BL and traditional class. Cao (2023) found that BL did not significantly promote student engagement in the leaning process in the USA and China, nor did it enhance performance in USA. Based on the inconsistent results of the comparison of outcomes between the BL and traditional class in different disciplines above, the comparison of outcomes between the BL and traditional class in different contexts is necessary to be further explored as regard to the student engagement, learning outcomes, etc.

In the EFL context in China, previous studies have conducted a comparison between the outcomes of the BL and traditional class as well, demonstrating an inconsistent of findings as well. Li et al. (2024) compared the effect of BL and traditional class on Chinese medical undergraduate student, discovering that BL improved the students' knowledge, skill and overall quality of the course. Zhang et al. (2024) compared the BL and traditional class in English language course, revealing that the effectiveness of BL varies based on teachers' perceptions, resource limitations. On the other hand, He (2024) argued that the BL class exhibited low self-efficacy in economics and BL was not effective for all student. To conclude, the comparison of outcomes between BL practice and traditional class worldwide and in China are inconsistent. From the above discussions, the comparison of the outcomes between the BL and traditional class have demonstrated inconsistent results in China, which necessitate further studies on the comparison of the outcomes between the BL and traditional class in different disciplines in China to gain an insight into the effectiveness of BL in different context.

Based on the above notions, the study aims to conduct a comparative study of the outcomes between the BL and traditional English pronunciation course to gain an insight into the effectiveness of BL method in improving the outcomes in pronunciation courses compared to traditional classes in China.

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Conceptual framework of the study

The conceptual framework of the study is as follows (Figure 1):

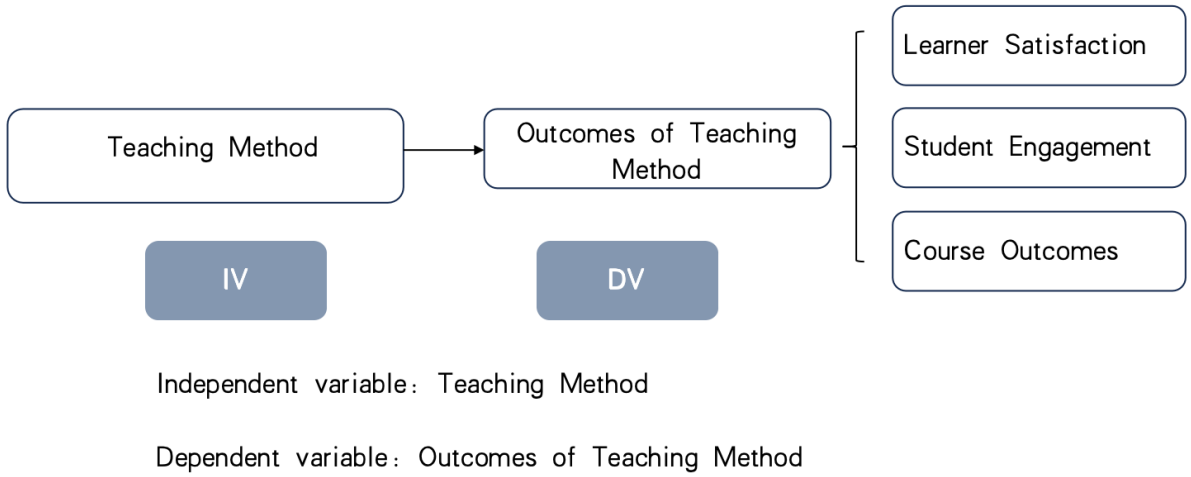

Figure 1: Conceptual Framework of the Study

Research Objectives

Based on the discussions in the previous sections, the overall research objective of the research is to compare the outcomes of BL and traditional learning of the EFL pronunciation course, comprising three sub-objectives:

Research objective 1(RO1): to compare the EFL students' satisfaction level with the pronunciation course in the BL class and the traditional class

Research objective 2 (RO2): to compare the EFL students' engagement level of the pronunciation course in the BL class and the traditional class

Research objective 3 (RO3): to compare the course outcomes of the BL of the pronunciation course in the BL class and the traditional class

