Research on the Application of Online and Offline Hybrid Teaching Mode of Computer Courses in Adult Continuing Education

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Abstract

Because of COVID - 19 cases, students can't be normal offline class model, to promote the further development of the combination of online teaching mode, the teaching model of online hybrid research is significant, but how to better use hybrid teaching mode in computer curriculum of adult education is a problem worth deep discussing. In this paper, adult education computer courses as the research object, from the status quo of mixed teaching mode, the characteristics of online and offline teaching, as well as the practice of mixed teaching mode and the effect of comprehensive analysis, in order to achieve a good adult education students and teachers education learning effect.

Keywords

Mixed education; Online and offline; Adult education.

1. Introduction

Adult education is not limited to age and gender, and is mainly carried out by various adult schools. Through the education process, make the society's members to be willing to accept the system of education growth ability, rich knowledge, improve the technology and the professional qualification, or to make them turn to a new direction, in the person's overall development and participation in social economy, balanced and independent development two aspects of culture, change their attitude and behavior. Blended teaching is the combination of online education and traditional education, forming an "online" + "offline" teaching mode. The organic combination of the two teaching organizations enables students to learn from the shallow to the deep.

 The work has been unprecedentedly intensified, presenting a good situation of full promotion of the education system and extensive participation of social forces, and preliminarily exploring an educational informatization development path with Chinese characteristics that organically integrates information technology with education and teaching [1]. At the beginning of 2020, the COVID-19 pandemic swept the world, and normal offline teaching was hindered. Students of adult education could not return to campus for their original offline learning. In order to keep learning uninterrupted, as well as the guidance on online teaching during the epidemic period issued by the Ministry of Education, Accordingly by means of Internet, online streaming and recorded in the form of online teaching, online teaching, online FAQ online, online discussion all teaching activities, each school actively responded to an appeal by the education department, the first time made the online teaching implementation plan, to make up for not to school, to promote the implementation of the online teaching. Nowadays, the online and offline hybrid teaching mode is booming. Especially in the era of big data, rich teaching resources and whole-process learning behavior records make the online and offline hybrid teaching a popular trend. Practice shows that online learning can give adult education students great learning flexibility,

so that adult education students learning is not limited by time and place. Online teaching effect is uneven, however, because the teacher was unable to real-time monitor students, student autonomy is poor, leading to poor effect of online teaching, how to give full play to the advantages of online teaching, make full use of the online teaching resources, truly make online teaching work, complete the teaching goal and the teaching process, high quality is a hot problem in the realistic.

2. Present Situation of Hybrid Teaching Mode

2.1. Status Quo of Online Teaching Mode

The basic computer course is to help the adult education students to understand the development and application of computer technology, set up the computer as a basic tool of modern social consciousness, make the students master the current social each domain is a basic computer knowledge and basic operation, with the use of computers for information acquisition, processing, transmission and application of basic skills, It is the basic guarantee to cultivate the independent study and sustainable development ability of adult education students and promote the cultivation of students' professional ability and professional quality. For online course resources construction, and not directly to adult education students to join the course can be completed online teaching process, only the single article online platform, adult education in the form of self-study students, students' learning difficulties is still a lot, especially in science and engineering courses, pure online video interpretation, some derivation is not strong, the problem such as course details is not enough, Will lead to students' homework completion rate is not high or low accuracy, or a large number of courses or incomplete situation.

Due to the deep influence of the traditional learning mode of "full load" by teachers, there still exists the traditional learning mode of teaching mainly by teachers in the offline teaching stage of hybrid teaching, ignoring the subject status of students. Online learning processes of adult education students are mostly alone through one-way video to watch for knowledge learning. Although the continuing education school introduced China university for class, super star, wisdom tree, learn the different network resources, such as silver online but these resources and teaching contents of the matching degree is not high, want to find out the resources is difficult to fully meet the course. Is determined by the syllabus, teaching content and outline is determined by the talent training scheme, the nature of the school of continuing education, each is different, the emphasis of the talent training scheme is different also, so only scattered use of online teaching resources, and develop their own curriculum resources needs a lot of time and energy, when the sudden outbreak of the co-action, It is impossible to develop a high quality course package in a short time. Therefore, when people teach students to use network resources to learn, they can only adopt a piece-together way, and the limitation of such effective resources leads to the decline of students' autonomy. Moreover, due to the lack of interaction between teachers and students, students are prone to feel lonely, and the learning of adult education students is only shallow learning.

