

Research on Strategies to Improve the Effect of Blended Teaching

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Abstract—As the traditional teaching mode is limited by time and space, and the simple online teaching mode has shortcomings such as poor emotional communication, hybrid teaching has become the current teaching mode recommended by teachers. From firing enthusiasm, active learning, collaborative learning, diversity evaluation of four dimensions, in the teaching content, teaching form and teaching organization improve hybrid teaching effect strategy research, and through the actual curriculum teaching effect to verify the proposed strategy is effective, hope to play a promote to the promotion of the effect of peer teaching and reference.

Keywords—Blended teaching; Learning effect; Active learning; Collaborative learning; Diversity evaluation.

I. INTRODUCTION

"Internet + education" has created basic conditions for promoting the development of blended teaching model and promoted the innovation and development of education and teaching reform. At present, there are abundant online resources based on the Internet platform. Online resources break through the limitations of time and space of traditional curriculum teaching, and learners can more freely use the fragmented time for online learning. However, there are some problems in simple online learning such as weak "presence", poor emotional communication and inadequate monitoring [1]. Therefore, blended online and offline teaching mode has become a hot topic and commonly used teaching method. Under the influence of the "Internet+" environment, the concept of blended teaching has developed from the original "combination of face-to-face teaching and online teaching" to "student-centered teaching situation integrating mobile communication devices, online learning environment and classroom discussion"[2]. Under the new education environment and education concept, aiming at the problems in the teaching of the current hybrid, from the teaching design, teaching means, diversified evaluation on how to arouse the enthusiasm of students' active learning, better play to the students' creative thinking, improve the hybrid teaching effect has carried on the deep discussion, aims to cultivate students' active learning, collaborative learning ability and to improve the teaching effect.

II. THE RESEARCH STATUS AND EXISTING PROBLEMS.

A. The Research Status

We took "blended teaching" and "effect" as the theme words in the online search, found that the recent five years of blended teaching reform research trend is obvious, how to improve the

effect of blended teaching has become a hot research in education and teaching theory.

At present, the focus of blended teaching reform is mainly focused on three aspects: Focus on the influencing factors and strategies of blended teaching effectiveness; focus on the design of blended teaching model; focus on the evaluation system of blended teaching effectiveness. Feng et al. [3] divided blended teaching reform into three stages: intention period, exploration period and deepening period. Through questionnaire survey, it was concluded that the readiness of blended teaching attitude and special ability of primary and secondary school teachers were in the intention period, while the readiness of general ability was in the transition stage from reform intention period to exploration period. Due to the complexity of teaching itself and the difference of teaching objects, there is a great space for exploring the strategies to improve the effectiveness of blended teaching.

B. The Problems Existing in Blended Teaching

(1)The teaching network environment platform is not perfect, and there are commercial barriers among the teaching platforms

The stability and speed of campus network are the guarantee for the smooth progress of online teaching. In the implementation process of online teaching, there are often phenomena such as delay and link cannot be opened, which seriously affect the normal progress of teaching. This is also the reason why many teachers are reluctant to use online teaching platforms in offline classes. Unstable network signals and slow speed directly limit the use of platforms, resulting in disconnect between online and offline teaching.

There are many online teaching network platforms, different platforms have their own advantages, but there are commercial barriers to data integration and information sharing, and the advantages of big data integration are not fully used.

(2)Lack of diversified teaching means, teachers and students informatization ability imbalance

The forms of online teaching are limited to courseware, video and homework. Although these play a certain role in promoting students to preview in advance and consolidate after class, it is far from enough for online teaching in blended teaching only to rely on these, and it lacks much in mobilizing students' enthusiasm and innovation. Online teaching should also include a series of forms such as candidates, questions, group discussions, thematic discussions and questionnaires.

At the same time, the weak awareness of blended teaching and the weak informatization ability of teachers and students

also restrict the use of diversified teaching methods. Many teachers and students have not really converted to blended teaching from the idea, lack of learning the corresponding information skills of the driving force, leading to the single use of modern teaching tools.

(3) Pay attention to knowledge imparting, neglect ability development

The role of teachers is not only to impart knowledge, more importantly, as a guide, to cultivate students' ability of active learning and collaborative learning. But in the actual teaching, many teachers just impart the established knowledge to the students, pay attention to the knowledge imparts, ignore the students' learning initiative, unity and cooperation ability cultivation. This will lead to a lack of learning drive and team spirit.