Methodology

The study adopted purposive sampling. The freshmen class taking the BL English pronunciation course at the target university is the subject of the study. A total of 85 respondents were recruited in the study to compare the outcomes of the BL class and the traditional class. At the commencement of the study, pretests of three pronunciation quizzes were administered to both classes (see Section 5.3.1). Results from independent-samples t-tests and Mann-Whitney U tests indicated no statistically significant differences in all pretest scores between the two groups ($p > 0.05$), demonstrating comparable pronunciation proficiency levels at the baseline and providing a crucial reference for subsequent outcome comparisons. The course was delivered by the same experienced instructor to mitigate the potential influence of variations in teaching styles and competencies on the research outcomes. In terms of leaner satisfaction, this research adopted the corresponding questionnaire by Arbaugh (2002) to collect the data. As for student engagement, the engagement questionnaire Teng and Wang (2021) was adopted to collect data about the behavioral, cognitive and emotional engagement of the students. The two questionnaires were distributed to the subjects from *Wenjuanxing*, a platform for data collection in China, to collect the quantitative data. The data of course outcomes involved four elements: grades & marks, online activities, attendance and dropout rates. Grades and marks were collected from the three pronunciation tests distributed to the subjects during the learning process on *Xuexitong,* a teaching platform in China. A pretest and a test after the

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learning in the BL class and in the traditional class were conducted to observe the students' progress after learning the BL or the traditional pronunciation course. The data of the three remaining elements were collected from *Xuexitong* as well through the corresponding activities conducted on *Xuexitong* at the end of the semester.

The questionnaire adopted in the survey was based on previously validated scales. All measurement items were scored using a five-point Likert scale.

Learner satisfaction was measured using the Perceived Learner Satisfaction Scale (Arbaugh, 2018), with the reliability: Cronbach's α = 0.93 (Sun et al., 2008).

Student engagement was evaluated by The Engagement Questionnaire (Teng & Wang, 2021), eight items of behavioral engagement (Cronbach's α =0.939), eight items of cognitive engagement (Cronbach's α = 0.960) and eight items of emotional engagement (Cronbach's α = 0.939).

Course outcomes were measured by the four sub-dimensions with data directly from *Xuexitong*: grades or marks, scores of online activities, dropout rates, and scores of attendances (Jessica Bowyer &Lucy Chambers, 2017).

Results

Comparison of the EFL students' satisfaction level with the pronunciation course in the BL class and the traditional class

The following section introduces the quantitative data results and findings on the comparison of EFL students' satisfaction levels in the BL and traditional pronunciation course settings.
It was verified that SA (Perceived Learner Satisfaction) data conformed to a normal distribution, so an independent samples t-test was used to analyze the learner satisfaction of the blended learning class and the traditional class.

As shown in Table 1, the blended learning environment outperformed the traditional class in terms of Learner Satisfaction (SA) （t=-2.415, P=0.018）.

Table 1: Results of Independent Sample T-Tests -The Learner Satisfaction Scale

	Traditional teaching		Blended teaching		t/Z	P
	M±SD	Min/Max	M±SD	Min/Max		
SA	3.39±0.92	1/4.92	3.81±0.67	2.58/5	-2.415	0.018

As shown in Table 1, the mean score of the traditional learning was 3.39 with a standard deviation of 0.92, a minimum score of 1 and a maximum of 4.92. The mean score of the BL was 3.81 with a standard deviation of 0.67, a minimum score of 2.58 and a maximum of 5.

Comparison of the EFL students' engagement level of the pronunciation course in the BL class and the traditional class

The following section introduces the quantitative data's results and findings on the comparison of EFL students' engagement level in the BL and traditional pronunciation course setting.
The data of EG (Student Engagement), BE (Behavioral Engagement), and EE (Emotional Engagement) did not conform to normal distribution, so an independent two-sample test (Mann-Whitney U Test) was used to analyze the overall student engagement, behavioral engagement

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and emotional engagement of the blended learning class and the traditional class. The data of CE (Cognitive Engagement) conformed to a normal distribution, so an independent sample t-test was used to analyze the cognitive engagement of the blended learning class and the traditional class. The results of comparing the EFL students' engagement level in the BL and traditional pronunciation course settings are illustrated in Table 2.

