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Research on the mixed teaching mode of high school information technology course based on OBE concept

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Abstract: With the rapid advancement of technology and continuous innovation in the field of information technology, this trend has prompted society to put forward higher requirements for the standards of talent cultivation in the education system. Although measures have been actively taken at the national level to optimize the effectiveness of information technology teaching, and many universities have also engaged in the practical exploration of blended learning, the teaching results are uneven. Against this backdrop, the OBE (Outcome Based Education) concept has emerged. Based on this, this study starts from the definition of the OBE concept and the implementation of blended learning in high school information technology courses. It analyzes the feasibility of combining the OBE concept with blended learning mode in high school information technology courses. Starting from cultivating students' professional knowledge and subject literacy, a blended learning mode for high school information technology courses based on the OBE concept is constructed in four stages: result formulation, implementation, evaluation, and use.

The progress and breakthroughs in technology, as well as the rapid development of information technology, have led to higher standards and updated requirements for human cultivation in society. One of the trends in the new curriculum reform is educational informatization. At the same time, the "China Education Modernization 2035" explicitly proposes to achieve modernization and informatization of education. The information technology curriculum is gradually entering the public eye, and it is urgent to cultivate a new generation of "digital" citizens who can better base themselves on the future modernization and information society, and promote the information technology curriculum to break away from "entertainment courses". In 2019, the General Office of the Ministry of Education pointed out at a meeting that "the organization of course content and the design of teaching modes are the most important and direct factors in improving the quality of talent cultivation. When researching and exploring how to improve the overall quality of information technology education, focusing on how to innovate information technology teaching design, implementing targeted and reasonable teaching design, cultivating and improving students' information literacy, enhancing teaching effectiveness, and promoting the overall quality of information technology education is a way worth paying attention to and researching. Meanwhile, with the rapid development of online learning, students can experience a completely new way of learning. However, pure online learning also has some problems, such as high dropout rates, low student engagement, and a single evaluation method [1].Therefore, in this context, blended learning

of online and offline has emerged. In addition, the new curriculum standards will redefine information literacy, which is different from the previous three-dimensional goals. It aims to start from the three aspects of cultural foundation, independent development, and social participation, and work together to influence each other to complete the core task of cultivating "well-rounded individuals" [2]. The cultivation of key abilities that can help students establish themselves in society relies on specific subject teaching activities, so comprehensively improving students' information literacy has become the core goal of information technology courses.

The current country has issued a series of policy documents to improve the quality of information technology teaching. Through extensive literature research, it has been found that the teaching quality of information technology has not reached the expected standards and there are still many problems. Insufficient preparation for teaching by teachers and inaccurate positioning of teaching objectives. Some teachers often follow the textbook without analyzing the internal connections between teaching objectives. The teaching process of teachers does not have clear teaching objectives, and students naturally do not have clear learning objectives. They cannot clearly understand what kind of results they should obtain after class, nor do they think deeply about the connection with real life; The lack of attractiveness in information technology courses. Students' interest in information technology courses is not due to their interest in the course content. The attractiveness of information technology course content to students is poor. For students, computers that can provide online entertainment are the real attraction. The learning of course content is often mechanically imitated, with the goal of completing tasks, without truly experiencing the learning content and mastering knowledge and skills; Lack of effective teaching evaluation. Some schools neglect information technology, and the lack of effective evaluation of courses leads to students' lack of attention and interest in information technology courses, forming a vicious cycle.

The OBE concept follows the basic principle of "reverse design, forward implementation". When applied in teaching practice, all aspects of teaching organization are based on predetermined teaching outcomes as the ultimate goal. Therefore, teachers can achieve a certain degree of consistency between the initial educational goals and the final teaching outcomes [3]. Integrating the OBE concept into blended learning and applying it to high school information technology courses is beneficial for fully leveraging the advantages of both educational philosophies. By using reverse thinking to reverse design expected learning outcomes, a more flexible teaching approach is adopted to meet students' personalized learning needs, in order to improve students' core literacy level and the quality and effectiveness of teaching. Based on this, guided by the OBE concept, this article designs a blended learning mode for high school information technology courses, striving to achieve the organic integration of online and offline teaching methods and improve classroom teaching effectiveness.

