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# Enhancing EFL Learner's Achievement through a SPOC-based Blended Teaching Model

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**Abstract:** This study investigates the effectiveness of a SPOC-based blended teaching model on the English proficiency of 193 Chinese non-English major freshmen. Through a 16-week quasi-experimental design, participants were divided into an experimental group taught via a SPOC-blended approach and a control group receiving traditional instruction. Post-intervention assessments measured overall achievement and subskills including vocabulary, reading, translation, and writing. Results indicate that the SPOC model significantly improved students' overall English performance and writing skills, but showed no statistically significant effects on vocabulary, reading, or translation after Bonferroni correction. The findings suggest that while SPOC-enhanced blended learning promotes general language achievement and output-based competencies like writing, its efficacy may depend on instructional focus and the nature of the target skill. This study provides empirical support for the integrative use of SPOC in EFL contexts and highlights the need for skill-specific instructional design in blended learning environments.

**Keywords:** SPOC; blended learning; English proficiency

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## 1. Introduction

Presently, information technology has revitalized traditional education. The emergence of Small Private Online Courses (SPOC) has effectively innovated teaching methods, updated curricula, and improved instructional quality. While growing research explores whether SPOC enhances English as a Foreign Language (EFL) learning, few studies focus on specific knowledge or skill gains. This study aims to develop a SPOC-based blended teaching model and examine its effectiveness in improving EFL learners' outcomes, including academic achievement, lexical knowledge, reading comprehension, translation, and writing abilities. Empirical findings are expected to offer valuable insights for integrating SPOC into EFL education.

## 2. Background

The focus of this chapter primarily revolves around the concepts of blended learning and SPOC.

### 2.1. Blended Learning

The advancement of network technology has transformed traditional education by offering flexibility in time and space,

making online learning an attractive option. However, it also presents challenges such as insufficient supervision, limited teacher support, low student motivation, and unsatisfactory learning outcomes [1]. Blended learning has thus emerged to combine the strengths of both online and in-person instruction, gaining widespread adoption among educators and institutions. It has become a common approach in higher education globally [2].

Scholars define blended learning in three main ways [3]: integrating teaching strategies, combining instructional modes or media, and merging online with face-to-face learning. The third interpretation is the most widely recognized. Effective blended learning requires not simply adding online elements, but fundamentally rethinking and redesigning instructional structures and methods [4]. Its core aim is to provide relevant knowledge and skills through suitable educational technologies, enabling flexible and effective high-quality learning [5]. In this study, blended learning integrates online and in-person teaching, with innovative online resources such as SPOC playing a key supporting role.

### 2.2. An Overview of SPOC

SPOC (Small Private Online Course) represents an evolution of the MOOC model [6]. While MOOCs aim to provide open, large-scale access to online education [7], they face challenges such as lack of instructor supervision and low completion rates due to their massive scale and open nature [8]. In response, SPOC adopts a “small” and “private” approach, limiting enrollment to improve interaction and completion rates, while combining online resources with traditional classroom instruction [9].

SPOC has been widely adopted in higher education for its flexibility and effectiveness in blended learning [10]. Compared to MOOCs, it offers more structured teacher guidance, greater interactivity, and better integration with institutional curricula. Studies have shown that SPOC can significantly enhance learning outcomes [11,12] , particularly in language education, where it has been applied through various teaching models such as flipped classrooms and task-based instruction [13,14].

Although existing research has demonstrated SPOC’s positive impact on general learning achievement, motivation, and satisfaction [15,16,17], few studies have examined its effects on specific language skills in detail. This study investigates the influence of a SPOC-based blended teaching model on the English proficiency of 193 non-English major freshmen, particularly in lexical knowledge, reading comprehension, translation, and writing ability. The research addresses the following questions:

1. Does the SPOC-based blended teaching model significantly affect ESL students’ overall English learning achievement?
2. Does it significantly improve ESL students’ performance in lexical knowledge, reading comprehension, translation, and writing?

## 3. Methodology

The methodology of this study will be discussed in four sections: research context, participants, design of teaching model, and design of exam paper.