(4) The course evaluation method is simple

Current hybrid score evaluation approach is mostly teacher assessment. Assessments are mostly usual homework, mid-term exam and final exam, not reflected in the performance of the students in the process of learning, such as the quality of the students' enthusiasm to participate in discussions, project design, ability of team organization and language expression ability and so on. This, to some extent, also weakens the enthusiasm of students to participate in learning.

III. THE STRATEGY OF BLENDED TEACHING IMPROVEMENT

To effectively improve the effect of blended teaching, the stability of network environment, rich teaching resources, diverse teaching design, reasonable teaching organization, superb information ability, reasonable and fair teaching evaluation and other aspects are closely combined, interlinked, none of them is indispensable.

A. Improve Network Facilities and Break Platform Barriers

The support of the external network environment is the guarantee of the smooth teaching. If there is no high-speed and stable network environment guarantee, no matter how perfectly designed online teaching activities can be carried out normally. This requires schools to improve the performance of network equipment and communication equipment. At the same time, we actively carry out refresher training for network maintenance personnel, improve the ability of network maintenance personnel to diagnose network faults and quickly repair the network, ensure the stability and smooth network, and provide basic logistics support for network teaching.

Break through the commercial barriers between the teaching network platforms, realize data sharing, and facilitate the free transfer and use of teaching resources. At present, each network platform has its own advantages. Some platforms have outstanding performance in practice teaching, while others have obvious advantages in classroom teaching activities. To make use of the advantages of each platform to realize the integration and sharing of resource data, on the one hand, it is necessary to strengthen the communication between platforms. On the other hand, we need to break through the technical limitations and realize the platform data sharing.

B. To improve the informatization ability of teachers and students

Teachers and students have the ability to operate various online teaching activities proficiently, which is the basis to ensure the diversification of teaching forms and the smooth development of teaching activities.

Improve teachers' information using ability includes three aspects: the first thing to change teachers' ideas, realize the importance and necessity of information technology, can organize software platform of professional personnel training of teachers, through the demonstration function of comprehensive, convenience, let teachers' subjective consciousness is willing to accept online teaching organization. Secondly, excellent professional teachers and technical personnel are invited to train teachers on the top-level design of teaching, which include course construction, teaching design, micro video production and other specific teaching links, to improve teachers' ability to design high-quality blended teaching activities. Thirdly, strengthen the training of technical ability of online teaching activities. Every year, the educational administration department of the school will organize "Chaoxing" professionals to train teachers on the use of the software platform. At the same time, a special QQ answering group for undergraduate intelligent teaching has been established, in which the "Chaoxing" professionals can answer the teachers' questions in the online teaching process in real time. At present, the number of teachers conducting various teaching activities through the "Chaoxing" platform is gradually increasing, which ensures the normal development and diversification of teaching activities.

At the same time, students' information ability is also an important aspect that restricts the smooth development of teaching, and it is also an aspect that is often neglected at present. The improvement of students' informatization ability mainly includes two aspects: one is the transformation of students' perception to blended teaching. It plays an important role in promoting the smooth implementation of teaching. Many students are not prepared to hybrid teaching thoughts, too dependent on the teacher's lectures, not actively cooperate with complete the online task assigned by the teacher and preparation before class, influence subsequent answering questions and group discussion teaching, the teaching of the hybrid. It is necessary for relevant departments, colleges, counselors, teachers and other parties to guide students' concepts. Second, improve the students' information operation ability. Students' skilled platform operation skills are the basis for effective information transfer between teachers and students. This can be done through centralized training and immediate classroom instruction by teachers.

C. Design and Reorganize Instruction with Student-centered

Blended teaching is not a simple superposition of online and offline, but a cross-integration of online and offline links and complementary advantages. Making full use of mobile devices and network platform resources, taking students as the center, and elaborately designing and organizing teaching content and activities are the key to guarantee teaching quality.