1. Concept Explanation of OBE Concept

The Outcome Based Education (OBE) concept was proposed in the 1990s, which is an educational philosophy guided by students' learning outcomes. The goal of each stage of teaching is for students to ultimately achieve learning outcomes through education. Generally speaking, outcomes do not refer to the scores obtained by students, but to the abilities that students acquire in expected situations after learning, and the teaching effectiveness is tested based on the actual abilities obtained by students [4]. The proposer of this concept, William Spady, proposed the pyramid structure of outcome oriented education in 1994 after continuous in-depth research and summarization of the OBE concept [5] ,As shown in Figure 1.

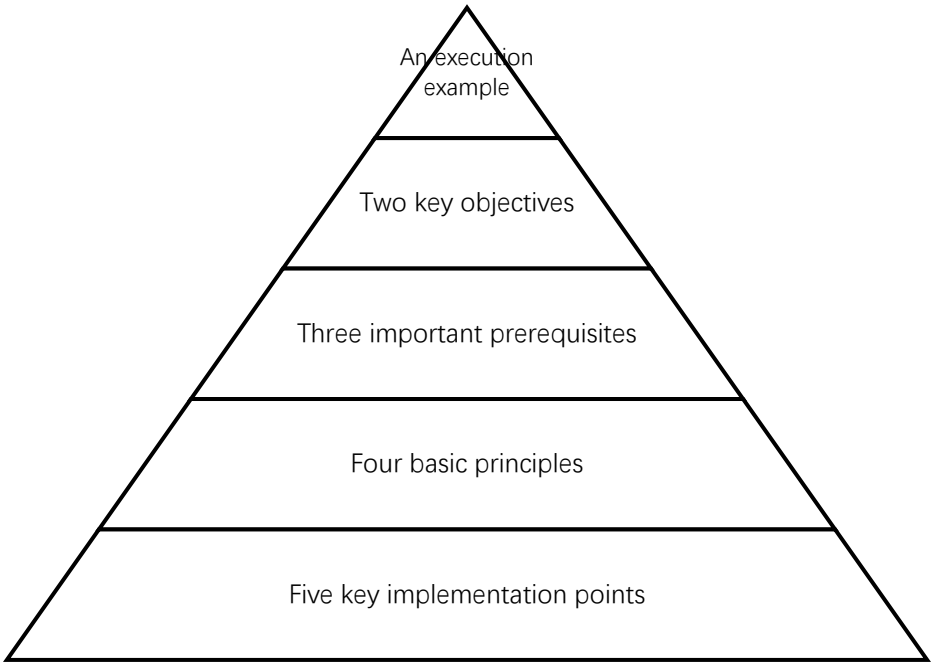

Figure 1 OBE Concept Pyramid Structure

Before implementing the OBE concept, an execution example should have a clear outcome and framework; The two key objectives are to clarify the outcome goals and provide necessary opportunities; The three important prerequisites for ensuring the implementation of the OBE concept in teaching are: 1. All students are able to learn and ultimately succeed, 2. Each stage of teaching has a direct impact on students' learning situation, and 3. Students' success in learning will promote their more successful learning [6]; When applying the OBE concept in practice, four principles must be followed: clear focus, reverse design, high expectations, and expanding opportunities for success; The five implementation points are to clarify learning outcomes, construct curriculum systems, clarify teaching strategies, form self reference evaluations, and reach the peak step by step.

After the introduction of the OBE concept into China, it was initially applied to the reform of university teaching models. With the continuous local transformation and development of this teaching model in China, the advantages of the OBE concept were reflected. Subsequently, this model gradually emerged in the field of education in China, and various disciplines and stages of education began to try to use the OBE concept for teaching. The OBE philosophy emphasizes the need to pay attention to the achievement of students' learning goals and the cultivation of their core competencies, and to participate in the teaching process in all aspects and throughout the entire process. This concept can effectively solve the problems existing in current blended learning, and optimize the implementation of high school information technology courses based on learning outcomes, fully leveraging the functions and roles of OBE concept and blended learning.