Table 2: Results of Independent Two-Sample Test/ Independent Sample T-Test - The Student Engagement Scale

	Traditional teaching		Blended teaching		t/Z	P
	M±SD	Min/Max	M±SD	Min/Max		
EG	3.3±0.54	2.5/4.13	3.95±0.43	3.08/4.71	-5.153	<0.001
BE	3.44±1.01	1.5/5	4.06±0.66	3/5	-2.627	0.009
CE	3.43±0.97	1/5	3.86±0.39	3/4.75	-2.677	0.009
EE	3.02±0.74	1.25/4	3.92±0.71	2.25/5	-5.054	<0.001

As illustrated in Table 2, in the traditional environment, the student engagement (EG) had a mean score of 3.3 with a standard deviation of 0.54 and scores ranging from a minimum of 2.5 to a maximum of 4.13, Behavioral Engagement (BE) had a mean score of 3.44 with a standard deviation of 1.01 and scores ranging from a minimum of 1.5 to a maximum of 5. Cognitive Engagement (CE) had a mean score of 3.43, with a standard deviation of 0.97, a minimum score of 1 and a maximum of 5. Emotional engagement (EE) had a mean score of 3.02, with a standard deviation of 0.74, and a minimum score of 1.25, and a maximum of 4. Meanwhile, in the blended setting, the student engagement (EG) had a mean score of 3.95 with a standard deviation of 0.43 and scores ranging from a minimum of 3.08 to a maximum of 4.71, Behavioral Engagement (BE) had a mean score of 4.06 with a standard deviation of 0.66 and scores ranging from a minimum of 3 to a maximum of 5. Cognitive Engagement (CE) had a mean score of 3.86, with a standard deviation of 0.39, a minimum score of 3 and a maximum of 4.75. Emotional engagement (EE) had a mean score of 3.92, with a standard deviation of 0.71, and a minimum score of 2.25, and a maximum of 5.

Compared to traditional class, both the overall student engagement level and the three sub—dimensions: BE, CE and EE in the BL class were higher than those in the traditional class ($Z=-5.153$, $P<0.001$; $Z=-2.627$, $P=0.009$; $t=-2.677$, $P=0.009$; and $Z=-5.054$, $P<0.001$), indicating statistically significant differences.

Comparison the course outcomes of the BL of the pronunciation course in the BL class and the traditional class

The following section introduces the quantitative data's results and findings on the comparison of EFL students' course outcomes in the BL and traditional pronunciation course settings.
The course outcomes include the grades and marks of the students' three pronunciation tests, the scores of online activities, the scores of attendances, and the dropout rates. The quantitative analysis of the four subdimensions will be demonstrated.

Grades and Marks

The data of the three pre-tests of the two classes did not conform to normal distribution ($p<0.05$), hence, an independent two-sample test (Mann-Whitney U Test) was used to analyze the grades and marks of the three pre-tests of the two classes. The mean score of the three pre-

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tests of the two classes conform to normal distribution, so an independent sample t-test was used to analyze the corresponding data.

As shown in Table 3, the mean score on quiz 1(pre-test) in the traditional environment was 69 4 with a standard deviation of 8.92, and scores fluctuated from 50 to 90. The mean score on the quiz 2 (pre-test) was 72.71 with a standard deviation of 7.64, and scores ranged from a low of 50 to a high of 98. The mean score on the quiz3 pre-test was 74.5 with a standard deviation of 5.07, and scores ranged from 67 to 94. Combining the three pre-tests, the students' total scores averaged 72.21 with a standard deviation of 4.13, with scores ranging from a low of 65.33 to a high of 82. In addition, in the blended learning environment, the mean score on quiz 1(pre-test) was 66.14 with a standard deviation of 7.51, and scores fluctuated from 40 to 80. The mean score on the quiz 2 (pre-test) was 74.12 with a standard deviation of 11.31, and scores ranged from a low of 42 to a high of 95. The mean score on the quiz3 pre-test was 73.02 with a standard deviation of 3.31, and scores ranged from 60 to 80. Combining the three pre-tests, the students' total scores averaged 71.09 with a standard deviation of 4.99, with scores ranging from a low of 58.33 to a high of 82.67.

Table 3: Results of Independent Two-Sample Test/Independent Sample T-Test - Grades and Marks of the Pre-test of the Three Pronunciation Quizzes

	Traditional teaching		Blended teaching		Z/t	P
	M±SD	Min/Max	M±SD	Min/Max		
pre_quiz1	69.4±8.92	50/90	66.14±7.51	40/80	-1.716	0.086
pre_quiz2	72.71±7.64	50/98	74.12±11.31	42/95	-0.425	0.671
pre_quiz3	74.5±5.07	67/94	73.02±3.31	60/80	-1.047	0.295
pre_quiz	72.21±4.13	65.33/82	71.09±4.99	58.33/82.67	1.119	0.266

As illustrated in Table 3, all three pre-tests (pre-quiz1、pre-quiz2、pre-quiz3) and the mean score of the three pre-tests(pre-quiz) indicated no statistically significant differences.

Table 4 indicates the results of the comparison between the pre-tests and the post-tests of the two classes.

