



The Development of Blended Learning Design to Improve English Writing Competence of Higher Vocational College Students in Sichuan, China

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Abstract

Background and Aim: English is a universal language and plays a crucial role in students' future work and lives. A pilot survey of freshmen at Sichuan Vocational College of Health and Rehabilitation revealed that their English writing performance is unsatisfactory. This research aims to improve students' English writing competence by developing a blended learning design based on a web page application, offering insights for other English teachers.

Materials and Methods: This study adopted a quantitative analysis method, dividing two classes into an experimental group with blended learning and a control group with traditional teaching. Data were collected over 13 weeks through pre-and post-tests to measure improvements.

Results: The analysis showed that the blended learning design significantly improved students' English writing skills, particularly in vocabulary, organization, mechanics, and language use, with vocabulary and language use showing the most improvement.

Conclusion: It is necessary and feasible to apply a blended learning design to English writing teaching. In the future, teachers can reasonably use the Pigai web page application in English writing teaching according to the teaching environment and students' learning characteristics.

Keywords: Blended Learning Design; English Writing Competence; Page Web Page Application

Introduction

English is a universal language and plays a crucial role in students' future work and life. Competence in English writing not only enhances students' abilities on the international academic scale but also fosters critical thinking and enables them to articulate thoughts effectively in English (Banados, 2002). English writing is a required course in vocational colleges in China; however, many students struggle with this skill. Studies have consistently found that undergraduate students, particularly in non-English-speaking countries, face significant challenges in developing effective writing skills. These challenges often include inadequate content development, insufficient vocabulary, poor organization, and frequent grammatical errors.

A pilot survey of the writing scores of freshmen in the English entrance examination at Sichuan Vocational College of Health and Rehabilitation revealed similar issues. Students' writing performances were unsatisfactory, displaying the following problems: lack of substantive content, insufficient relevance to the topic, limited vocabulary, improper organization, language use errors, and weak grammatical structure. Additionally, many students demonstrated a lack of essential writing techniques, a problem reflected in other research on English writing competence in Chinese universities.

As an English teacher in a vocational college, the researcher is responsible for addressing these challenges and improving students' writing competence to enhance their competitiveness and ensure sustainable development in the workplace. Given the increasing integration of information technology in education, innovative approaches are needed to address these persistent problems. The researcher encountered an English writing platform called the Pigai webpage at an academic conference, which has shown great potential in improving English writing competence. This platform combines automated evaluation with teacher guidance, offering a powerful solution to the limitations of traditional writing instruction.





Therefore, the researcher decided to leverage this tool to develop a blended learning design aimed at improving the English writing ability of students in vocational colleges. This study also seeks to provide a reference for other English writing teachers who face similar challenges in their classrooms.

Objectives

1. To improve the English writing competence of higher vocational college students in Sichuan, China by the application of blended learning design.
2. To investigate the aspects from which the Pigai web page application has significantly improved students' English writing competence.

Literature review

1. Theoretical Basis

1.1 Constructive Learning Theory

This theory is about knowledge and learning. Zhang (2020) Believed that knowledge is temporary and can be developed. Knowledge is acquired from learners and is influenced by social and cultural factors. Human knowledge will develop based on the experience gained. Blended learning design is based on constructivism theory, which gives full play to the advantages of online and offline, organically combines them, and forms the effect of '1 + 1 greater than 2. Therefore, based on the constructivist learning theory, it is feasible to use the online and offline mixed writing teaching modes for teaching design.

1.2 Master learning theory

Master learning theory was put forward by Bloom, a famous contemporary American educational psychologist, in the late 1960s. Its formation draws lessons from the research results of many psychologists and educators such as Carol, Bruner, and Morrison, especially Carol's "school learning model". Mastering learning emphasizes effective individualized teaching practice. Emphasize the importance of formative assessment, give timely and frequent feedback on students' learning, and provide individual corrective help to ensure that each student gets the help they need (Zhang,2023).