2. The connotation and implementation dilemma of blended learning

2.1 Blended learning and teaching mode

2.1.1 Blended learning

Blended Learning "originated abroad and is generally translated as" blended learning "or" blended learning "in China. According to Chinese scholar Li Houhou's interpretation, blended

learning is essentially a process in which teachers optimize and combine various elements involved in online and offline teaching activities in order to achieve ideal teaching goals. Blended learning and blended learning can be said to be fundamentally consistent to some extent, as teaching and learning complement each other. The author believes that the term "blended learning" contains more obvious compatibility, and it requires researchers to pay attention to teachers' teaching activities while also not ignoring students' learning processes. Therefore, in the following explanation, this study will adopt the translation of "blended learning".

2.1.2 Blended learning mode

The teaching mode is a stable framework for teaching activities that simplifies educational theory and presents it in an intuitive form. At present, there is no consensus in the academic community on the connotation of blended learning mode. Based on the research and explanations of various scholars, the author believes that blended learning mode is a method supported by modern technological means, guided by meeting students' learning needs, systematically designing various elements involved in online and offline teaching, and forming an orderly teaching program. This method enables the entire online and offline teaching activity to have an operational and concrete theoretical form.

2.2 Difficulties in implementing blended learning

2.2.1 The teaching philosophy of teachers still focuses on transmission and reception

At present, there is a common problem with blended learning, which is the lack of effective educational philosophy guidance, resulting in teachers not having a good grasp of the key characteristics and operational requirements of blended learning models. Due to the lack of guidance, some teachers still tend to use teaching methods in both online and offline classrooms, resulting in teachers' behavior occupying a high proportion of time in the classroom, leading to students becoming too passive and low learning engagement.

2.2.2 The functions of online teaching platforms have not been fully utilized

The implementation of blended learning cannot be separated from the online learning interactive platform built on information technology. With the continuous improvement and perfection of technology, these platform services are gradually becoming more extensive and their functions are becoming more powerful. However, some teachers simply use them as "resource acquisition/push platforms" or "attendance check-in platforms" in the teaching process, failing to fully integrate the convenience brought by technology into the classroom, which leads to a significant reduction in teaching effectiveness.

2.2.3 Students' enthusiasm for online interaction and communication is not high

Blended learning is a teaching model that combines online and offline interaction. Online interaction is characterized by its cross temporal, real-time, and rich interactive content. However, despite the obvious advantages of online interaction, students' enthusiasm for interaction has not been significantly improved. This phenomenon can be attributed to several factors. Firstly, the influence of traditional teaching concepts has led teachers to still view offline classrooms as the primary place of interaction. Secondly, even though teachers have set up communication and Q&A areas online to provide students with interactive opportunities, due to students' shyness and laziness in asking questions, it has basically become formalism.

3. Feasibility analysis of blended learning mode for high school information technology courses based on OBE concept

3.1 The appropriateness of OBE concept and blended learning mode

3.1.1 Student oriented

The OBE philosophy emphasizes the cultivation of students' abilities and advocates designing the teaching process in reverse from learning outcomes, with each aspect of teaching serving students to achieve learning outcomes. Blended learning also emphasizes "student-centered" and provides more time for classroom practice during the teaching process.

3.1.2 Multi subject evaluation

The OBE concept and blended learning both place special emphasis on the role of evaluation in improving teaching, emphasizing the use of diverse evaluation methods in the teaching process, combining process evaluation with summative evaluation, and combining student evaluation with teacher-student evaluation.

Therefore, the OBE concept and blended learning have certain appropriateness, and both have a certain improvement effect on the teaching of high school information technology courses. Therefore, they can be applied to the teaching of information technology courses.

3.2 The guidance of OBE concept on blended learning mode

The five implementation points of OBE concept can be refined into three elements in the specific practice process: expected learning outcomes, teaching activities, and outcome oriented evaluation. Therefore, implementing blended learning under the OBE concept requires efforts in the following three areas: defining measurable learning objectives for course content; Guided by the established course objectives, teaching design is carried out and appropriate teaching methods are selected to promote the achievement of students' learning outcomes; Evaluate whether the course has achieved students' learning goals and the degree of achievement, and make improvements based on this.