Table 4: Results of the Wilcoxon Signed Ranks Test -The Pre-tests and Post-tests of Three Pronunciation Quizzes of the Two Classes

		Pretest	Posttest	Differences	Z	P
Traditional teaching	quiz1	69.4±8.92	76.5±9.13	-7.1±3.48	-5.633	<0.001
	quiz2	72.71±7.64	83.38±8.99	-10.67±10.31	-4.720	<0.001
	quiz3	74.5±5.07	88.76±6.35	-14.26±7.4	-5.390	<0.001
	quiz	72.21±4.13	82.88±4.79	-10.67±4.55	-5.634	<0.001
Blended teaching	quiz1	66.14±7.51	82.98±9.01	-16.84±7.6	-5.713	<0.001
	quiz2	74.12±11.31	89.3±9.79	-15.19±10.63	-5.435	<0.001
	quiz3	73.02±3.31	93.53±3.9	-20.51±4.6	-5.718	<0.001
	quiz	71.09±4.99	88.6±5.22	-17.51±5.3	-5.713	<0.001

According to Table 4, both the traditional and mixed instruction classes showed significant increases in the mean of the students' scores on the three quizzes. The traditional instruction class showed a significant increase of 10.67 points (Z=-5.634, p<0.001) in the mean total score on the three quizzes, while the hybrid instruction class showed an even greater increase in the mean total score on the three quizzes, with a significant increase of 17.51 points (Z=-5.713,

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p<0.001). Specifically, the traditional instruction class improved their average grade on quiz 1 by 7.1 points, a change that was statistically significant (Z=-5.633, P<0.001). However, the hybrid instructional class showed an even more significant improvement on quiz 1, with a 16.84-point increase in mean grade (Z=-5.713, p<0.001). Similarly, the traditional instruction class increased its mean score by 10.67 points on quiz2, while the hybrid instruction class had a more significant increase of 15.19 points (Z=-5.435, P<0.001). On quiz3, the traditional instruction class significantly improved its mean score by 14.26 points (Z=-5.390, P<0.001), while the hybrid instruction class improved even more significantly, with a mean improvement of 20.51 points (Z=-5.718, P<0.001). These results indicated that the hybrid teaching method significantly improved students' grades and marks, in contrast to the students who received traditional teaching, who also improved their performance, but the increase was smaller.

Table 5 indicates the results of the comparison of the post-tests between the two classes. The independent samples t-test was used to analyze the quiz 1 post-test scores, and the Mann-Whitney U Test was used to analyze the quiz 2 and quiz 3 post-test scores.

Table 5: Results of Independent Two-Sample Test/Independent Sample T-Test - Grades and Marks of the Post-test of the Three Pronunciation Quizzes

	Traditional teaching		Blended teaching		t/Z	P
	M±SD	Min/Max	M±SD	Min/Max		
quiz1	76.5±9.13	55/97	82.98±9.01	59/99	-3.292	0.001
quiz2	83.38±8.99	52/98	89.3±9.79	52/100	-3.825	<0.001
quiz3	88.76±6.35	70/98	93.53±3.9	86/100	-3.671	<0.001
quiz	82.88±4.79	74/91.33	88.6±5.22	73.67/97.33	-5.262	<0.001

According to Table 5, in the post-test phase of the traditional learning, the mean score on the quiz1 post-test was 76.5 with a standard deviation of 9.13, with scores fluctuating from 55 to 97. The mean score on the quiz2 post-test was 83.38 with a standard deviation of 8.99, with scores ranging from a low of 52 to a high of 98. The mean score on the quiz3 post-test was 88.76, with a standard deviation of 6.35, and scores ranging from 70 to 98. Overall, the students' mean score on the post-test was 82.88, with a standard deviation of 4.79, with scores ranging from a low of 74 to a high of 91.33.

In the post-test phase of the BL class, the mean score on the quiz1 post-test was 82.98 with a standard deviation of 9.01, with scores fluctuating from 59 to 99. The mean score on the quiz2 post-test was 89.3 with a standard deviation of 9.79, with scores ranging from a low of 52 to a high of 100. The mean score on the quiz3 post-test was 93.53, with a standard deviation of 3.9, and scores ranging from 86 to 100. Overall, the students' mean score on the post-test was 88.6, with a standard deviation of 5.22, with scores ranging from a low of 73.67 to a high of 97.33.

