Teaching Research on the Ability Cultivation Against the Background of "Internet Plus Education"

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Abstract—**With the continuous development of science and technology, the combination of Internet technology and education has been implemented in the teaching of various stages. However, "Internet plus education" still has a series of drawbacks in the operation stage. This paper analyzes problems existing in the current teaching and puts forward the teaching program aimed at ability cultivation. By integrating Internet resources into teaching content and using new teaching methods such as the Internet, the "internet plus education" will enhance students' recognition of knowledge and fully explore students' potential.**

Keywords—new Internet plus education; ability development; teaching research

I. INTRODUCTION

The Internet education industry began in 2013. "Internet + Education" has experienced its germination, development, and maturity. It has been developed into an emerging industry that affects the country's development strategy. "Internet +" is the further practice of Internet thinking, thereby driving the vitality of social and economic entities and providing a broad network platform for reform, innovation, and development. "Internet + education" is not simply a combination of the two, but the use of information and communication technology and the Internet platform to allow the Internet and education to deep integration and create new development ecology. It can give full play to the optimization and integration of the Internet in the allocation of social resources, deeply integrate the innovation of the Internet into education, enhance the innovation and productivity of the whole society, and form a new form of education development with a broader Internet-based infrastructure and tools.

In 2018, April, the Ministry of Education has issued the "Education Informatization 2.0 Action Plan (EI2 AP)", emphasized the construction of an integrated "Internet + Education" platform to promote the deep integration of modern information technology and education [1]. "Internet + Education" has far-reaching significance for transforming educational thoughts and concepts, deepening education reform, improving education quality and efficiency, and cultivating innovative talents, and is an inevitable choice for realizing the leap-forward development of education. How to integrate the "Internet + education" deeply, create new development ecology, and exert its great potential is of great significance. In theory, it uses cloud computing, academic analysis, Internet of Things (IOT), artificial intelligence (AI), network security and other new technologies to integrate various technologies organically and play an overall role, and has profound implications for its theoretical research. In reality, "Internet + Education" breaks the limitations of education, it can span the boundaries between time and space, school and class, and provide a new service model of high-quality, flexible and personalized education for learners, and treat pupils as individuals and help each one to achieve their full potential. It points out the direction for the change orientation of education development.

In the last few years, the level of application of educational information in China has been greatly improved. The Internet access rate of primary and middle schools nationwide increased from 25% to 90%, the proportion of multimedia classrooms increased from less than 40% to 83%, and the online learning space for teachers and students increased from 600,000 to more than 63 million. There are 10 million primary and secondary school teachers, more than 100,000 primary and secondary school principals, and more than 200,000 vocational college teachers have received education informatization training [2].

Under the influence of policies and markets, the "Internet + Education" industry has developed rapidly. Among them, the scale of "online education" will continue to expand, and "AI+ education" has become a new industry hotspot.

According to industry estimates, in 2020, the number of online education users in China will reach 296 million, and the market size will reach RMB 433 billion. China plans to launch 3,000 national excellent online open courses on "MOOC" and build about 1,000 national virtual simulation experiment teaching projects to share high-quality educational resources.

In foreign countries, in 2012, The United States is the undisputed leader in online education with hundreds of online colleges, thousands of online courses. These colleges have attracted millions of students around the world.

Teaching is the core work in the field of education. Teaching informationization is to modernize teaching contents, communication and education methods. However, the path of educational informatization development has deviated: some Internet education enterprises use technology to achieve the ultimate in exam-oriented education, the learner-centered concept is missing, the changes to the institutional mechanisms are not deep, and the thinking of reconstructing the educational ecology for the Internet era and designing the future school is inadequate [3].

"Internet + education" is still a brand-new subject, both theoretical research and practical application are in their infancy. The traditional teaching process structure of the classroom usually adopts the "5+4 model", which is the five steps of teacher teaching (preparing lessons, lectures, asking questions, arranging assignments, correcting assignments) and four steps of students' study (prepare, listening to lectures, representative answers, completing assignments).

Liu [4] proposed the "three stages and ten steps" teaching process model, which consists of three teaching stages and ten teaching steps. Among them, the "three stages" is still classroom teaching closed loop consisting of "before, during and after class". The "ten steps" consists of the analysis of the situation, pre-study evaluation, teaching design, situation creation, exploration learning, real-time testing, summarizing and improving, after-school homework, micro-teaching, and reflective evaluation. Taking the "University Computer" course as an example, Chen [5] discussed modular teaching based on "Internet + Education" environment from the aspects of curriculum content, teaching process, curriculum assessment, and curriculum evaluation. Yan [6] proposed a personalized "Internet +" teaching environment from the aspects of teaching preparation, self-study before class, classroom learning, collaborative learning, personalized learning, after-school promotion, and feedback evaluation. Due to the fact that many students are not satisfied with the way and effect of "MOOC" education, Xie [7] introduced the mixed teaching method into the "MOOC" education of higher education. Liu [8] expounded the overall design strategy of online and offline hybrid teaching mode in colleges and universities.

In this paper, the authors focus on the students' ability cultivation under the background of "Internet + Education", using a variety of methods conducting survey and research, and proposing a teaching program for relevant issues.