The enthusiasm of adult education students is reduced and their participation is low. Online teaching process is not limited by geographical scope and spatial randomness. Teachers cannot monitor students in real time in the teaching process and students' learning state cannot be captured by teachers. Although under the condition of network allows can open video, but teachers focus on teaching, rather than staring at a screen to view real-time state of students, so students real state became the "blind spots" in the class, can be seen through the interaction of teachers and students, the overall participation is not high, interactivity is not strong, the most silent, adult education students cannot follow the teacher thought, There are even "mobile phones, people get lost" situation. When the teacher is fully ready to lecture, leaving only the

student's mobile phone in class, in the long run, the enthusiasm of the teachers would sell at a discount greatly, promoting each other is the relationship between teaching and learning, so the adult education students class need for autonomy and self-discipline, actively involved in the classroom, create the interaction between teachers and students to achieve a good teaching effect.

Lack of the exploration of teaching method, " Internet + courses" online teaching to gain on the Internet, with the aid of network resources, and most of the teachers is the online and offline teaching mode of teaching to simply is in the ground, still USES the" force-feeding "teaching, or by playing courseware, no discussion no answer, seriously affected the teaching effect, lack of classroom interaction and quality monitoring, the students of class effect all the way down, did not make full use of Internet resources, information technology is not fully fusion, the class is not active, boring, students are also easy to miss, it is easier to cause "leave phone no one", or even a good teacher look powerless in front of the Internet, the reason is that there is not enough discussion on how to give full play to the maximum effectiveness of teaching in the Internet mode, lack of emotional communication, teaching effects can not be directly expressed.

2.2. Status Quo of Offline Traditional Classroom Teaching Mode

Under the background of the current era, it is necessary to pay attention to the teaching reform and discussion of basic computer courses and train more compound talents with rich professional knowledge and high familiarity with computer technology. From the current situation of computer basic course teaching for adult education students, most of the teaching is still based on traditional offline teaching. Teachers have not fully integrated online and offline teaching modes in the course teaching process. This leads to the current adult education students computer basic course teaching, which can not really achieve the teaching content of The Times. Through the targeted setting of computer basic courses, fully integrate online and offline two different teaching modes, promote the integration of the two, promote the current adult education students computer basic courses to achieve two different forms of teaching mode integration, and better help students learn course knowledge. This can help achieve teaching results and highlight the value of basic computer courses in continuing education [2].

The traditional classroom teaching mode is "teachers give priority to classroom teaching and students passively accept learning", that is, teachers dominate and dominate the whole teaching class activities, more is "one speech"; Students are the object, passive participation in teaching activities. This teaching model has the following shortcomings in the implementation process:

Teachers' teaching tasks are heavy and time is tight, explanation and imparting occupy a lot of time, and the phenomenon of "one lecture" and "full lecture" is common.

In class, there is less time for students to think, interact and discuss. Students have strong psychological dependence, passive acceptance of learning and lack of spirit of inquiry.

There is insufficient teaching interaction and information feedback between teachers and students, teachers cannot track students' learning, and it is difficult to implement after-class expansion and improvement.

2.3. Characteristics of Online and Offline Mixed Teaching Mode

The online and offline mixed teaching mode is a new teaching mode that comprehensively utilizes various network services and combines online learning with offline traditional classroom teaching mode [3,4]. Online education platforms provide a large number of educational resources. Teachers choose appropriate teaching resources according to the teaching tasks of computer courses. On the one hand, teachers should edit and modify teaching resources on the network to make these resources more in line with the acceptance level of adult education students. On the other hand, teachers should make match courseware and exercises to help students consolidate the key content. More importantly, teachers can

integrate these scattered teaching resources on the network and put them on the education platform that can be consulted by smart phones, which is not only convenient for students to learn and search, but also can make real-time statistics of students' learning time and progress, and urge students who are not self-conscious in learning. These online learning contents are completed before the class, which can ensure that students have enough knowledge foundation before entering the classroom, and come to the class with questions to learn, and improve the purpose of learning. The traditional teaching model divides the teaching process into three parts: preparation before class, classroom teaching and after-class review and consolidation [5]. In the traditional teaching mode, the teacher mainly focuses on classroom teaching. In class, the teacher collects the problems that students encounter when learning online courses, helps students to fill in the gaps and sort out the knowledge system of computers, explains the common problems in a targeted way, and deepens students' impression with vivid examples. Teachers and students should form benign interaction in class and work together for the common teaching goal. Before and after class links need to rely on adult education students to complete offline. The hybrid teaching mode is characterized by covering online resources for students before and after class. Through the online learning platform, course videos and learning materials are released in advance, and adult education students are urged to complete pre-class preview [6,7]. After class, through the online learning platform to release after-class tasks, after-class q&a, exchange, provide adult education students exchange forum. In the hybrid teaching mode, students will be transformed from knowledge recipients to teaching subjects, and teachers will mainly assume the role of guider and instructor. The leading role of teachers in class will be transformed into the dual leadership of students and teachers, so that students' learning initiative and enthusiasm will be aroused and classroom efficiency will be greatly improved [8,9].