From Table 5, the hybrid teaching class significantly outperformed the traditional teaching class on all three means of the three quizzes. On the total scores of the three quizzes, the mixed-teaching class significantly outperformed the traditional teaching class in terms of mean scores, and the results of the Mann-Whitney U-test showed a significant difference between the two (Z=-5.262, p<0.001). Specifically, for quiz1, the mixed-teaching classes had significantly higher mean scores than the traditionally taught classes, and the results of the independent samples t-test indicated a significant difference between the two (t=-3.292, p=0.001). This trend was the same for quiz2 and quiz3 scores. For quiz2, the mean scores of the mixed-teaching class were again significantly higher than those of the traditional teaching class, a result

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confirmed by the Mann-Whitney U test (Z=-3.825, p<0.001). Similarly, on quiz3, the mean scores of the BL classes were significantly better than those of the traditionally taught classes, a result that was confirmed by a Mann-Whitney U-test showing a significant difference between the two (Z=-3.671, p<0.001). These data suggest that the blended approach significantly contributed to the improvement of students' grades and marks, and that the blended class was significantly ahead of the traditional teaching class in terms of mean achievement on all three quizzes after the experiment.

Online Activities

The data of online activities scores in the traditional and the BL class did not conform to the normal distribution (p<0.05) so the independent two-sample test was used to analyze the data. As shown in Table 6, the Z value of the online activity score was -8.174, P<0.001, indicating the online activity score of the hybrid class was significantly higher than that of the traditional class.

Table 6: Results of Independent Two-Sample Test - Online Activities Score

Traditional teaching		Blended teaching		Z	P
M±SD	Min/Max	M±SD	Min/Max		
41.9±22.55	0/60	94.88±8.45	70/100	-8.174	<0.001

Attendance

The data of attendance scores in the traditional and the BL class did not conform to the normal distribution (p<0.05) so the independent two-sample test was used to analyze the data. Table 7 demonstrated that the Z value of the online activity score was -4.868, P<0.001, indicating the attendance scores of the hybrid class were significantly higher than those of the traditional class.

Table 7: Results of Independent Two-Sample Test - Attendance Score

Traditional teaching		Blended teaching		Z	P
M±SD	Min/Max	M±SD	Min/Max		
92.26±7.4	69.23/100	98.84±3.67	87.5/100	-4.868	<0.001

Dropout Rates

In order to test whether the teaching method has an impact on the dropout rate, the study used chi-square analysis to test the correlation between the two categorical variables. The results of the cross-tabulation analysis of teaching methods and whether they are dropouts were demonstrated in Table 8. According to the results, two students dropped out, accounting for 4.8% and 40 students did not drop out, accounting for 95.2% in the traditional class. In the BL class, no students dropped out. The calculated chi-square value is 2.097, and the P value is 0.241. Since the P value is much greater than the commonly used significance level of 0.05, it can be concluded that there is no significant correlation between teaching methods and whether students drop out.

Table 8: Results of Chi-Square Tests -Teaching methods and Dropouts

	Dropout	Not dropout	χ^2	P
Traditional teaching	2(4.8%)	40(95.2%)	2.097	0.241
Blended teaching	0(0%)	43(100%)		

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Discussions

The section discusses the comparison of the outcomes between the BL English pronunciation course and the traditional pronunciation course regarding three dimensions: learner satisfaction, student engagement and course outcomes.

The comparison of EFL learner satisfaction level in the English pronunciation course in the BL class and the traditional class

Based on the results, the leaner satisfaction is generally higher in the BL class than that in the traditional class, which provided further empirical evidence for the learner satisfaction in the BL class. Notably, the learner satisfaction of the BL ranged from 2.58 to 5 and that of the traditional class ranged from 1 to 4.92, indicating the learner satisfaction varied to a great extent which implies the existence of some influential variables impacting the satisfaction of the students.

Previous studies have compared the learner satisfaction in the traditional and the BL class. Imran et al. (2023) found that BL mode of teaching significantly promoted student satisfaction compared to the traditional classrooms. Yang（2024) claimed that the blended model was perceived more and satisfying than traditional learning, despite the challenges with technology, engagement, adaptation, time management, assessment, and resource in the BL teaching mode. The results of this study were consistent with the previous studies and provided further empirical evidence for the learner satisfaction of BL and traditional class.

The comparison of EFL students' engagement level in the English pronunciation course in the BL class and the traditional class

In this study, the empirical data elucidated that the overall student engagement and the three subdimensions: behavioral engagement, cognitive engagement and emotional engagement of the students in the BL class outperformed those in the traditional class. The findings offered empirical evidence to further related studies on student engagement comparing the BL method with the traditional method. Overall, the students in the BL pronunciation course in the EFL context possess a higher level of student engagement than the students in the traditional class, indicating the students are enthusiastically engaged in the BL pronunciation class in the EFL context than the students in the traditional pronunciation class.