### 3.1. Research Context

This study conducted a 16-week teaching experiment at a Chinese university to compare the effectiveness of a SPOC-based blended teaching model with conventional multimedia classroom instruction for ESL students. The experimental group learned under the SPOC approach, while the control group received traditional instruction. A final exam was administered to both groups to assess overall performance and specific learning outcomes. Quantitative analysis was applied to the exam results (see Table 1) to evaluate the model and derive pedagogical recommendations.

**Table 1.** Experimental Procedure

| | Data Collection | | | Data Analysis | |
|---|---|---|---|---|---|
| Sampling | Pre-test | Intervention | | Post-test | |
| Experimental Class (N=96) | Score of Achievements | SPOC-based Blended Teaching | | Score of Achievements | Normality; Independent Samples t-Test |
| Control Class (N=97) | | Multimedia Classroom Teaching | | | |

## 3.2. Participants

The study involved four classes taught by the same instructor. Over a 16-week semester, the experimental group (96 freshmen) was taught using the SPOC-based blended model, while the control group (97 freshmen) received instruction without SPOC. All participants had over ten years of English learning experience. An independent-samples t-test of their College Entrance Exam scores showed no significant difference ($p > .05$), confirming comparable initial proficiency between the groups.

**Table 2.** Group Comparison of Subjects

| Dimension | Experimental Group | Control Group |
|---|---|---|
| Teaching Form | SPOC-based blended teaching strategy | Traditional Multimedia Classroom Teaching |
| Teaching Environment | A technology-enhanced, pedagogically-driven and culturally-inclusive blended learning environment | Multimedia classrooms supported by a variety of modern teaching equipment |
| Degree of Interaction | Enhanced interactive pedagogy facilitated by a multitude of technological advancements | General interactive instruction with computer support |
| Evaluation Method | The evaluation encompasses various dimensions and approaches, including process assessment, final assessment, | An evaluation system that combines process evaluation with summative evaluation and teacher evaluation |

## 3.3. Teaching Model Design

This study utilized the Chaoxing Learning Platform to establish a college English SPOC course. This integrated platform facilitates teaching, learning, and interaction, featuring access control, resource publishing, monitoring, and evaluation to support guided self-directed learning. The 16-week experiment used the New Progressive College English textbook for both the experimental and control groups.

The SPOC-based blended model followed a three-stage process [18]: a pre-class knowledge transfer stage where students studied micro-lectures and raised questions; an in-class knowledge internalization stage focused on collaborative problem-solving in groups; and a post-class consolidation stage for reflection and evaluation. The specific design is illustrated in Figure 1.

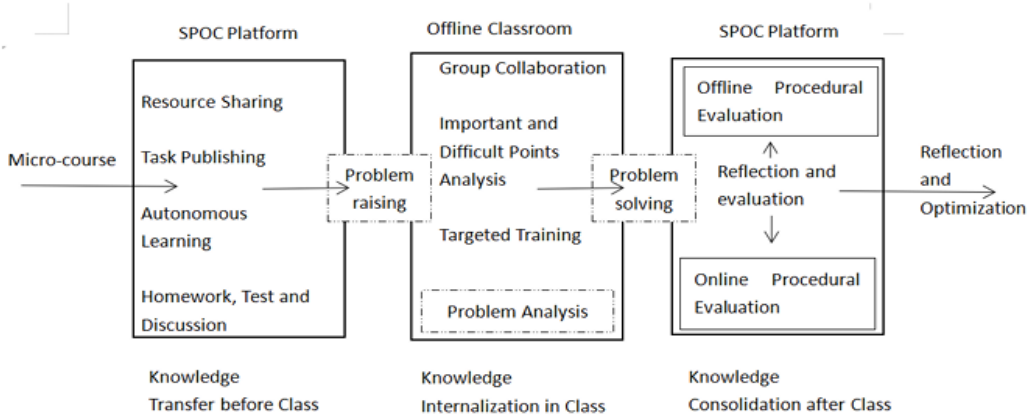


**Figure 1.** Process of Blended College English Teaching Mode Based on SPOC

This teaching model consists of three stages: Before class, instructors design micro-lectures and learning tasks based on teaching objectives, provide resources, and use platform features to monitor pre-class preparation; During class, difficulties are resolved through group discussions and teacher-student interaction to deepen knowledge internalization and achieve student-centered instruction; After class, comprehensive assessment is conducted combining online data (e.g., video views, quiz completion) and offline performance (e.g., group reports), with ongoing feedback to optimize learning outcomes.