Firstly, learning outcomes. Outcome oriented education emphasizes that teachers should clarify students' learning outcomes before starting teaching, that is, the ability performance that students should demonstrate after a period of learning. These performances should be clear, observable, and reflect what students know and what they can do based on what they know. At the same time, students should demonstrate the correct attitude and literacy when demonstrating these abilities. In addition, outcome oriented education also emphasizes that students should have a clear understanding of the learning objectives from the beginning of the curriculum, including the content of the learning, the standards for task completion, and evaluation indicators. This can help students clarify their learning direction and improve their autonomy and motivation in the learning process [7].

Secondly, the learning process. The teaching process based on the OBE concept requires a constant focus on expected learning outcomes. Teachers should clarify the goals that students should achieve and support their learning through corresponding teaching activities to help them achieve these goals. The teaching process should be student-centered, task driven and problem oriented, stimulating students' interest and initiative, allowing them to construct knowledge through exploration, and exercise their abilities through practice. Outcome oriented learning advocates transforming competitive and confrontational learning among students into cooperative and win-win learning.

Thirdly, the learning evaluation system. In the OBE education model, the evaluation of learning

output plays a crucial role. It is not only a direct verification of students' learning outcomes, but also a key link in promoting the continuous optimization and improvement of education quality. The OBE educational philosophy particularly emphasizes students' self-evaluation and profound reflection abilities, believing that this is an important way to promote the growth of students' self-directed learning abilities. Encouraging students to conduct self-evaluation not only allows them to have a clearer understanding of their learning outcomes and shortcomings, but also stimulates their intrinsic learning motivation and promotes the adjustment and optimization of their learning strategies. At the same time, this reflective learning process is also an important component of students' personal growth and development. Therefore, teachers and schools should focus on students' progress and individual differences when implementing OBE education. By careful observation, patient guidance, and flexible adjustment of teaching strategies, we ensure that every student can make the greatest progress in their own learning pace and style.

3.3 The suitability of blended learning mode based on OBE concept and high school information technology curriculum

The four principles and five implementation points of the OBE concept have certain similarities with the current solutions to the problems in high school information technology. Clear focus as the core principle of OBE philosophy can help teachers and students clarify learning objectives in teaching and learning; The principle of expanding opportunities for success requires teachers to provide as many learning opportunities as possible for each student in OBE based teaching, so that they can achieve learning outcomes and reduce problems caused by differences in student levels; Learning evaluation is an essential part of the OBE concept implementation process, requiring effective, personalized, and diverse teaching evaluations. The high school information technology course is a highly practical and theoretical course that focuses on cultivating students' learning abilities, thereby enabling them to better adapt to the life of the information society. Based on the OBE concept, blended learning designs the teaching process in reverse according to students' expected learning outcomes. This model not only allows students to have a clear understanding of learning goals from the beginning, but also utilizes the abundant online resources of blended learning to gradually guide students from passive knowledge acquisition to active exploration and learning. At the same time, it cleverly integrates the advantages of online and offline teaching, enhances student participation in offline classrooms, and provides them with more ample practical operation time. In this process, students can not only exercise and improve various abilities in practice, but also gradually form good learning habits and self driven learning attitudes under the guidance of teachers. This can not only solve the existing problems in the teaching of high school information technology courses, but also further optimize teaching. Therefore, blended learning based on the OBE concept is highly suitable for high school information technology courses.

4. Construction of Hybrid Teaching Mode for High School Information Technology Curriculum Based on OBE Concept

4.1 The Implementation Principles of OBE Concept in Teaching

4.1.1 Reverse Engineering

The characteristic of OBE concept lies in the reverse design of teaching objectives and the forward implementation of teaching activities based on this. The goals set based on expected learning outcomes should correspond to the knowledge and abilities that students should possess after this learning process, and ensure that the entire teaching activity revolves around the expected

learning outcomes. Reverse design not only allows students to clarify the learning objectives of the lesson before class, but also enables teachers to have a better understanding of the key and difficult points of the course, thus selectively reducing and integrating the textbook, making it more suitable for students to achieve their learning outcomes.

4.1.2 Focus on achievements

Focusing on results means that the entire teaching process should always be focused on the expected learning outcomes, which is the core of the OBE philosophy. The OBE philosophy emphasizes that every student gains something after teaching, so teachers need to reverse design teaching goals, resources, and processes based on expected learning outcomes, and use various teaching methods to help students achieve expected learning outcomes.