1.3 Humanistic Learning Theory

Johnson (2013) emphasizes that Humanistic Learning Theory focuses on human development and personal growth, rather than solely on academic achievement. Johnson argues that the primary goal of education should be to foster the holistic development of students, including emotional, psychological, creative, and social growth, not just intellectual progress. Founders of humanistic learning theory, Carl Rogers and Abraham Maslow, proposed that human beings are inherently good and have a natural inclination to learn and grow. Johnson also clarifies two common misconceptions: Humanistic Learning Theory is distinct from secular humanism, and it does not detract from academic learning. Instead, it enhances learning by addressing students' personal growth and emotional needs, thereby deepening their overall learning experience.

To sum up, the three theoretical ideas above are based on learners and aim at the improvement and development of learners, which can provide strong theoretical support for this study.

2. Studies on Pigai Webpage Application in English Writing Teaching

"Quku Pigai webpage application" (<http://www.Pigai webpage application>) was launched in 2011, as a new teaching service system that is used by many colleges and universities in China to assist English writing teaching, and it was developed by Beijing Ciwang Technology Co., LTD. The origin of the Pigai web page application can be traced back to the Automated Writing Evaluation system (abbreviated as AWE). In the 1960s, the AWE system was used to correct compositions in the United States (Wang & Wang, 2021). This technology remained silent until the early 1990s and revived with the integration of microcomputers and internet development.

Yao (2021) showed that the Pigai webpage application can help students complete certain writing tasks independently. The students agree with the Pigai webpage application, but their independent writing



modification behavior is mainly driven by utilitarianism some writing auxiliary functions of the purpose, the motivation intensity, and the sustainability are not enough. Through the review of previous studies, we can find that the Pigai webpage application is of great significance to the reform of English writing teaching and plays a more and more important role in English writing. However, few researchers have explored the effects of blended learning based on the Pigai web page application in English writing teaching, which combines teacher evaluation, peer evaluation, and automatic evaluation.

Conceptual Framework

The conceptual framework of this study is shown in Figure 1.

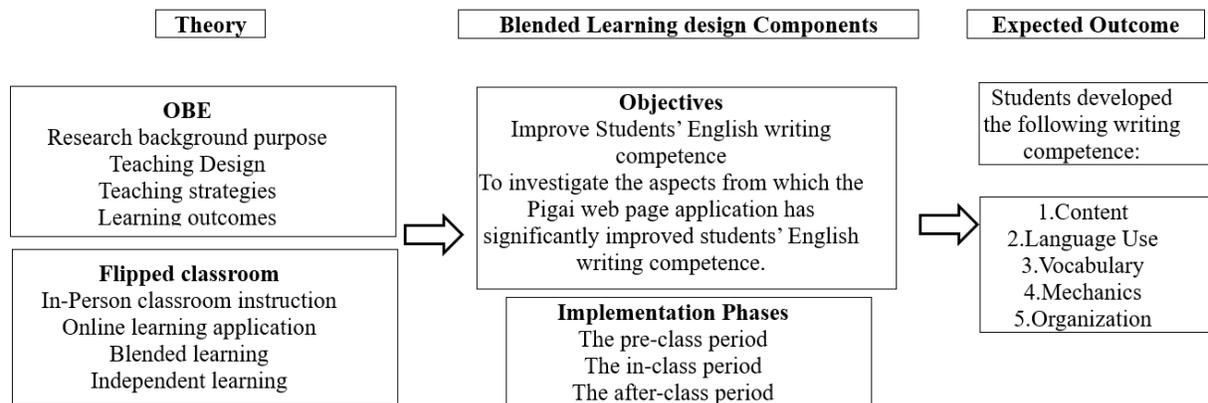


Figure 1 Conceptual Framework
Note: Constructed by the author

Methodology

Quantitative analysis method: the experiment selected two classes with the same level of English writing, namely the experimental class and the control class. The control class implements the conventional writing teaching, and the experimental class adopts the blended writing teaching mode. The experimental duration lasts 13 weeks, and then the data are recorded through the pre-test and post-test. This paper analyzes the changes in students' scores at the same levels by using online data and tests whether there are significant differences with the implementation of blended teaching mode on students' scores.

1. Population and sample

Among all the classes in the first grade of our college, 10 classes have English writing courses, and each class has 30 students, therefore, the population is 300, and the researcher used a simple random sampling method to calculate a sample size of 60 through a formula $[C(n,m) \cdot p^m \cdot (1-p)^{(n-m)}]$, which can ensure its representativeness. The 60 students were randomly divided into two equal classes: the experimental class (abbreviated as EC) and the control class (abbreviated as CC). I adopted the blended learning design based on the Pigai web page application to teach English writing in EC while using the pre-writing, while-writing, and post-writing (abbreviated as PWP,) design to teach English writing.