(1) *Carefully design online and offline teaching content to strengthen teacher-student interaction*

Teachers need to pay more time and energy to design themes and content suitable for students to explore in depth. Content integration, is not a simple addition and subtraction, needs to be fully familiar with the students grasp the situation of online resources, the existing system and the theoretical basis of knowledge, and can be well versed in existing and new knowledge, make it become the knowledge system, the teaching can reflect step by step, more in line with the teaching rule, will be more can promote students' deep thinking and exploration. The esoteric problems that are separated from the existing foundation of students will make students lose their confidence in learning, while the superficial problems that are only based on the surface of books will make students lose their passion for in-depth exploration.

Design online learning videos and other content, assign related tasks, students can use the theoretical knowledge to think about and solve related tasks after learning. In view of the problems in students' learning, they can communicate and interact with teachers through a variety of channels. Offline, they are more inclined to answer questions and discuss in groups, systematically summarize or compare and analyze what they have learned, and discuss the practical application of theories and solutions to problems.

The interaction between teachers and students runs through the whole teaching process, including the teaching process before class, during class and after class. The interaction before class is mainly reflected in the interaction when learning videos in advance and meeting difficult problems in the process of clearing levels. Students can communicate through online interaction platforms or other social platforms such as wechat and QQ. The interaction in the class is more flexible and rich. Face-to-face communication is realized through questions, demonstrations, discussions and quick answers. The interaction after class is mainly reflected in the communication and interaction when students are confused when they finish the homework, and the instant interaction when teachers find problems when they review the homework. Teachers can guide students to consolidate after class by prompting or recommending relevant resources. The schematic diagram of teacher-student interaction before class, during class and after class is shown in Figure 1.

(2) *Carefully organize teaching activities to improve student participation*

Only when students participate in the whole teaching activities and build their own knowledge system can the learning effect be better. Studies have shown that active participation in posting and replying has a positive effect on learning performance [4]. Therefore, it is an important link to improve the quality of teaching to create rich teaching activities, stimulate students' creative thinking and guide students to think positively. By setting more classroom teaching activities in which students directly participate, students can be integrated into them. For example, with the help of information technology, set up answer first questions online classes, theme discussions, post replies, on-site group discussion, role play, on-site competition answers, etc., and arrange extracurricular

subjective essay questions to fully mobilize students' participation in learning. The integration of online and offline, in and out of class, theory and application, and multi-dimensional mobilization of students' enthusiasm to participate in teaching will significantly improve the teaching effect.

IV. ABILITY CULTIVATION IS NURTURED IN TEACHING ACTIVITIES

Knowledge imparting is the foundation and ability training is the goal. Therefore, teachers should cultivate students' active learning and teamwork ability in the organization of teaching activities to improve students' comprehensive quality.

A. *Diversify teaching methods and cultivate active learning ability*

For active learning, students engage in higher-order thinking tasks such as analysis, synthesis, and evaluation. Therefore, the knowledge retention rate of active learning is obviously better than that of passive learning. In the process of teaching, we should give full play to students' main position and teachers' leading role, and cultivate students' ability of active learning. To find out problems from students' online learning, to systematize and condense knowledge, and to explore ways to solve practical problems. In class, we take advantage of face-to-face communication and set up diversified teaching methods, such as theme discussion and problem-driven, to guide students to think actively and expand the depth of knowledge. After class, we can arrange in-depth and practical thinking questions. At the beginning, we can provide more literature reading, gradually train students to actively consult literature materials, investigate and practice, and improve the comprehensive quality of solving problems.

A variety of teaching methods, such as problem-driven, theme discussion and achievement presentation, are integrated to improve students' active learning ability. It is emphasized that problem-driven is an effective way to improve students' active learning ability. First of all, teachers combine students' learning ability and knowledge background to design questions that fit students' current learning situation. With the problem to be solved, students have a clear goal and direction to study. Students actively watch relevant videos with problems, look up materials with a target, think about experiments, and improve their active learning ability in the process of finding solutions to problems. This will further encourage students to consciously carry out deep learning and advance to a higher level. The problem should have the characteristics of design, application and inspiration, because such a problem can arouse students' enthusiasm for learning, exercise students' divergent thinking, thinking innovation ability.

Then summarize the solutions, and share personal ideas and methods through results display. This process is not only an opportunity to learn from each other, but also an active way to learn, which fully reflects the dominant position of students.