## 3.4. Exam Paper Design

The exam includes four sections—Words and Expressions in Use, Blank Cloze, Reading Comprehension, Translation, and Writing—totaling 100 points. It draws on topics from the semester and uses question types modeled after the national CET-4 and CET-6 proficiency tests.

### 3.4.1. Composition of the Test Papers

The post-intervention assessment evaluated participants' language proficiency across vocabulary, reading, translation, and writing skills. The "Words and Expression in Use" section (20 points) consisted of twenty discrete questions divided into two parts, assessing comprehension and application of vocabulary and phrases. A "Blank Cloze" task (10 points) required students to select appropriate words from a provided bank to complete ten gaps, further evaluating lexical knowledge. The "Reading Comprehension" section (30 points) included four passages assessed through fast reading, in-depth reading, and short-answer questions, incorporating various formats such as matching items, multiple-choice questions, and open-ended responses. The "Translation" section (25 points) involved Chinese-to-English sentence translation and English-to-Chinese passage translation, with scoring based on accuracy, fluency, and grammatical coherence. Finally, the "Writing" section (15 points) required learners to write an essay of 120–180 words related to a unit topic from the semester, evaluated for content relevance, language accuracy, and structural coherence. The post-intervention assessment was conducted on participants from both the experimental and control groups to evaluate their language proficiency in vocabulary, reading, translating, and writing skills.

### 3.4.2. Reliability of the Test Papers

To ensure exam reliability, a pilot study was conducted with 30 freshmen not included in the main sample. The Cronbach's alpha test resulted in a reliability coefficient of 0.811, indicating good internal consistency. During the formal exam, four raters demonstrated strong inter-rater reliability, with a Kappa coefficient of 0.71. Each rater independently evaluated specific sections of the exam according to standardized criteria.

# 4. Results

This section present the findings of comprehensive data analyses that were conducted to address the research inquiries. These analyses encompassed statistical analysis outcomes.

## 4.1. Descriptive Statistics

The descriptive statistics were used to analyze the demographic characteristics of the participants in the experimental group, such as their numbers and genders. The distribution of the sample population can be observed in Table 3.

**Table 3.** Demographic Background Data

| Gender | EC(N=96) | CC(N=97) |
|---|---|---|
| Male | 45 | 48 |
| Female | 51 | 49 |

EC = experimental class, CC = control class.

Table 4 presented below displays the descriptive statistics pertaining to the students' grades in the final exam.

**Table 4.** Statistical Analysis of Test Results for Students' Academic Performance

| | Vaild | Minimum | Maximum | Mean | N | Std Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|
| EC | 96 | 53 | 97 | 75 | | 10.48 | 0.08 | -6.543 |
| CC | 97 | 41 | 92 | 69 | | 12.04 | -0.12 | -0.474 |

EC = experimental class, CC = control class

The experimental group, consisting of 96 students, exhibits a range of scores from 55 to 97, resulting in an average score of 75 and a standard deviation of 10.48. On the other hand, the control group comprises 97 students with scores ranging from 41 to 92, yielding an average score of 69 and a standard deviation of 12.04.

Then, the control class and experimental class underwent normal distribution tests on the statistics from the final exam. The outcomes are presented in Table 5.

**Table 5.** Normality Test

| | Kolmogorov-Smirnov(v)a | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| | Statistic | Degrees of Freedom | Significance | Statistic | Degrees of Freedom | Significance |
| EC | 0.076 | 97 | 0.2* | 0.976 | 97 | 0.073 |
| CC | 0.88 | 96 | 0.067 | 0.965 | 96 | 0.011 |

EC = experimental class, CC = control class.

*.This is the lower bound of the true significance.

a. Rayleigh's significance correction.

## 4.2. Parametric Statistics

Given the normal distribution of the data, independent-samples t-tests were used to compare the effectiveness of SPOC-based and traditional teaching methods on total and subsection scores (vocabulary, reading, translation, writing). To mitigate Type I error risk from multiple comparisons (n=5), a Bonferroni correction was applied, adjusting the significance

level from α = .05 to α = .01 (i.e., .05 / 5). Results are presented in Table 6.