3. Practice and Application of Online and Offline Teaching Modes

The blended teaching mode puts forward higher requirements for teachers, who need to spend more time and energy preparing teaching materials. Meanwhile, teachers should also pay attention to the promotion of their roles. Teachers are not only the providers of resources, but also the chooser and organizer of resources. In the traditional sense, teachers need to design and make their own teaching resources, such as teaching courseware, experiments, question banks, teaching videos, etc., and mainly assume the role of teaching resources providers. However, with the comprehensive opening of network teaching resources, teachers need to choose appropriate resources according to their profound professional knowledge and understanding and mastery of adult education students' learning situation, and reorganize various resources to meet the needs of students' learning. Hybrid teaching model is also put forward higher request to the student, for adult education students shift from passive learning to active learning.In the process of learning, adult education students under the guidance of teachers, and actively adapt to the online learning process, through online learning, gain knowledge and content, and timely communicate with the teacher in class, remove doubts. The application of online and offline teaching methods mainly focuses on the realization of teaching process. In the teaching process, we should always take adult education students as the center, cultivate students' ability of independent thinking and independent learning, and strengthen the management, feedback, supervision and evaluation of students' learning process under the guidance of teachers. The high adaptability of adult education students to the teaching process is the key to ensure the effect of online and offline teaching methods.

3.1. Online Teaching Resource Preparation, Independent Learning and Information Acquisition Before Class

Teachers upload materials to the teaching support platform in advance, including:

(1) Upload teaching resources such as course syllabus, teaching calendar, PPT, teaching plan and e-books.

Before class, the teaching syllabus, teaching calendar, courseware, teaching plans, videos, e-books, animations and other course contents and related basic knowledge are sorted into teaching videos, exercises and extension materials and sent to the education platform together. Students can reasonably plan their learning time according to the guidance of the teaching syllabus and teaching calendar [10].

(2) Upload software and software installation guide documents.

At present, many development software is relatively large, and usually requires online installation. If the network is not good, installation in class will waste a lot of teaching time, so upload the software and installation documents required for the course before class, and adult education students will install them in advance, which will be more efficient in class.

(3) Teachers can prepare interactive materials to consolidate classroom knowledge points and improve the interactive effect of classroom teaching.

Penetration test if using the courseware, can be in the courseware interaction, multiple choice, true or false, the subjective topic cross use, on the one hand is to seize the adult education students attention, prevent burnout and inert, on the other hand is an indispensable part of the formative assessment, if it is not use experiment courseware, can prepare, supervise and urge students to keep up with the pace of the teacher, Actively complete programming experiments.

(4) Prepare course question bank and generate test papers for the convenience of testing at the end of each course.

Teachers can arrange relevant knowledge points before class questions, stimulate the learning interest of adult education students, facilitate the examination of students' learning effect, feedback problems, and lay a foundation for creating an efficient classroom. After each class, after-class tests can be conducted immediately, which can improve the attention of adult education students in class and promote their active participation in classroom teaching.

(5) Upload coursework, students can try to complete the homework after self-study,and test the learning effect.

Small scale experiments in computer courses are easy to copy, which makes it difficult for teachers to evaluate. Courses in programming languages and algorithms can be combined with some online brushing-test scoring systems, which are relatively fair and can be scored according to the efficiency and quality of answer of adult education students. However, for large-scale team work, it is necessary to have process supervision, timely understand the progress of students' groups, guide and improve their teamwork ability and problem-solving ability.

(6) Teachers upload recorded course video materials and provide adult education students with relevant course reference links for students to watch and preview and review.

Students can according to the data to prepare, problems encountered in the process of preparation, first can query the relevant basic knowledge, check their lack of knowledge, we cannot solve the problems can be discussed in the study group, if learning team can't solve can also arrange with questions to ask the teacher or offline. This kind of preview before class, on the one hand, can help students review the basic knowledge, let students enter the classroom with a relatively close knowledge level, can keep up with the teaching progress in class and have a resonance of learning. On the other hand, teachers can know students' mastery of basic knowledge and prepare to teach cases in a more targeted way to help students learn new teaching content more efficiently according to students' login and questions. Students preview the main knowledge points of this course online before class, including reading paper or electronic tutorials, watching videos, browsing courseware, and completing homework. It is suggested that the duration of teaching videos should be limited to less than 20 minutes, so that

videos with strong pertinence, clear teaching objectives, vivid images and short contents are convenient for adult education students to concentrate on learning [11].