The prior studies have examined the student engagement in other courses in the BL classroom. Some research claimed that blended learning significantly improved student engagement, leading to higher motivation and participation in both online and in-person activities (Cai, 2024). However, Teoh et al. (2025) elucidated that no significant significance existed between the overall engagement of the BL and the traditional class, moreover, the traditional class showed significantly higher performance engagement than the BL class. The results of this study provide empirical evidence that the students possess a higher level of student engagement than the students in the traditional class in the BL pronunciation course in the EFL context, consistent with the research of Cai (2024).

The comparison of EFL students' course outcomes in the English pronunciation course in the BL class and the traditional class

The empirical data in the study examined the grades and marks, online activities, attendance, and dropout rates of the BL pronunciation course in the EFL course. The study discovered that the students enhanced their grades and marks both in the BL class and the traditional class. However, the students in the BL class improved more than that the students in the traditional

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class, with the traditional class improved by 14.26 and the BL class improved 20.51. The online activities and the attendance of the BL class outperformed the traditional as well. Concerning dropout rates, no significant difference exists between the BL class and traditional class. To conclude, the BL course outcomes are significantly enhanced than the outcomes of the traditional class in this study, consistent with most previous studies (He et al., 2024; Liu et al., 2024).

Former studies verified the course outcomes of the BL classes. Most studies examined the grades and marks as the course outcomes of the BL classes (He et al., 2024; Liu et al., 2024), neglecting the other elements of the course outcomes, like attendance, dropout rate, and online activities. Zhang et al. (2022) indicated performance, satisfaction and thinking ability training were enhanced in the BL environment than those in the traditional classes. Conversely, Jafar & Sitther (2021) revealed no significant difference between the mean scores of summative examinations between the traditional and hybrid classes. Despite of the inconsistent results of the previous studies, this study verifies that the course outcomes of the BL pronunciation course are significantly improved than the course outcomes of the traditional pronunciation class in Chinese EFL context.

Conclusion

Based on the findings mentioned, this study revealed that the BL pronunciation class improved the outcomes more significantly than the traditional pronunciation class. Initially, the satisfaction level is significantly higher in the BL pronunciation class and the traditional pronunciation class. However, the satisfaction level of the BL class fluctuating within a wide range indicating that the teachers should pay attention to the course design of the BL class to satisfy the students' learning needs. Concerning the student engagement, the overall engagement level and the three subdimensions of student engagement level are higher in the BL class than the traditional class. Notably, though the overall engagement level of the BL pronunciation class is higher than the traditional class, the engagement level can be affected by the incorporation of digital resources and teaching strategies (Cai, 2024; Chen et al., 2024). Hence, ease use of digital resources, well-designed teaching strategies should be underscored to further improve the student engagement in the BL pronunciation class as engagement has been a challenge in the BL class because of problems like maintaining consistent motivation in virtual environments, managing distractions at home, and feelings of being overlooked due to limited real-time lecturer attention (Alfiani Nur et al., 2024). For the outcomes, the BL pronunciation class enhances the students' grades and marks, online activities, attendance more than the traditional pronunciation class did. Nonetheless, the online activities scores ranged from 70 to 100 and the attendance scores from 87.5 to 100, inferred that there is room to improve the overall performance of the BL pronunciation class by effective BL design for the pronunciation course.

Limitations and suggestions for future research

Despite the insights above, the study has limitations. To begin with, the sample is relatively small, so the generalizability of the research findings was restricted. In addition, the samples are from one university, which limits the generalizability to other universities. Future studies should take more samples from various universities to promote generalizability. Furthermore, more subdimensions concerning engagement should be involved in evaluating the BL and traditional class to gain insight into the differences of different engagement types in the two classes. Lastly, social desirability bias could influence the results because the students will choose what they consider socially acceptable instead of what they think. To cope with the

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problem, further interviews could be conducted to gain a deeper understanding of the students' views on comparing outcomes of the BL pronunciation class and the traditional pronunciation class. Furthermore, to further improve the students' satisfaction, student engagement and course outcomes in the BL course, interviews and surveys should be conducted to gain insight into the effective BL teaching model that contributes to enhanced satisfaction, engagement and course outcomes in the BL pronunciation course.

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