

EFFECTIVENESS OF BLENDED LEARNING IN ENHANCING ACTIVITY DESIGN SKILLS OF PRESCHOOL EDUCATION STUDENT TEACHERS*

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Abstract

The research objectives were: 1) To compare the activity design skills of the control group students before and after learning through the traditional teaching method; 2) To compare the activity design skills of the experimental group students before and after learning through Blended learning; and 3) To compare the activity design skills between the students who received Blended learning and those who received traditional teaching methods. This study employed a quasi-experimental method with a pretest-posttest control group design. The sample consisted of two intact classes of second-year Preschool Education Majors at Guangxi Modern Vocational and Technical College, totaling 100 students, with 50 students in the experimental group and 50 students in the control group. The research instruments were Traditional teaching method lesson

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plan, Blended Learning lesson plan, and an Active Design Skill assessment tool. Data were collected through pre-test and post-test scores. Mean, standard deviation, paired-samples t-tests, and an independent-samples t-test were used for data analysis. The significance level was set at 0.05. The research findings were as follows: 1) The control group students' activity design skills after learning through the traditional teaching method were significantly higher than before learning at the 0.05 level; 2) The experimental group students' activity design skills after learning through Blended learning were significantly higher than before learning at the 0.05 level; and 3) The students who received Blended learning had significantly higher activity design skills than those who received traditional teaching methods at the 0.05 level.

Keywords: Blended Learning, Activity Design Skills, preschool education student teachers

Introduction

In recent years, vocational education in China has increasingly emphasized the improvement of students' professional competence through innovative instructional approaches. National policy documents have encouraged the integration of online and offline teaching to improve the quality of vocational education and strengthen students' practical abilities (General Office of the CPC Central Committee & General Office of the State Council, 2021).

In preschool teacher education, Activity Design Skills are regarded as an important professional competency. The Preschool Education Law of the People's Republic of China states that preschool teachers should be able to design and organize educational activities according to children's developmental characteristics (Standing Committee of the National People's Congress, 2024). This competency is also highlighted in the Teaching Standards for Preschool Education Majors in Higher Vocational Education (Ministry of Education of the

People's Republic of China, 2025). However, in vocational preschool education, some practical problems remain. Teaching in many professional courses is still mainly lecture-based, with limited classroom interaction and insufficient opportunities for situational practice. In the course *Design and Implementation of Kindergarten Educational Activities*, students' activity design is often assessed mainly through written lesson plans, with relatively less emphasis on implementation and reflection. As a result, some students still have difficulty applying theory to authentic teaching tasks, which is consistent with previous research showing that many students in preschool education programs struggle to align activity objectives with children's needs, select appropriate teaching strategies, and adapt activities to real classroom situations (Li, 2020).

Blended Learning has been widely recognized as an effective instructional model in higher education. This learning approach integrates face-to-face teaching with online learning experiences (Garrison & Kanuka, 2004) and also provides flexible learning pathways and promotes active engagement in the learning process (Graham, 2013) which is consistent with previous studies that Blended Learning can enhance students' motivation, participation, and ability to apply theoretical knowledge in practical contexts (Wang, 2022, p. 3123) and further supported by Constructivist theory and Experiential Learning theory. In particular, Experiential Learning theory emphasizes that skills are developed through practice, reflection, and revision (Kolb, 1984).

Although Blended Learning has been widely studied in higher education, empirical research examining its effectiveness in improving activity design skills among preschool education student teachers in vocational colleges remains limited. Existing studies have focused more on general academic achievement than on professional skill development in practice-oriented courses. Therefore, this study aims to study the effectiveness of Blended Learning in enhancing student teachers' activity design skills.

Objectives

1. To compare the activity design skills of the control group students before and after learning through the traditional teaching method.
2. To compare the activity design skills of the experimental group students before and after learning through Blended learning.
3. To compare the activity design skills between the students who received Blended learning and those who received traditional teaching methods.

Literature Review

1. Blended Learning

Blended Learning is the thoughtful integration of face-to-face learning experiences with online learning experiences and it also has transformative potential in higher education as the combination of the advantages of synchronous classroom interaction and asynchronous online communication to support higher levels of learning (Garrison & Kanuka, 2004,) as well as the combination of face-to-face instruction and computer-mediated instruction and it has been increasingly discussed in the literature and adopted across educational contexts (Garrison & Kanuka, 2004; Graham, 2013). In addition, blended learning environments not only support collaborative inquiry and reflective learning but also extends thinking and discourse over time and space, supports student reflection that foster meaningful educational experiences (Vaughan et al., 2023).