3.2. Implement Offline Teaching in Class

Hybrid teaching can not be used in accordance with the traditional teaching methods and teaching methods, especially the computer program design course, because of its strong practicality and applicability, adult education students need to practice and practice more to master.The traditional teacher-oriented teaching method can not get good teaching effect. And based on the online teaching is good, the teacher in the classroom organization, can according to the situation of adult education students online learning records, feedback, knowledge of each student's different learning level, the comprehensive control on the teaching progress, content, and then according to the common problems in the class curriculum emphasis on the key difficulty, and targeted to answer questions, to further improve the ability of adult education students to analyze and solve problems, so as to teach students according to their aptitude. In other words, students are instructed to study online first. The teacher does not repeat basic knowledge, but directly cuts to the main topic. After explaining difficult problems, enough time is reserved for students to think and digest. Then in the classroom teaching, the content that adult education students have learned independently on line is explained and guided pertinently. In classroom teaching, teachers need to design the main teaching activities of each lesson in the teaching plan in advance, and attach importance to the overall design of classroom interaction. Interactive design of hybrid teaching should take into account the coordination between online and offline. The teacher should according to the inner connection between the teaching content, the question of the course is designed by shallow deep, from point to surface, layer upon layer to advance the problem, and the score of each problem should be recorded in the process of examination table, which will be able to stimulate the enthusiasm of adult education students more effectively. In order to meet the learning needs of students of different levels, teachers should divide classroom exercises into required questions, advanced questions and group discussion questions, so that all students can not only have access to some in-depth knowledge in class, but also have the sense of accomplishment of completing the exercises.

3.3. After-class Online Development and Promotion, Personality Counseling

In addition to attending classes and watching videos every week, adult education students still have a lot of time to study independently. At this time, they can complete the homework and tests assigned by teachers so that students can understand their mastery of knowledge. Teachers should arrange after-class autonomous learning tasks in time, and specific tasks should be arranged according to the characteristics of the taught subjects. Taking mobile application development courses as an example:

(1) Arrange an experimental report after each class; Individual assignments can be issued at the beginning of the course so that each adult education student can master the basics. In the middle and later stages of the course, team work will be released. Students will cooperate to complete comprehensive design experiments, and the experimental results will be displayed in the form of videos, papers and reports, so as to comprehensively exercise students' abilities.

(2) The online test related to the course content is released after each class, which is conducive to the concentration of adult education students' learning attention and improves the learning effect.

(3) According to the learning situation of students, assign personalized homework, such as the application of new technology related to the course, cutting-edge technology, etc. To improve students' independent learning ability. After learning, adult education students write documents and record videos, and the results are part of the course materials.

At the end of the semester, assign a comprehensive and design homework to be completed by groups. The topics of each group should be different, which can improve students' practical ability and teamwork ability in the short term.

3.4. The Survey Questionnaire Will Be Released Immediately After the Course

It is helpful for teachers to know the students' learning situation and improve the problems in the teaching process by issuing questionnaires immediately after the course. The specific content of the survey includes learning equipment, learning habits, personal practical difficulties in learning, and comments or suggestions on the course.

3.5. Adult Education Students' Learning Behavior Statistics and Efficiency Evaluation

Online learning software provides very complete data support in the statistical aspects of students' learning behavior, which is the advantage of online teaching. Compared with traditional classroom teaching, teachers rely on experience-driven teaching, while online teaching relies on data-driven teaching. The homework score of each adult education student, the Times of entering the course, the Times of reading course resources, the online time, the length of learning video recording and so on can be used as the basis for evaluating online learning performance. Teachers evaluate students' learning status scientifically according to their practice and performance in class interaction. First, teachers should give recognition to students who are good at learning. On the one hand, teachers should suggest them to expand their knowledge through self-study on the basis of mastering the course content. On the other hand, they are required to lead a good study group, help other students at the same time, consolidate their own basic knowledge, for the following study to lay a solid foundation. Second, teachers should point out the shortcomings of students who are generally learning and help them set an example for learning. On the one hand, list the differences between these students and excellent students in learning methods and encourage them to improve their learning efficiency according to their own conditions. On the other hand, encourage these students to exercise their ability of expression, especially in the study group to express their own ideas, narrow the gap between themselves and excellent students. Thirdly, the teacher should pay attention to the students who are poor in study with appropriate methods, so that they can feel the teacher's love and care. Teachers should apply moderate pressure on slacker students to keep up with their peers. For students who lack motivation to learn, teachers should try their best to understand their difficulties and stimulate their enthusiasm for learning through communication. For students with poor foundation, teachers should help them make learning plans and gradually develop their interest in learning and learning habits.

