

Research on Teaching Practice of Blended Learning of “Child Development and Educational Psychology” Based on UMU Platform

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Abstract

In order to solve the problems that students are not interested in the theoretical study of “Child Development and Educational Psychology” and the effect cannot be monitored, so as to better achieve the teaching and learning goals of the course, we are guided by theories such as constructivism, behaviorism, and information learning theory based on the UMU platform in accordance with the requirements of the Ministry of Education of China for the construction of first-class courses. The subjects of this study are 235 students majoring in elementary education in Baise University. The teaching reform of “Child Development and Educational Psychology” is divided into two semesters. The first semester uses blending learning. According to the completion rate of students on the UMU platform, they are divided into high completion rate group, medium completion rate group and low completion rate group. Offline teaching is used in the second semester. After that, the two semester academic performances of the three groups of students were longitudinally compared to evaluate the implementation effect. The results found that the implementation of online and offline blended teaching has a greater impact on students with good and excellent grades, while it has a greater stimulating effect on some students with medium grades, and has little effect on students with poor academic performance. Conclusion: Blended teaching based on the UMU platform is conducive to promoting in-depth study of students with excellent and intermediate academic performance and obtaining better teaching results.

Keywords

Blended Learning, Child Psychology, Educational Psychology, First-Class

1. Introduction

Child Development and Educational Psychology is a compulsory course for primary education majors, which belongs to the core course of normal students. Through this course, students can acquire systematic basic theoretical knowledge and research methods of psychology. They can grasp the psychological characteristics of people, especially children's cognition and social development, exploring students' psychological laws of mastering knowledge and skills, developing ability and creativity, forming attitude and morality, stimulating motivation and interest. They have the ability to analyze and solve common problems in education and teaching from the perspective of psychology (Li, 2021).

Combined with many years' teaching experience, there are the following problems in the study of children's development and educational psychology: First, the theoretical knowledge is too boring, and students have no practical experience, so they can't combine theory with practice. Therefore, they don't know enough about the importance of theoretical courses, which leads to insufficient attention and students' low interest in learning. Second, the traditional offline teaching method is single. Teachers can't know the students' learning situation and learning effect in time, which is not conducive to the timely improvement of both teachers and students (Li, 2021; Feng, 2017).

Some scholars have carried out mixed teaching for the courses of "Psychology" (Honebein et al., 1993) and "Public Psychology" (Kaplan, 2018), and received good teaching results. However, the implementation of blended learning in the course of "Child Development and Educational Psychology" has not been reported yet. In order to solve the problems in students' study and realize the teaching goal of "Child Development and Educational Psychology", guided by constructivism, behaviorism and information learning theory, the online and offline blended learning based on UMU platform was implemented, and the golden course was created according to the requirements of the Chinese Ministry of Education for the construction of first-class courses, and the implementation effect was analyzed in order to provide some references for the teaching of theoretical courses such as Child Development and Educational Psychology.

2. Objects and Methods

2.1. Implementation Object

235 students from 5 classes of primary education major (five-year program) of Grade 2016 in Baise University, Baise City, Guangxi Province, China were selected as research objects. "Child Development and Educational Psychology" is divided into two semesters. In the first semester, mixed teaching is used. Ac-

According to the completion rate of students on UMU platform, it is divided into three groups: The percentage of completing UMU courses (which can be seen by scanning the QR code in **Figure 1**) is more than 80% for the high completion rate group, 60.00% - 79.99% for the middle completion rate group, and 59.99% or less for the low completion rate group. In the second semester, offline teaching was adopted, and the results of three groups of students in two semesters were compared vertically.

2.2. Design and Implementation of Teaching Process

Before class: publish and notify the course information, online examination, online discussion, assignment arrangement, student management and learning statistics on UMU platform. Let students freely form groups of 4 - 5 people. Vote for the team leader.

Constructivist learning theory holds that students have rich preparatory knowledge before entering learning, and emphasizes that students are active and active knowledge constructors. Teachers should start from students' original experience, promote students' reflection by providing appropriate help, and cause students' cognitive conflicts, so that students can actively construct a new cognitive structure based on their original experience (Honebein et al., 1993). Therefore, before class, students must be arranged to study independently online and offline according to their learning tasks and personal learning needs: watching videos, practicing online, consulting documents offline, and asking questions.

Lesson: According to behaviorism, immediate feedback and reinforcement can improve students' learning motivation, and program teaching can realize individualized teaching (Zhang, 2020). Therefore, students are allowed to enter the classroom with their experiences and problems, and teachers can analyze



Figure 1. Two-dimensional code of UMU course of Child Development and Educational Psychology.

difficult points, practice again in class and discuss and share according to the test results of students' online practice (Table 1) to help students internalize their knowledge. Cultivate students' abilities of problem finding, language expression, teamwork and interpersonal communication; teachers and group leaders organize students to interact, participate in activities and evaluate feedback (Yin & Zhang, 2019).