B. Add teams to participate in projects and cultivate teamwork ability

In the rapid development of society today, the spirit of cooperation is the basis for an enterprise and a team to have competitive strength. Therefore, the task of education is not only to promote the improvement of students' individual level, but also to cultivate students' spirit and ability of unity and cooperation. Cooperative learning is an important form to cultivate students' team spirit. Cultivate students' teamwork spirit by setting up group work tasks, such as group projects, role play, etc. Group projects can be used not only in offline classes, but also in extracurricular assignments, and even in course assessments. Each individual can share the information or learning materials that he or she explores and discovers during the learning process with other members of the group, or even with other groups or the whole class. Dynamic grouping is the best method for grouping, which can avoid the problems of "free-riding" and cooperative tiredness caused by static

achieve mutual learning and mutual help and win-win results. In the process of completing the task of teamwork, students need to carry out module integration, viewpoint analysis, organization and coordination, optimize the solution in the analysis and coordination, cultivate students' unity, mutual help and cooperation ability, and form an atmosphere of mutual help and learning.

V. DIVERSIFICATION AND PROCESS OF COURSE EVALUATION METHODS

Reasonable evaluation can achieve diagnosis, stimulation, regulation and improvement. In the process of evaluation, students can have a clearer understanding of the differences between acquired knowledge and skills, find the advantages and disadvantages of solutions, and better analyze the application conditions, application scenarios of knowledge and the changes and transfers of skills. Evaluation should not only be diversified, but also process.