4. Course Effect of Mixed Teaching Mode

The design of the evaluation system considers two conditions: one is to match the mixed teaching process and evaluate students' performance in both online and offline classes; The second is to match the course objectives, which should not only measure the degree of knowledge mastery, but also examine the ability and quality requirements [12]. Hybrid teaching should not only play the leading, motivating and monitoring role of teachers, but also play the enthusiasm, initiative and creativity of adult education students. In teacher-led classroom teaching, combined with a variety of network resources, elaborate classroom teaching plans, teaching content, highlighting teaching priorities, reflecting teaching progress and evaluation of the effect of students learning by stages. If teachers lack relevant guidance in adult education students' online learning and completely rely on students' conscious behavior, students are easy to become lazy in learning due to the lack of consciousness, leading to the reduction of learning efficiency and poor learning effect. Based on this, teachers should give full play to the

role of teaching supervision, establish a series of evaluation criteria, and evaluate students' learning behavior and learning effect.

This paper argues that mixed-mode teaching especially emphasizes the importance of process assessment, and ordinary scores should include two parts: one is online evaluation and the other is offline evaluation. The proportion can be independently divided by teachers according to the course content.

Student's score = usual score (online evaluation * online ratio + offline evaluation * offline ratio) * Usual ratio + Final score * Final ratio

Online evaluation can include: online study duration, poll, questionnaire, snap answer, interactive, online quiz, lab, student notes, etc.

Offline evaluation can include: class attendance, class performance, group cooperation, etc.

The final grade can be a big final project or a final exam.

Taking online teaching as a necessary part of the course, scores of many links in the teaching process will be automatically generated, and adult education students can see the process assessment results at any time. No matter whether the score is high or low, they can be urged to work harder and actively to learn.

5. Conclusion

In the overall design of computer courses, we should first make clear the course design mode of adult education students' results-oriented, so as to make teaching more attractive to students and increase students' subjective initiative. According to the feedback of teaching implementation effect, the online and offline hybrid teaching mode can effectively improve classroom attendance rate and homework collection rate, improve students' enthusiasm and initiative in learning, and improve students' satisfaction and overall score. Practice has proved that online and offline mixed teaching mode plays a good role in improving the teaching effect of computer courses. Based on the mixture of online teaching pattern is emerging in recent years the integration of open teaching, it by means of the interaction monitoring hybrid e-learning platform, at the same time, by introducing flip the classroom teaching in the teaching mode, this mode is also in recent years, the rise of new education teaching form, it overturns the traditional classroom teaching mode. It is inevitable that some difficulties and challenges will be encountered in the reform practice of combining the two organically and applying them to professional course teaching. Specifically reflected in:

(1) The construction of learning resources;

(2) Supervision of online learning;

(3) Teachers' ability reserve.

To give full play to the traditional teaching advantages, the use of existing network platform, implement open online learning and information monitoring, radical reform of the existing classroom teaching mode, through the "online - online and offline - - in - class before class, after class to teach - internalization - internalization" practice teaching process such as stage, complete knowledge and knowledge internalization of heavy heart, Completely change the existing "teacher-centered" teaching mode, and realize the project integration of vocational education curriculum teaching based on "student-centered adult education" in the true sense.

After the COVID-19 outbreak, WE are deeply aware that there will be great changes in the teaching of colleges of continuing education in the future. Online teaching and mixed offline teaching based on teaching platforms may become the mainstream mode of teaching in the future. Social training institutions have carried out online teaching for adult education students majoring in computer science for a long time. IT training also shows a trend of development. They provide JAVA, Web front-end, UI design, PHP, Android, IOS, embedded, network operation

and maintenance, game development, artificial intelligence, big data and other kinds of training. Almost all the mainstream direction of computer technology, these training tend to be more attention to improve students' practical abilities, so that students can obtain certain employment competitiveness, continuing education of adult education students if learning needs cannot be fully met in school, they will choose extra-curricular training organization learning, this will cover the cost of higher learning. As teachers of the college of continuing education, they need to adapt to the requirements of The Times and the needs of students, change their teaching ideas in time, and actively adopt advanced teaching methods. Provide students with the resources they need, give them a systematic learning process, and enable them to win more employment and further education opportunities.

To sum up, for computer courses, the use of online and offline teaching can not only cultivate students' independent learning ability and practical operation ability, but also improve their cooperation and communication ability, so that students can get comprehensive exercise and development.

Acknowledgments

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