2. Activity Design Skills

In preschool teacher education, activity design is a key competence since it reflects student teachers' ability to translate pedagogical knowledge into teaching practice which is consistent with the description of Fill et al. (2008) that designing a learning activity requires teachers to specify its context, pedagogical approach, tasks, tools, resources, interactions, and participant roles. Experiential

learning theory suggests that professional skills can be strengthened through cycles of practice, reflection, and improvement (Kolb, 1984). It could be said that the development of activity design skills requires both theoretical guidance and practical experience. However, research specifically examining activity design skills among preschool education students in vocational colleges remains limited, the further investigation is needed to examine the effectiveness of blended learning in this context.

Methodology

1. Research design

This study employed a quasi-experimental method with a pretest-posttest control group design to examine the effectiveness of Blended Learning compared with the Traditional teaching method in improving students' Activity Design Skills. The independent variable was instruction approaches consisting with Traditional method and Blended learning while the dependent variable was the Activity Design Skills.

2. Population and sample

The population consisted of five classes (250 students) of second-year Preschool Education Majors at Guangxi Modern Vocational and Technical College in the first semester of 2025. Using cluster random sampling, two intact classes (100 students) were selected as the sample. One class ($n = 50$) was assigned to the experimental group and the other ($n = 50$) to the control group. Both groups completed a pre-test and a post-test.

3. Research instrument

The research instruments were Traditional teaching method lesson plan, Blended Learning lesson plan, as well as an Active Design Skill assessment tool. Both approaches consisted of the same six modules in the course Design and

Implementation of Kindergarten Educational Activities. Parallel lesson plans were developed for the two conditions so that only the instructional mode differed.

The specific teaching process in Blended learning followed the sequence: 1) Pre-class stage (online learning, preparation and guiding), 2) In-class stage (face-to-face instruction and practical application), and 3) Post-class stage (online consolidation and evaluation feedback). Both instructional management plans were examined the content validity by the experts, using the Item-Objective Congruence (IOC) index. The overall IOC values of both lesson plans equal to 1.00, indicating the high content validity.

The Active Design Skills assessment was a five-point Likert scale rubric scoring consisting of 6 dimensions: Alignment of Objectives with Learning Goals, Developmental Appropriateness, Instructional Design and Structure, Application of Activity Design Principles, Practical Feasibility, and Reflection and Improvement. The rubric was aligned with the course syllabus and learning objectives. Content validity was established through expert review using the IOC method. All items achieve IOC value 1.00, indicating a strongly consistent of content validity and effectiveness in reflecting students' skills in active designing.

4. Data Collection

Data were collected during the first semester of 2025. The intervention lasted six weeks, with one 90-minute lesson per week. The experimental group received Blended Learning whereas the control group received the Traditional teaching method. Both groups received the pretest to evaluate the Active Design Skills before starting the class and after the completion of the instructional intervention and both had posttest to assess the skills development.

To ensure intervention integrity, both groups were taught during the same period using the same course content, lesson objectives, task requirements, instructional materials, assignment formats, assessment criteria, and feedback

standards. Before data collection, permission was obtained from the college, and all participants were informed of the purpose and procedures of the study.

5. Data Analysis

Based on the data obtained from the experiment, mean and standard deviation were used to describe students' Activity Design Skills. Paired-samples t-tests were used to compare pre-test and post-test scores within each group, and an independent-samples t-test was used to compare post-test scores between groups. The significance level was set at 0.05.

Results

This section presents the results of the statistical analyses conducted to examine the effectiveness of the Traditional teaching method and Blended Learning in improving students' Activity Design Skills according to the objectives of this study.

1. The comparison results of the Activity Design skill of students before and after learning through Traditional teaching method as shown in table 1.