4.1.3 High expectations

According to the concept of "the nearest development zone", we know that students have great development potential. Teachers should reasonably use various teaching methods to stimulate students' potential, and adjust their learning expectations according to students' performance in the teaching process [9]. Teachers can stimulate students' learning interest and desire for challenge by setting some challenging questions or tasks that are relatively difficult compared to their current cognitive level during the teaching process, so that students can gain a sense of achievement in completing these tasks or problems, and thus improve their confidence.

4.1.4 Expand opportunities

The OBE philosophy holds that every student can achieve success after a certain period of learning, emphasizing the subjectivity of students in the teaching process. Each student has a different initial cognitive level, so when designing the curriculum, it is necessary to fully consider the individual differences of students. In the teaching process, attention should be paid to discovering students' strengths and teaching according to their aptitude. Various teaching methods and resources should be fully utilized to create more opportunities for students to succeed, thereby promoting their comprehensive development and the full play of their talents.

4.2 Blended teaching mode for high school information technology courses based on OBE concept

Acharya proposed four steps for implementing the OBE teaching model: 1. Define learning outcomes and clarify what kind of outcomes should ultimately be achieved; 2. What are the ways and means to achieve learning outcomes; 3. Evaluate learning outcomes from various aspects and perspectives according to certain rules; 4. Using learning outcomes, applying them to practice, verifying feedback through practice to the rest of teaching, ultimately leading to continuous improvement of the entire model [10]. Based on this, this study constructed a blended learning model for online and offline teaching using these four steps as a guide. The entire process can be roughly divided into four stages: outcome formulation, outcome implementation, outcome evaluation, and outcome utilization. As shown in Figure2.