2. Research instruments

The researcher uses different instruments such as lesson plans and two English writing test papers, namely a pre-test paper and a post-test paper (released on the Pigai web application and generating corresponding data). The data produced by instruments is collected by the author personally throughout the whole action research. And Paigai Webpage application is used as the learners' writing tool, which could also provide the data and generate the statistical information.

3. Data collection and Analysis



Data was collected and the research was done in the authentic classroom taking 28 hours. Before and after the experiment, the researcher conducted English writing tests respectively on students by using the Pigai webpage application. The maximum score for the writing test is 100 points. Students were required to write an English article according to the writing topic within one hour, and their final score was obtained through platform scoring and teacher scoring. The data was collected separately Before and after the course.

The data of this thesis are analyzed by SPSS24.0 statistical software. Firstly, in the pre-test, an independent sample t-test was used to test whether there was a significant difference in writing competence between EC and CC in the pre-test. In addition, in the post-test, an independent sample t-test was used to test whether the EC has made more significant progress than the CC, to analyze whether the blended learning design makes contributions to the improvement of students' English writing competence.

Secondly, a paired sample t-test was used to test whether there was significant progress in the EC and the CC before and after the experiment.

Thirdly, the researcher further analyzed which aspects of students' English writing competence in the EC have been significantly improved according to the content, organization, vocabulary, language use, and mechanics of the Jacob's Composition Rating Scale. Therefore, paired sample t-tests were conducted on the pre-test and post-test scores of English writing content, organization, vocabulary, language use, and mechanics in the EC.

Results

The researcher used SPSS24.0 to analyze the pre-test, and post-test data and described the research results around the above two research objectives.

1. To improve the English-writing competence of higher vocational college students in Sichuan, China by the application of blended learning design.

As shown in Table 1, the mean of the experimental class is "-8.68", which indicates that the mean of the EC in the post-test is 8.68 points higher than the mean of the EC in the pre-test. That is to say, after the teacher used a blended learning design to assist English writing teaching in the experimental class, the student's writing proficiency has been greatly improved. The Sig. (2-tailed) is "0.000" which is lower than the criterion measure 0.05, which means that the experimental class made significant progress compared with their scores before and after the experiment. In other words, the blended learning based on the Pigai web page application makes contributions to the improvement of students' English writing proficiency.

Table 1 Paired Samples T-test for the total scores of EC

		Mean	Std. Deviation	t	Sig. (2Tailed)
Total Scores	Pre-Test				
	Post-Test	-8.68333	2.59138	-18.353	.000

2. To investigate the aspects from which the Pigai web page application has significantly improved students' English writing competence.

According to Jacob's Composition Rating Scale, students' English writing competence can be divided into five dimensions: content, organization, vocabulary, language use, and mechanics. In this part, the researcher further analyzed which aspects of students' English writing competence in the EC have been significantly improved according to the five dimensions. The pre-test and post-test scores of the English writing content, organization, vocabulary, language use, and mechanics of the students. In EC were performed with a paired samples T-test. The data and results are demonstrated as follows.





Table 2 Paired Samples T-test for the Scores of EC

	EC	N	Mean	Std Deviation	T	Sig. (2-tailed)
Content	Pre-test	30	22.5000	2.27429		
	Post-test	30	22.4833	2.52397	.081	.936
Organization	Pre-test	30	16.0333	1.54231		
	Post-test	30	16.8667	1.50249	-3.579	.001
Vocabulary	Pre-test	30	14.6000	1.42272		
	Post-test	30	18.1500	.75601	-16.730	.000
Language Use	Pre-test	30	16.6667	1.52753		
	Post-test	30	20.5833	1.26684	-20.904	.000
Mechanics	Pre-test	30	3.7833	.42918		
	Post-test	30	4.1833	.42514	-3.607	.001

According to Table 2, the researcher reached the following conclusions. Firstly, as for organization, Sig. (2-tailed) = 0.001 < 0.05, which means that there is a significant difference between the pre-test and post-test scores of the English writing organization in the experimental class. Secondly, as for vocabulary, Sig. (2-tailed) = 0.000 < 0.05, which shows that in the experimental class, there is a very significant difference between the pre-test and post-test scores of the English writing vocabulary. Thirdly, as for language use, Sig. (2-tailed) = 0.000 < 0.05, which shows that in the experimental class, there is a very significant difference between the pre-test and post-test scores of the English writing language use. Finally, as for mechanics, Sig. (2-tailed) = 0.001 < 0.05, which shows that in the experimental class, there is a significant difference between the pre-test and post-test scores of the English writing mechanics.