Table 1 Comparison of Activity Design Skills before and after learning through Traditional teaching method

Traditional teaching method	<i>n</i>	$\bar{x}$	<i>S.D.</i>	<i>D</i>	<i>t-test</i>	<i>p</i>
Pre-test	50	15.08	2.71	4.08	7.816	.0000
Post-test	50	19.88	2.26			

* $p < 0.05$

From table 1, the results show that the mean score of the pre-test was 15.08 (*S.D.* = 2.71), while the mean score of the post-test increased to 19.88 (*S.D.* = 2.26). The findings indicate that students' Activity Design Skills improved after

learning through the Traditional teaching method and the difference was statistically significant at the 0.05 level.

2. The comparison results of the Activity Design skill of the students before and after learning through Blended learning. The result was shown as in table 2.

Table 2 Comparison of Activity Design Skills before and after learning through Blended Learning

Blended learning	n	$\bar{x}$	S.D.	D	t-test	p
Pre-test	50	15.94	2.87	7.90	17.409	.0000
Post-test	50	23.84	2.36			

* $p < 0.05$

Based on table 2, the results show that the mean score increased from 15.94 (S.D. = 2.87) to 23.84 (S.D. = 2.36). The students' Activity Design Skills were significantly higher after participating in Blended Learning at the 0.05 level. This indicates that Blended Learning led to a substantial improvement in Activity Design Skills.

3. Comparison results of the Activity Design skill between Blended learning and Traditional teaching method. The result was shown as in table 3.

Table 3 Comparison of Post-test Activity Design Skills Between Groups

Group	n	$\bar{x}$	S.D.	D	95% CI	t	df	p
Traditional teaching method	50	19.88	2.26	3.96	4.876	8.579	98.000	.000
Blended learning	50	23.84	2.36		3.044			

Total	100	21.86	3.04
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* $p < 0.05$

The results in Table 3 show that the mean post-test score of the experimental group was 23.84 (S.D. = 2.36), whereas the mean post-test score of the control group was 19.88 (S.D. = 2.26). The findings indicate that students in the Blended Learning group achieved significantly higher Activity Design Skills than those in the Traditional teaching group and the difference was statistically significant at the 0.05 level. These findings suggest that Blended Learning was more effective than the Traditional teaching method in improving students' activity design skills.

Discussion

Regarding to the first objective, the traditional teaching group significantly improved their activity design skills after the intervention. This suggests that this teaching method still has value in helping students build basic knowledge of activity design since activity design skills require students to understand objectives, content organization, instructional steps, and evaluation before applying them in practice. In addition, Schwerdt and Wuppermann (2011) and Lessani et al. (2017) suggested that traditional teaching can still support learning in some contexts including activity design as Li (2020) noted that preschool education students often have difficulty in designing teaching activities.

The results of the study in relation to the second objective indicate that Blended Learning group significantly improved their activity design skills after the intervention. This insists that Blended Learning was effective in enhancing activity design skills. One possible explanation is that Blended Learning combines face-to-face teaching with online learning experiences, which supports flexible learning and active engagement (Garrison & Kanuka, 2004). This learning approach

not only provides flexible learning pathways (Graham,2013) but also improves students' motivation, participation, and practical application of knowledge (Wang, 2022) which is consistent with Kolb (1984) that skills develop through practice, reflection, and revision.

With respect to the third research objective, the Blended Learning group achieved significantly higher post-test scores than the Traditional teaching group. This means that although both methods were effective, Blended Learning was more effective in enhancing activity design skills. A possible reason is that Blended Learning combines the strengths of face-to-face instruction and computer-mediated instruction, giving students more opportunities for preparation, participation, and practice (Graham, 2006). Vaughan et al. (2023) also noted that blended learning environments support communication, collaboration, reflection, and inquiry. Therefore, Blended Learning may provide a more interactive and practice-oriented environment for developing activity design skills.

Recommendation

Based on the findings of this study, several recommendations are proposed:

First, teachers should systematically implement Blended Learning by integrating pre-class online learning, in-class practice, and post-class reflection. Providing clear learning tasks, collaborative activities, and timely feedback can help students improve their Activity Design Skills through continuous practice.

Second, vocational colleges and teacher education programs should encourage the application of Blended Learning in professional courses related to instructional design. Institutions should provide digital learning platforms, technical support, and professional training to assist teachers in implementing blended teaching effectively.

Third, future research should involve larger samples from different institutions and extend the duration of instructional interventions to examine long-term effects. Additional variables such as learning motivation, teaching confidence, and reflective ability may also be explored to better understand the impact of Blended Learning on professional skill development.

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