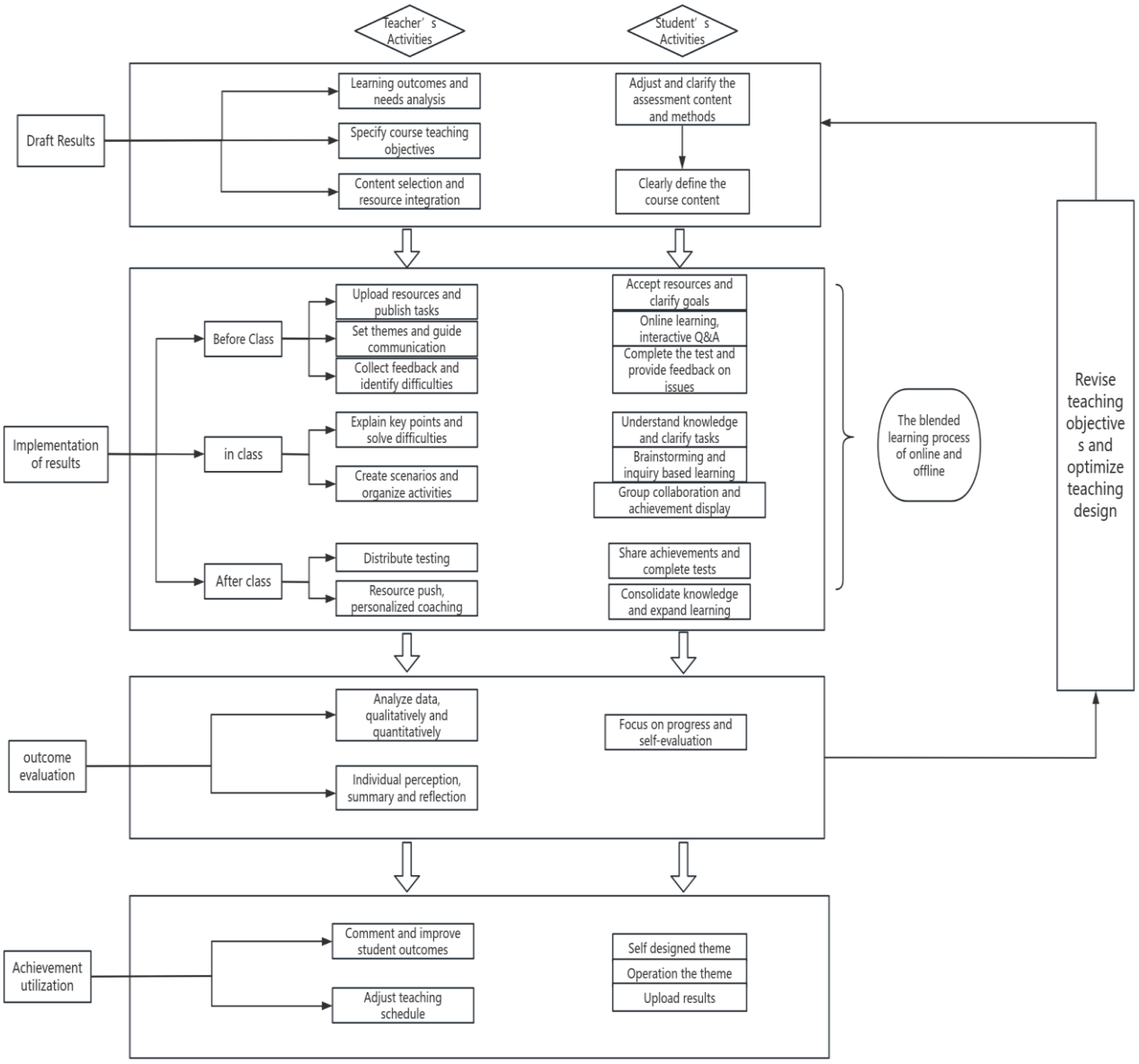

Figure 2: Blended Teaching Mode for High School Information Technology Curriculum Based on OBE Concept

4.2.1 Results formulation stage

The primary and crucial step in building a blended learning model for high school information technology based on the OBE concept is to formulate learning outcomes, which lays a clear and powerful guiding framework for the entire teaching process. In order to address the challenges of low student learning interest, vague goals, and uneven levels among students in current high school information technology courses, teachers need to have a deep understanding of students' learning needs in advance, and through detailed needs analysis, clearly define the specific connotation of learning outcomes. This move aims to stimulate students' interest in learning, promote the dual improvement of their information literacy and knowledge skills, and deepen the educational philosophy of cultivating morality and talents.

The analysis of students' needs can be divided into internal needs analysis and external needs

analysis. Internal needs are the core, and only by fully grasping the laws of education and teaching, deeply analyzing the physical and mental development characteristics of students, can the curriculum design be more in line with their actual learning status, and the formulated learning outcomes be more scientific and clear. External demand is the foundation, which refers to the expectations of the country, society, and schools for students to achieve their goals through high school information technology learning. Only by combining internal and external demands can the formulated learning outcomes promote students' comprehensive growth and enable them to master the ability to live in a future full of unknowns and challenges.

At the same time, in order to effectively measure the achievement of learning outcomes, teachers should establish a series of clear performance indicators based on expected learning outcomes. These indicators are not only specific criteria for evaluating whether students have achieved their learning goals, but also important basis for subsequent teaching evaluation and feedback. When setting indicators, teachers need to fully consider the importance of personalized evaluation, pay attention to the uniqueness and differences of each student, allocate the weights of each indicator and its sub items reasonably, and ensure the fairness and scientificity of the evaluation system. In terms of the allocation of grades, the OBE concept emphasizes the guidance of students' final learning outcomes, so special attention should be paid to how to motivate and promote students' personalized development through evaluation mechanisms. This means that in the process of grading, not only should students' knowledge mastery be examined, but also their performance in various aspects such as skill application, innovative thinking, and learning attitude should be valued, in order to achieve a comprehensive evaluation of students' overall quality.

4.2.2 Achievement realization stage

Realizing learning outcomes is the most important part of the OBE teaching model, which fully embodies the important principle of the OBE philosophy of "reverse design, forward implementation".