Through the analysis of the above data, we can get the results of the second research objective, the online writing tool (web page application) can better improve students' English writing competence from the aspects of organization, vocabulary, mechanics, and language use proficiency, among which the improvement of vocabulary and language use is more obvious.

The development of blended learning design is a development of teaching design that combines online and offline teaching. Li (2023) Online teaching usually includes video tutorials, online lectures, interactive courses, etc., while offline teaching usually refers to face-to-face classroom teaching. By blending these two teaching methods, students can gain a richer and more in-depth learning experience in different learning environments.

Swain (1985) put forward the hypothesis of "comprehensible output", and believed that the productive use of language including writing would help learners to test the structure of target syntax and the use of words, promote the automation of language use, and effectively achieve the goal of language acquisition. Through writing, English knowledge is constantly consolidated and internalized, which is conducive to the comprehensive development of English skills.

In summary, with the deepening of education reform, more and more educators have realized that teaching design has a profound impact on students' academic performance. Teaching design refers to a relatively stable teaching activity structure designed to achieve specific teaching objectives under the guidance of certain educational ideas, teaching theories, and learning theories. It covers aspects such as teaching methods, teaching organizational forms, and teaching strategies. As is well known, students are the main body of learning, and self-directed learning is the core of a student-centered teaching model. By setting clear learning objectives, providing abundant learning resources, adopting diverse teaching methods, guiding students to actively participate in the learning process, and cultivating their ability to think independently and solve problems. In this design, students are no longer passive containers of knowledge, but active explorers of knowledge. Students who adopt learner-centered teaching models (such as blended learning, flipped classrooms, etc.) often outperform those who use traditional lecture-based teaching in terms of academic performance. In addition, diversified evaluation methods have been proven to more comprehensively reflect students' abilities, thereby improving their grades.





Discussion

The findings can be discussed in the following aspects:

First of all, in terms of the first research objective, the researcher found that both the blended learning and the PWP method made contributions to English majors' English writing learning. That is to say, using these two methods to teach English writing, students' writing competence was improved. However, the increase means of the EC were much higher than that of the CC. That is to say, compared with the PWP teaching method, developing a blended learning design in English writing teaching can better improve students' English writing competence. It can be concluded that the development of blended learning design can improve the English writing competence of higher vocational college students in Sichuan, China. In terms of the second research objective, the conclusion can be concluded that the online writing tool (Pigai webpage application) can better improve students' English writing competence from the aspects of organization, vocabulary, mechanics, and language use proficiency, among which the improvement of vocabulary and language use is more obvious.

Blended instructional design can effectively improve students' writing proficiency. English writing teaching based on blended learning combines multimedia network teaching with traditional classroom teaching can help students reduce writing anxiety and improve their sense of self-efficacy and English writing proficiency. This writing teaching design also provides a new direction for promoting the reform of traditional writing teaching. The development of the blended learning design in English writing teaching is helpful to improve students' writing competence and self-efficacy. It can stimulate students' English writing motivation. At the same time, it also has a positive significance for English writing teaching reform. Blended learning design may be playing a more and more important role in second language writing, which requires teachers to make maximum use of the feedback advantage of the Pigai webpage application to help students.