After class: After class, students can log in to the platform for chapter tests, submit concept map assignments, review key contents of chapters, and discuss with peers or teachers online (Figure 2).

Table 1. Examples of challenges set in teaching.

Serial number	Challenge degree problem
1	From what aspects do you analyze students' psychology in your future education work?
2	Why do normal students have to study psychology?
3	Is it necessary to have someone's mind if there is a human brain?
4	<p>PBL case discussion: naughty little plum? Xiao Lizi is a male student in the third grade of primary school. She is intelligent and has great potential for language expression. However, self-control is poor, the attention in class is not concentrated, either talking indiscriminately or doing small movements, and the students are unable to concentrate on listening, which often seriously interferes with the class order and shows a tendency of hyperactivity in behavior:</p> <p>1) Excessive activities; a) often wriggle in the seat, little affectations. b) Run about and climb in some places that shouldn't be moved. c) It is difficult to play quietly. d) Often talk a lot and talk endlessly.</p> <p>2) Inattention: a) Lack of attention to details and carelessness in studying and doing things. b) It is difficult to concentrate when doing things. c) often can't do things completely according to requirements. d) They often lose some commonly used things. e) Often easily distracted by irrelevant stimuli. f) They often forget things.</p> <p>3) Slow response: a) Exams are often not completed within the specified time. b) It takes two or three times as long as others to write a word. c) It takes three or four seconds for the teacher to call the roll in class.</p> <p>1) Please put forward at least 5 questions to be explored according to the case.</p> <p>2) Please select one of the questions to search for literature and answer.</p>
5	Can anyone be a teacher?
6	How to treat students correctly?

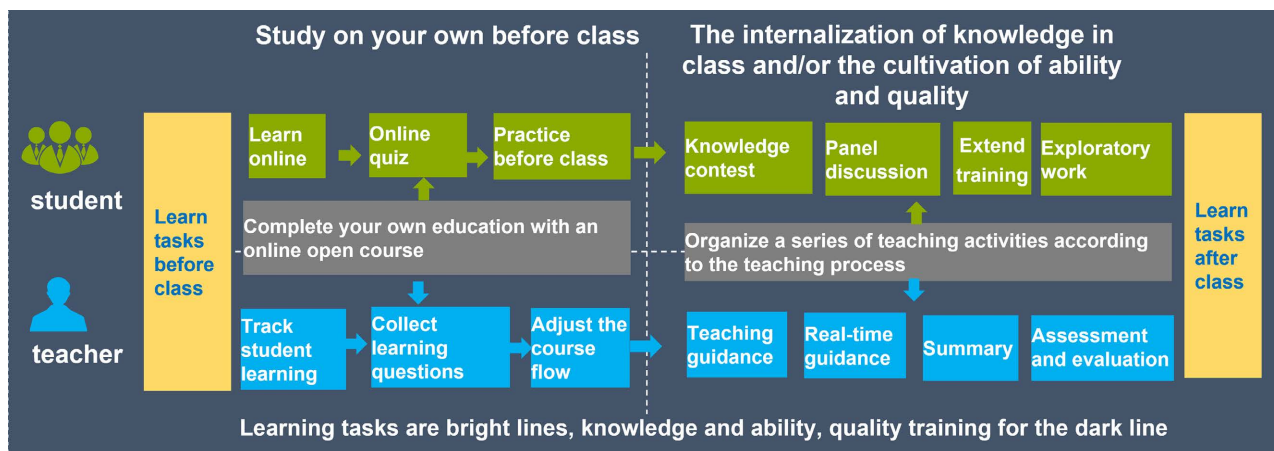


Figure 2. Overall process of mixed teaching.

2.3. Design and Implementation of Multiple Evaluation

According to the curriculum characteristics and teaching objectives of “Child Development and Educational Psychology”, the study mainly uses teacher evaluation, UMU platform learning behavior statistics, self-evaluation, peer evaluation, homework comments, questionnaire survey and other methods to comprehensively evaluate students (Yin & Zhang, 2019).

Using the learning behavior recording function of the platform, students are evaluated in the process. The evaluation indexes include: the frequency of visiting the platform, the complete degree of exercises, the completion rate of learning tasks, online mutual evaluation, reading materials and so on. These are automatically converted into online learning points by the platform.