Reverse design is the core part of achieving learning outcomes. The content of reverse design should not only gradually achieve results, but also solve the problems existing in the current high school information technology curriculum through the design of teaching objectives, teaching content, and teaching evaluation throughout the entire process. In response to the problem of low student interest, according to constructivist learning theory, in terms of teaching methods, the overall teaching is student-centered, avoiding the use of single lecture methods. Through task-based and situational teaching methods, students' initiative and enthusiasm are fully mobilized to enhance their thinking and learning interest; In the selection of teaching materials, we should leverage the contemporary characteristics of the information technology discipline, select relevant content such as the latest technological achievements or future developments, and attract students' interest with novel technological means or content. In response to the problem of differences in students' levels, based on mastering learning theories, sufficient evaluation time is reserved in teaching. Through timely evaluation, students can obtain feedback and correction process. The high school information technology course has been neglected by students due to not taking the college entrance examination. But from another perspective, there is no strict and urgent time frame for acquiring knowledge of information technology. Information technology teachers constantly provide individualized corrective feedback to students in teaching, arousing their true interest in learning information technology. Even if there are differences in students' levels, it can still promote all students to ultimately achieve results and success. In response to the problem of unclear learning goals and lack of effective evaluation for students, in the teaching evaluation process, classroom evaluation forms and achievement evaluation forms are designed. Classroom evaluation forms can not only help students understand their current self level and the problems that exist in the course,

but also clearly display the specific goals of each class, making the goals clear and specific for students throughout the entire learning process. The achievement evaluation form evaluates the achievement projects completed by students, enabling them to master knowledge and skills, improve information literacy through practical hands-on operations, and truly reflect the practical disciplinary characteristics of information technology. Positive implementation is an important part of achieving learning outcomes, and attention should be paid to the effectiveness of teaching resources and the rationality of teaching arrangements during the implementation process. In addition, in the process of teaching implementation, teachers should analyze the deviations from expectations in the teaching design with learning outcomes as the ultimate guide, in order to continuously provide feedback and correction to the defined learning outcomes and achieve continuous improvement.

Based on the information technology learning platform and the OBE concept, blended learning activities are divided into three parts: pre class, in class, and post class.

Pre class: This stage is the online self-learning stage, which is the primary stage of course teaching. Its main purpose is to help students familiarize themselves with relevant theoretical knowledge and lay a foundation for their subsequent application of knowledge. At this stage, teachers need to refine course objectives based on the characteristics of learning activities and form sub objectives for each learning stage. Upload learning materials to the online learning platform according to the set online learning goals, and publish online learning tasks. At the same time, teachers should also set up discussion topics in the interactive Q&A area of the learning platform and act as guides to provide timely discussion support for students and promote their deep participation. In addition, teachers should continuously improve their offline teaching activities based on the collected information, making them more conducive to students' learning and easier to achieve teaching goals. Students should use the teaching resources provided by teachers for self-directed learning, and after learning, they should complete the quizzes uploaded by the teacher within the specified time to address the existing problems. At the same time, students can raise their own questions in the corresponding comment section, and teachers should determine the key and difficult points of the learning content in class based on the platform's test results and other learning data, such as the time spent watching learning resources and the depth of topic discussions, in order to implement more accurate teaching activities.

In class: This stage is the exploration and practical teaching stage. In class activities are implemented in offline classrooms, where teachers and students, as well as students themselves, can engage in face-to-face communication and learning. Offline classrooms are also an important part of blended learning. In face-to-face classroom teaching, teachers need to solve students' difficult problems in a shorter period of time, and then leave more time for students to discuss and apply them in practice. Before starting practical activities, teachers should create a task environment that is close to the real situation, and clearly explain the completion standards, presentation forms, and evaluation indicators of the task. The specific content of the activity should be adjusted appropriately according to the students' pre class learning situation, so that its difficulty is within the students' zone of proximal development, and encourage students to unleash their creative potential and problem-solving ability in solving challenging constructive practical problems. The following time will be given to the students to collaborate in groups to complete the production of the results. Teachers mainly play a supervisory and guiding role throughout the entire process. In addition to controlling the progress of learning, they also need to provide targeted guidance and assistance to students in the form of visits to address any questions or difficulties they may encounter during the task completion process, truly returning the classroom to students and making them the main body of learning.