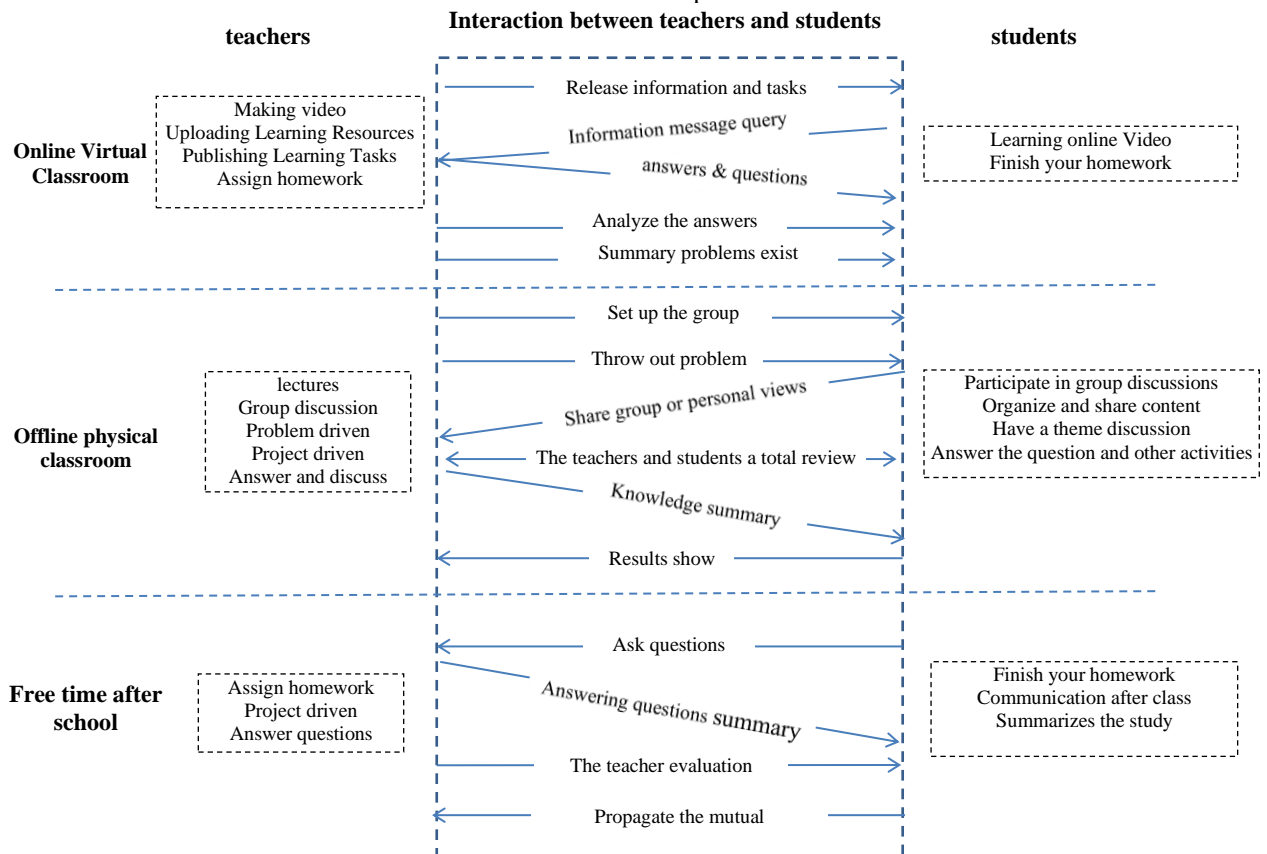


Figure 1. Schematic diagram of teacher-student interaction

grouping [5]. At the same time, attention should be paid to the ability collocation of the members in the group. Teachers should timely understand and supervise the activities of the members in the group to achieve good learning effects.

Role playing gives each member an identity and a certain responsibility. Each member can communicate the confusion in role playing with his or her peers, brainstorm and share the inspiration and experience in role playing with others for reference and learning. Role play reflects the coordination and harmony among members. We strive for a common goal to

A. Diversity of evaluation

Evaluation diversification is manifested in the diversity of evaluation time and evaluation methods. The diversity of evaluation time is not only limited to the mid-term and final, but also runs through multiple learning activities such as discussion, quick answer, group homework and daily practice, forming an evaluation form oriented by ability output. The evaluation methods can be teacher evaluation, mutual evaluation between students, and joint evaluation between

teachers and students. The actual teaching effect proves that the use of student mutual evaluation in the classroom is effective. In addition, online programming homework is more suitable for students to evaluate each other. Students can think about other students' algorithms and compare them with their own algorithms when checking programs. Through comparative analysis, they can broaden their own ideas. It also improves students' participation in teaching and plays the main role of students. Of course, this kind of homework on the basis of mutual evaluation of students, teachers should finally check, in order to prevent the students' score and the actual deviation, affect the fairness of the score.

B. *Emphasize the process of evaluation*

Learning evaluation should reflect the evaluation of learning process, not only the evaluation of learning results. The participation in daily activities, the logic of answering questions, the fluency of oral expression, the richness of summing up, the enthusiasm of completing homework, the activity of group interaction, and the correctness of homework completion can be used as observation points for evaluation. The evaluation runs through the whole teaching process, which will help students to master more solid knowledge.

VI. TEACHING IMPLEMENTATION OF BLENDED TEACHING COURSES

In the actual teaching process of "Python Language" course, we make full use of the "Chaoxing" learning platform to upload videos, assign homework, and set up various activities through the learning channel, including rush to answer, theme discussion, selection of answers, and set up group activities. At the same time, offline classes cooperate with online resources. There are not only zero-distance listening to students' voices, but also diversified online teacher-student interaction. Set up design projects completed by groups to cultivate students' collaboration ability. In addition, through learning the layout of design programming questions, set the requirements of the questions, the output format, and set the evaluation mode as student mutual evaluation. From the teaching effect, it is satisfactory. Students can actively check data, will learn the knowledge of the flexible application in a variety of game, such as in the "Internet +" contest of college students' innovative, students learned the word cloud knowledge show project

research results, in college students' scientific research projects, with learned knowledge of visualization experimental results of the project of visual display. The teaching practice proves that the blended teaching strategy is effective in improving students' learning interest, arousing students' learning enthusiasm and cultivating students' comprehensive quality and ability.

VII. CONCLUSION

Blended online and offline teaching can ensure the diversity of learning structure [6]. The teaching effect can be well improved by improving the students' participation, mobilizing the initiative of learning, cultivating the cooperation ability and diversifying evaluation. But the design of teaching content, the form of class organization, the arrangement of the teaching mode, the application of the online resources are an organic whole, how to make this a few part one integrated mass, fully mobilize the enthusiasm of students, arouse the enthusiasm of the students to explore in greater depth, improve teaching effect and cultivate students' innovative thinking, migration ability, problem solving ability, is a question worth exploring.

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