2.4. Evaluation of Academic Performance

Evaluate the learning effect from three aspects: online learning score, homework score and classroom performance. The final score is composed of 10% online learning points, 15% challenging assignments and concept map assignments, 5% classroom performance and 70% final exams.

3. Results

3.1. Online Learning Behavior Analysis

UMU platform records students' online behaviors, including chapter practice completion degree and scores, platform visit frequency, task completion, online discussion, etc. The online course started on September 5, 2018, and the online teaching data were statistically analyzed on October 6, 2021. The course consisted of 24 classes and 26 interactions, with 17,114 document browsing, 3763 examinations submitted, 2714 assignments submitted and 1150 discussions submitted.

3.2. Analysis of Operation Conditions

Through UMU platform, there are 10 online instant feedback assignments, 10 mind map assignments (through mind map training, the purpose is to improve students' ability of summarizing and analyzing, and promote knowledge systematization and structurization), and 5 online discussion assignments, among which 2 online discussion assignments are analyzed to evaluate students' homework quality and reflect certain learning effect.

Using the AI cloud word map function system of UMU, this paper makes text analysis and word frequency statistics on the online homework of 235 students, and makes a high-frequency word map in students' homework, as shown in **Figure 3**, **Figure 4**.

According to the situation analysis of answers (**Figure 3**, **Figure 4**), it can be seen that students can basically understand the contents of psychological phenomena, and can also answer questions around psychological process and personality psychology. However, there are also two questions: First, the answer is

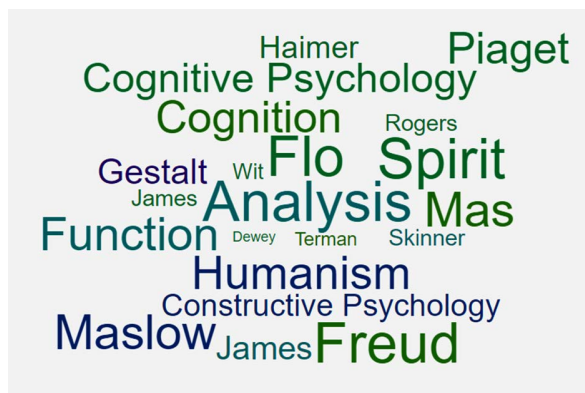


Figure 3. Classroom assignment lists at least five high-frequency word cloud pictures of schools of psychology and main representatives.

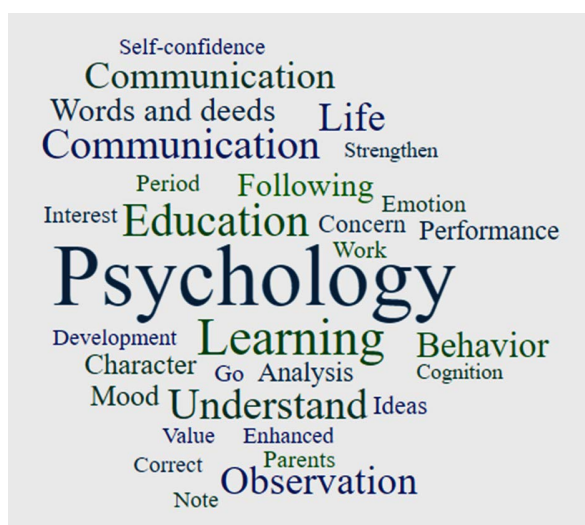


Figure 4. Classroom assignment “What aspects do you analyze students’ psychology in your future education work?” High-frequency word cloud picture.

not comprehensive, and many students are concerned about personality tendencies such as interests and emotions; Second, the understanding of the topic is inaccurate. For example, many students answered the method of analyzing students’ psychology.

3.3. Blended Learning and Traditional Offline Teaching Performance Comparison

The frequency distribution of scores in the two semesters before and after five classes shows that the number of people who have achieved good grades in the first semester after implementing online and offline mixed teaching is higher than that in the second semester without implementing mixed teaching (**Figure 5**). Moreover, the results of the first semester evaluation of the online courses with high completion rate with mixed teaching are higher than those of the second semester without mixed teaching. It shows that the implementation of blended teaching is more conducive to students’ mastery of knowledge, and has