After class: This stage is the online differentiated tutoring stage. After class, teachers encourage

students to upload their personal learning achievements to the interactive platform, achieving the sharing and display of results. This process encourages students to observe and compare with each other, in order to discover their shortcomings and stimulate their motivation for further learning. At the same time, teachers will continuously update the learning resources on the platform, providing rich materials for students to preview the next lesson content and promoting their self-directed learning. For students' homework, teachers will maintain a high level of attention and provide timely feedback. Through careful review, teachers can accurately grasp students' learning status and problems, and flexibly adjust teaching plans accordingly to ensure that teaching activities are more in line with students' actual needs. In addition, based on in-depth analysis of test results, teachers will implement online differentiated tutoring strategies, pushing customized learning resources for each student's different situation. This personalized teaching support aims to help each student overcome learning barriers and ensure that they can steadily move towards established learning goals. In this process, teachers are not only transmitters of knowledge, but also guides and supporters on the path of students' growth.

4.2.3 Achievement evaluation stage

Due to the particularity of its subject, high school information technology determines that the evaluation of students' knowledge and skills mastery and learning outcomes cannot rely solely on a single exam format. In the learning process, the information literacy and skills demonstrated by students are also an indispensable part of measuring learning outcomes. The core of the OBE concept is that teaching evaluation should be closely centered around students' learning outcomes, advocating individualized teaching and using learning outcomes as the core basis for evaluating students. Therefore, in the blended learning process based on the OBE concept, a student-centered evaluation model is adopted, incorporating diverse evaluation methods to achieve dynamic tracking and evaluation of students' learning progress. This means that teachers not only need to focus on students' final learning outcomes, such as work exhibitions, project practices, etc., but also need to continuously observe, record, and evaluate students' learning attitudes, values, practical abilities, and innovative thinking as soft indicators during the teaching process.

In the achievement evaluation stage, teachers need to make full use of various data information and conduct quantitative analysis to objectively reflect students' learning effectiveness. At the same time, they need to pay more attention to the qualitative evaluation of students' learning process, and deeply analyze the characteristics and potential displayed by students in the learning process, such as learning motivation, cooperation spirit, problem-solving ability, etc. By combining quantitative research with qualitative analysis, teachers can gain a more comprehensive understanding of students' learning status and match the analysis results with various indicators and weights in the evaluation system, thereby accurately assessing the achievement of students' outcomes.

In addition, teachers need to reflect and evaluate the implementation process of the curriculum in order to continuously optimize teaching design and improve teaching quality. This process not only focuses on the degree of achievement of teaching objectives, but also involves multiple aspects such as the effectiveness of teaching methods, the utilization of teaching resources, and the quality of teacher-student interaction. Through continuous self reflection and peer review, teachers can continuously improve their professional competence and provide stronger support for students' comprehensive development.

4.2.4 Achievement utilization stage

The application of learning outcomes is not only the final part of the entire stage of teaching, but also one of the components of the next stage of teaching. In the next stage of teaching, teachers can

discover students' current mastery of the results through their application in the curriculum, and then make corresponding modifications and gradual improvements to the definition, implementation, and even evaluation of the results; In the process of applying the results, students can continuously deepen their deep understanding of the results, promote the learning of subsequent knowledge, and also discover their own shortcomings in the results obtained during the application process, analyze their reasons, provide timely feedback and correction, summarize and continuously improve learning outcomes and learning methods, so as to improve learning efficiency.

The main purpose of using learning outcomes is to increase students' practice frequency [8]. After students have mastered the learning outcomes, teachers create multiple relevant practical situations, and students strengthen their mastery of the learned knowledge by applying the learning outcomes to meet the needs of the practical situations. Secondly, teachers gradually upgrade the difficulty in real-life situations, guide students to integrate and use the knowledge they have learned in the past, and promote students' integration and transfer of knowledge. Finally, teachers observe and test students' mastery of learning outcomes by independently completing situational needs, and provide guidance to students who have doubts.

5. Conclusion

Blended learning is one of the teaching methods that teachers in the information age pay close attention to and use, and the OBE concept has also received widespread attention from educators in recent years. The two have many similarities, so integrating and applying them to the teaching of information technology will leverage their advantages and promote teaching effectiveness. Therefore, based on the OBE education concept, this article constructs a student-centered, outcome oriented, and sustainable improvement blended learning model. This model divides the entire teaching and learning process into three levels: setting learning objectives, implementing the teaching process, and evaluating and reflecting on teaching. Through the guidance of "results", the activities of each part are connected to fully leverage the advantages and complementarity of online and offline classrooms.

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