Thirdly, from the perspective of constructivist learning theory, Deng & Li (2021) stated that learning is a process in which students actively analyze information and construct knowledge based on their original knowledge and experience in a specific social and cultural environment with the help of teachers and peers. Under the guidance of the teaching view of constructivism, Chen (2023) pointed out that with the improvement of modern educational technology theory and the deepening of related practical research, as well as the wide application of network technology, the teaching reform has made a great breakthrough and improvement from "teaching" to "learning". The various characteristics of multimedia technology and Internet applications are particularly suitable for the realization of an ideal constructivist learning environment. The perfect combination of the two can effectively promote students' learning autonomy. The instructional design of this thesis conforms to the teaching ideas advocated by constructivism learning theory. Under the condition of blended learning based on the Pigai webpage application, the preview materials were published before class. The sample essays and courseware can also be permanently stored on the Pigai webpage, allowing students to review and preview these materials at their own pace. Additionally, through the grading function and "Self-practice" function of the Pigai webpage application, students can practice writing anytime and anywhere and receive timely feedback. In this learning environment, students can explore freely and learn independently. Most importantly, the "Error Distribution" and "Student Performance" data in the Pigai webpage application help teachers understand the issues in students' writing, enabling teachers to provide online and face-to-face feedback on problems that the Pigai webpage cannot identify. This allows teachers to better comprehend students' learning situations and adjust teaching content and progress accordingly, providing more meaningful guidance. Students can also address their weaknesses promptly and master writing knowledge comprehensively. Furthermore, the mutual evaluation function of the Pigai webpage application increases interaction between teachers, students, and peers, further stimulating students' interest in writing. All these factors contribute to the improvement of students' English writing proficiency.

Lastly, from the perspective of humanism learning theory, humanism learning theory advocates replacing the teacher-centered model with a student-centered approach. Huang (2024) indicated that





humanism learning theory emphasizes the creation of a positive learning environment and focuses on students' self-improvement and comprehensive development. In the teaching process, teachers create a safe and relaxed learning environment through skillful guidance, encouraging students to actively participate in the learning process. Humanism learning theory reminds us that educators should adhere to the educational concept of "taking students as the center and promoting students' autonomous learning". English teaching should emphasize cultivating students' independent thinking abilities and guide them to actively explore the English language.

The instructional design of this thesis aligns with the student-centered approach of humanistic learning theory. Humanistic learning theory emphasizes individual learning, urging teachers to integrate advanced technological achievements into teaching to enrich students' learning resources, change their learning styles, and expand learning spaces. The Pigai webpage application, with its features like "Timely Feedback", "Comment by Sentence", and "Mutual Evaluation", greatly supports student learning by offering ample space for independent learning and enhancing their autonomous learning abilities. Traditional face-to-face learning is often limited by time and resources, making it difficult to achieve this level of personalized feedback.

In conclusion, the research results suggest that blended learning design significantly contributes to improving higher vocational college students' English writing skills, particularly in areas such as organization, vocabulary, mechanics, and language use, with noticeable improvements in vocabulary and language use. However, both blended learning and offline face-to-face learning are inseparable from the guiding role of teachers. Blended learning design serves as a complementary tool to assist classroom teaching, rather than replacing it entirely.

Conclusion

This research applied an experimental method to evaluate the effectiveness of blended learning design in improving the English writing competence of higher vocational college students in Sichuan, China. The findings demonstrate that the implementation of blended learning, particularly with the integration of the Pigai web page application, offers significant advantages in enhancing students' writing skills. The study revealed that blended learning promotes improvements in key areas such as vocabulary, organization, language use, and mechanics, with vocabulary and language use showing the most notable progress.

The use of technology, combined with traditional teaching methods, not only fosters better engagement but also addresses common writing challenges faced by vocational students, such as limited vocabulary and weak grammatical accuracy. By offering timely feedback and providing a platform for autonomous learning, the Pigai web page application serves as a valuable tool in supplementing conventional writing instruction.

The blended learning design proves to be a feasible and effective approach to improving English writing competence. It provides a model that can be adapted by teachers according to their specific teaching environments and the learning characteristics of their students. This research highlights the potential for integrating technology in education to meet the evolving needs of students, offering a pathway for future improvements in English writing instruction in vocational colleges.

Recommendation

According to the research results, for further study on blended learning design, researchers can explore blended teaching designs under different teaching conditions, design appropriate blended learning models based on actual conditions, and gradually improve the blended learning designs based on the Pigai web page application.

As for the further study on the Pigai web page application, the Researchers can use the method of case study to explore the application of the Pigai web page application in English writing teaching. Researchers can use Pigai to collect students' personal growth electronic files and data, such as students'





revision trajectory, revision number, growth trajectory, etc., to conduct detailed exploration and analysis of individual student's English writing proficiency.

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