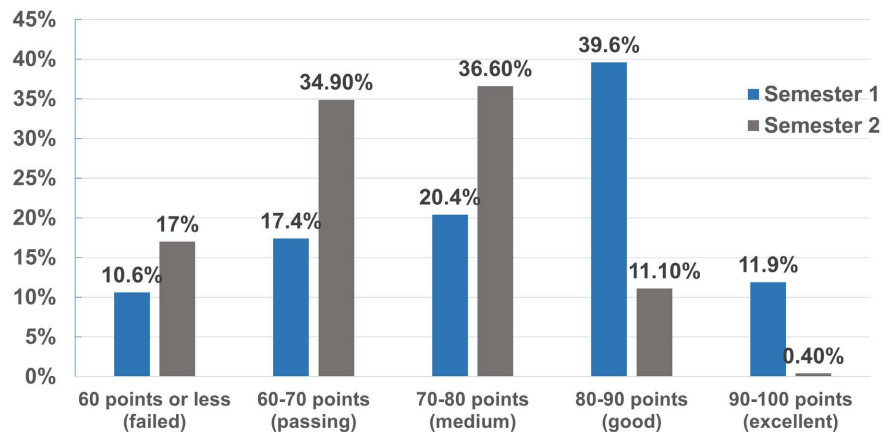


Figure 5. Percentage distribution of 5 class assessment score segments in two semesters.

a great influence on students with good and excellent grades, while it has a great promotion effect on some students with medium grades. It has little influence on students with poor academic performance (Table 2).

4. Discussion.

4.1. Blended Learning Improves Students' Interest in Learning and Their Awareness of Active Learning

In this study, online group mutual evaluation is used to give more opportunities for communication and cooperation between groups and people, and to improve students' communication and expression ability. Students know themselves more comprehensively and objectively through self-evaluation, develop the habit of self-monitoring, evaluation and reflection, and enhance their self-awareness and self-confidence in learning (Xiong, 2014). This study found that the results of the first semester evaluation of the online courses with high completion rate with mixed teaching are also higher than those of the second semester without mixed teaching. Moreover, many deep teachers-student interactions can be carried out in the case of a large number of classes, which can improve students' interest in learning and dialectical thinking ability, and enhance students' awareness of active learning.

4.2. Blended Learning Promotes the Timely Improvement of Both Teachers and Students

Simple online learning requires students to have strong self-control and will-power, so the success rate of students' learning is not high and the learning effect is not ideal. However, offline classroom teaching can provide a good learning environment and atmosphere and urge students to enter the learning state (Zhou & Chen, 2016). Blended teaching closely integrates online learning with offline teaching, with the help of the good learning environment in the classroom and the efficient interactive function of UMU learning platform, the advantages of both are brought into full play, and the online timeliness and offline atmosphere promote students' learning. Through analysis, it is found that the design and

Table 2. The overall completion rate of students' online courses and the results of periodic evaluation ($\bar{x} \pm s$).

Group	n	Overall completion rate (%)	Grade of the first semester evaluation (points).	Grade of the second semester evaluation (points).
High completion rate group	175	96.00 ± 4.01	79.38 ± 10.10	68.54 ± 12.05
Medium completion rate group.	41	77.07 ± 4.20*	68.00 ± 15.88*	64.41 ± 13.39
Low completion rate group	19	54.21 ± 10.09*	66.16 ± 14.76*	66.11 ± 9.14
Total	235	89.32 ± 13.51	76.33 ± 12.78	67.63 ± 12.15

* $P < 0.01$ vs high completion rate group.

implementation of multiple evaluation indicators in blended learning can improve the depth of students' classroom participation, and the evaluation information can provide timely feedback for teachers and students, and let teachers and students make progress together (Zhong & Feng, 2019).

The results of this study also show that blended teaching has a greater impact on students with good and excellent grades, and it also has a greater role in promoting some students with moderate grades, but has little impact on students with poor academic performance. Through data analysis, it is found that the overall completion rate of students with poor academic performance on UMU platform is very low. Thereby, teachers have a more accurate and clear understanding of each student's learning situation at each stage, which lays a foundation for targeted teaching activities and personalized teaching.

4.3. Blended Learning Contributes to the Continuous Construction of the Curriculum

The main body of traditional curriculum construction is teachers, and the updating speed of teaching content is slow and the sustainability is not strong. However, the main body of online and offline hybrid curriculum construction is diversified, teachers and students are the main body of curriculum construction, and the curriculum content can be updated and supplemented in real time. In addition, the sustainability of curriculum development of blended learning is stronger than that of traditional offline curriculum.

5. Summary

This course implements mixed teaching based on UMU platform, accelerates the flow of knowledge, and enables each student to integrate, share and gain. On-line and off-line, through pre-class, in-class, after-class, through multi-form interaction between teachers and students, online video, live broadcast, mobile examination and other functions, arrange challenge questions, carry out multi-evaluation and analyze learning behavior. It improves students' learning interest and active learning awareness, helps teachers to understand and analyze students' learning situation in time, and promotes the timely improvement of both teachers and students.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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