**Table 6.** Results of Independent Samples t-Test

| | EC(N=96) | CC(N=97) | *t* | *p* | 95% Confidence Interval (Lower Bound) | 95% Confidence Interval (UpperBound) |
|---|---|---|---|---|---|---|
| Total Score | 74.76±10.48 | 70. 17±12.04 | 2.82 | .00 | 1.38 | 7.80 |
| Vocabulary | 23.59±6.55 | 21.60±7.12 | 2.03 | .04 | .05 | 3.94 |
| Reading | 19.74±5.37 | 18.61±5.17 | 1.48 | .14 | -.37 | 2.62 |
| Translation | 19.95±4.02 | 19.92±3.74 | .05 | .96 | -1.07 | 1.13 |
| Writing | 11.48±2.02 | 9.99±2.74 | 4.31 | .00 | .81 | 2.17 |

Note. EC = Experimental Class; CC = Control Class. The Bonferroni correction was applied, setting the significance level at α = .01. p values below .01 are considered significant.

An independent-samples t-test was conducted to compare the performance of the experimental and control groups on overall scores and the four subskills (vocabulary, reading, translation, and writing). To control for the increased risk of Type I error due to multiple comparisons, the Bonferroni correction was applied, setting the adjusted significance level at α = .01. The results revealed significant differences between the groups on some measures after the correction. Specifically, the experimental group (M=74.76, SD=10.48) scored significantly higher on theoverall test than the control group (M=70.17, SD=12.04), t(191)=2.82, p=.005, 95% CI[1.38, 7.80]. Similarly, a significant difference was found in writing scores between the experimental (M=11.48, SD=2.02) and control groups (M=9.99, SD=2.74), t(191)=4.31, p< .001, 95% CI [0.81, 2.17]. However, the differences in vocabulary (Experimental: M=23.59, SD=6.55; Control: M =21.60, SD=7.12; t(191)=2.03, p=.044, 95% CI [0.05, 3.94]) and reading(Experimental: M=19.74, SD=5.37; Control: M=18.61, SD=5.17; t(191)=1.48, p=.141, 95% CI [-0.37, 2.62]) were not statistically significant under the adjusted alpha level of .01. Unsurprisingly, there was no significant difference in translation scores between the experimental (M=19.95, SD=4.02) and control groups (M=19.92, SD=3.74), t(191)= 0.05, p=.962, 95% CI [-1.07, 1.13]. In summary, after correcting for multiple comparisons, the SPOC-based blended teaching model demonstrated a statistically significant positive effect on students' overall English achievement and writing competence, but not on vocabulary knowledge, reading comprehension, or translation proficiency.

## 5. Discussion

After controlling for multiple comparisons, the present study found that the SPOC-based blended teaching model significantly enhanced students' overall English achievement and their writing skills. However, its effects on vocabulary knowledge, reading comprehension, and translation proficiency were not statistically significant under the adjusted threshold.

### 5.1. The SPOC-based Blended Teaching Model Exerts a Positive Impact on the Overall English Learning Achievement of ESL Students

The learning performance of learners with SPOC-based blended teaching surpasses that of traditional multimedia teaching, exhibiting a significant disparity between the two approaches. Course grades serve as quantitative indicators of learners' progress throughout the course. In order to ensure comparable levels among students in both the experimental and control groups, the pre-test was administered to all participants prior to commencing the course, revealing no notable discrepancy

in learning scores between these two groups. Subsequently, the post-test was conducted after completion of the teaching period, with independent sample t-test analysis indicating average course grades of 74.76 for the experimental group and 70.17 for the control group respectively. Significantly higher performance was observed in the experimental group compared to their counterparts ($p=.00<0.05$). These findings suggest that learners engaged in SPOC classrooms outperform those taught through traditional multimedia classrooms based on exam scores. Importantly, these results are consistent with previous research on flipped or SPOC classrooms [15,16,19,20,21,22]. Furthermore, this outcome aligns with "mastery learning" instructional theory core concept, which posits that increasing time dedicated to student learning can enable all students to master approximately 80%-90% of content [23]. By extending students' l earning time, the SPOC-based blended teaching strategy facilitate comprehensive improvement for all individuals.

## 5.2. A Focused Positive Impact on Writing Competence

The most robust finding of this study is the significant improvement in writing skills. This can be attributed to the specific affordances of the SPOC environment that directly cater to the development of output skills. Firstly, the model provides abundant high-quality input through micro-lectures and curated resources, which is essential for language acquisition [24]. More importantly, it creates a cycle that drives output and facilitates collaborative refinement. The forum discussions and peer interactions required by the SPOC platform likely encouraged students to articulate their ideas, receive feedback, and engage in iterative revisions. This process mirrors the cognitive models of writing proposed by [25], where writing is a recursive process of planning, translating, and reviewing. The SPOC model institutionalizes this process, thereby effectively enhancing students' writing proficiency, as corroborated by the findings of [26].

## 5.3. Re-evaluating the Effects on Vocabulary, Reading, and Translation: The Role of Instructional Focus and Skill Nature

Contrary to the initial hypotheses, the SPOC-based blended model did not yield statistically significant improvements in vocabulary, reading, or translation skills after adjusting for multiple comparisons (e.g., Bonferroni correction). While a positive trend was observed particularly in vocabulary learning, the effects were not as potent or consistent as those found in areas like writing proficiency. This pattern of results can be interpreted through the intertwined lenses of instructional design focus and the inherent nature of the skills themselves.

### 5.3.1. Instructional Focus as a Determining Factor

A central explanation lies in the primary design and objectives of the SPOC intervention. The micro-lectures, online tasks, and in-class activities were geared predominantly toward fostering general communicative competence and writing proficiency. Consequently, the model may not have provided the explicit, targeted practice necessary for discrete-point skill advancement in vocabulary acquisition, reading strategies, or translation techniques. For instance, while students were exposed to new vocabulary, the course likely did not incorporate essential mechanisms for long-term lexical retention, such as spaced repetition or deep processing tasks. Similarly, the intervention probably lacked dedicated exercises for honing specific reading comprehension strategies (e.g., skimming, scanning, inferencing).

The non-significant result in translation proficiency underscores this principle most distinctly. Translation is a complex cognitive skill that requires not only bilingual proficiency but also strategic competence, cultural knowledge, and extensive practice involving cross-linguistic comparison. The participants in this study were non-English majors with no formal prior training in translation, and the general English course design did not encompass the explicit translation strategy instruction and targeted practice that this specific skill demands. This finding highlights a key principle: the effectiveness of a teaching model is contingent upon a direct alignment between instructional design and intended learning objectives.

### 5.3.2. The Intrinsic Nature of Skill Acquisition

Furthermore, the development of these skills follows distinct trajectories, which the general SPOC model may not have

adequately addressed. Vocabulary and reading, though often considered input-based and receptive skills, require more than exposure for active mastery. Moving from passive recognition to reliable use demands consistent, focused output and retrieval practice, which might have been insufficient in the current design.

Translation, as a high-order productive skill, is particularly demanding. The absence of significant gains suggests that a general SPOC model, without explicit and dedicated pedagogical modules for translation, is insufficient to develop this complex skill within a single semester, especially for non-specialists.

This nuanced interpretation helps reconcile the findings of this study with other research that reported success in these areas. The discrepancy likely stems from fundamental differences in instructional focus. Those SPOC models were specifically designed for and implemented within translation or vocabulary courses, where all materials and activities were meticulously tailored to those ends. In contrast, our study implemented a SPOC within a general integrated English course, which explains the differential outcomes and emphasizes that model efficacy is deeply contextual and objective-specific.

## 6. Conclusion

This study evaluated a SPOC-based blended teaching model in college English and found it significantly improved overall language achievement and writing skills among non-English major freshmen compared to traditional instruction. However, no significant gains were observed in vocabulary, reading, or translation after multiple comparison adjustment. The results indicate that SPOC effectively enhances productive skills like writing through structured interaction and feedback, but may require more targeted instructional strategies for discrete language areas such as vocabulary and translation. Limitations include the short intervention period and homogeneous sample. Future studies should investigate longer-term effects, diverse learner groups, and skill-specific SPOC adaptations. In summary, SPOC-blended learning shows promise for improving general English proficiency and writing ability, yet success depends on aligning instructional design with specific learning objectives.

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## Disclosure statement

The author declares no conflict of interest.

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