II. EXISTING ISSUES IN INTERNET EDUCATION

A. Models for Talents Cultivation Need Change

The traditional talent cultivation mode cannot meet the demands of the information society. In the information age, it is necessary to cultivate innovative talents with thick foundations, wide caliber, and high quality. The traditional talent training model follows the line of "professional counterparts". In the concept of cultivation, it emphasizes academic development and professional education but ignores personality development and general education. In the form of teaching organization, it adopts the principle of "one-size-fits-all, one-step, mass production, standard manufacturing" in the industrialized era. This "Education production line" cultivation mode system is quite different from the learning habits, psychological behaviors, and cognitive rules of the "internet +" students, which suppresses the individualized development of students, resulting in the graduates' lack of ability, comprehensive quality, and lack of innovation and entrepreneurship.

B. Insufficient Theoretical Guidance of Deep Integration of "Internet Plus Education"

In the past, the research on the connotation and characteristics of "integration" was insufficient, and there was a lack of in-depth study on how to promote integration and how to achieve integration. Practice activities are difficult to play a guiding role. The teaching information application ability of teachers is not high enough. The classroom teaching has changed from "people irrigation" to "electric irrigation". Despite the development of many online courses, the quality of those courses is not high and even difficult to understand. Simple information browsing, mechanical operation and practice are still just repetitive training of rote learning, which cannot cultivate students' innovative consciousness and ability to solve problems.

C. Traditional Management Systems and Mechanisms Are Inefficient

First of all, the traditional hierarchical management system has congenital insufficiency in promoting the integration of information technology and education. Secondly, the evaluation model should be diversified, process-oriented and differentiated. The traditional management systems and mechanisms are based on a single evaluation, result evaluation, and standardization evaluation, which does not pay enough attention to the comprehensive application of knowledge, and they lacks the independent inquiry and innovative thinking ability assessment. Finally, it pays insufficient attention to promoting the development of teachers' informatization teaching ability. The benign ecology that encourages teachers to actively carry out education and teaching innovation has not yet been well-established.

D. The Interpersonal Communications in the Network Environment Are Ignored

Students' innovative abilities are inseparable from the interpersonal interactions of teachers or other students, and

students often acquire new information and ideas from others. The educational process is not only the process of imparting knowledge but also the process of emotional communication. Students develop intelligence and cultivate emotions from their interactions with others. Collaborative learning activities in the online classroom environment are no longer directly faced by students. Instead, teachers connect students dispersed in the classroom into a learning group through the network. The new "Internet + Education" environment which mainly uses various symbols such as sound, text, and images is completely different from the traditional teaching environment. Under this relationship, students' privatization space is more closed, interpersonal relationship is reduced, teachers and students are different in frequency and unfair, so in this learning environment, teachers and students must break through closure teaching, strengthen synergy and interaction, pay attention to interpersonal communication, and broaden the knowledge of students, thereby to help students form a healthy mind and perfect personality.

III. Teaching Program for Ability Cultivation

"Internet + Education" can use the new generation of Internet technology to break the geographical and inter-school barriers, deeply integrate existing teaching content and online course resources, and form a feasible model for the mutual selection of courses and mutual recognition of learning outcomes. The future "Internet + Education" will focus on exploring the curriculum design as the core, integrating and integrating various high-quality educations and teaching resources to build a teaching resource library. In the "Internet + Education" model, teachers must be involved in each of these aspects during the construction and implementation of the course, such as curriculum resource construction, integration, and application, etc. Teachers as the curriculum designer and curriculum implementation organizers are essential. The "Internet + Education" model is planned to be carried out in the following steps.

A. Rationally Managing and Effectively Integrating Teaching Resource

With the help of Internet technology, more and more quality educational resources are extremely convenient distributed and equally shared. Resources related to the course to be taught including syllabus, lesson plans, courseware, and micro-video can be obtained through various channels under the Internet. The teachers should refer to the different versions of the resources and the actual situation of the courses taught by them to identify the collected resources, and select the good quality resources, and reorganizes the original knowledge points following the principles of system city and completeness, finally form a hierarchical and modular teaching content. It is also necessary to effectively manage resources, improve the information management level of resources, and distinguish resources suitable for classroom learning and online learning. According to the teaching objectives, curriculum planning, and design, especially in the teaching design, the teachers should make full use of the high-quality resources suitable for the classroom and formulate a reasonable teaching plan.

For the online learning resources, it is proposed to adopt the method of webpage information classification, and the resources are classified and utilized according to the teaching content.

B. Carefully Designing the Teaching Process

Under "Internet + Education" system, the form of the classroom has been shifted from a single traditional physical classroom to a multi-dimensional coexistence of online classrooms and mixed classrooms. The teachers should conduct necessary subjective surveys on classroom effects and knowledge mastery, integrate the survey results with the results of objective feedback data analysis, and carefully evaluate the merits of the research content. Throughout the course, the three stages (pre-course, in-class and after-school) will be used to monitor the students.

Before the class, the teacher arranges related teaching resources, including teaching courseware, MOOC teaching videos, micro-videos, and test questions, etc. Students are free to arrange a preview and give feedback on the preview of different knowledge points. Through this step, the teachers will understand the students' learning situation before class and have a targeted teaching process design. So that communication teaching can improve classroom teaching quality and efficiency.

During the class, the teacher focuses on the difficulty of the students' feedback and makes the online learning and classroom teaching complement each other. Through the preparation of online learning and the face-to-face explanation of the teacher's classroom teaching, the students instead of the teacher become the main body in the teaching process. The step fully affirms the sense of accomplishment of students' learning and improves the interaction of classroom teaching. The teaching method of "Flipped Classroom" also can be appropriately used. It not only can enhance the classroom atmosphere but also improve students' ability to solve problems in discussions with teachers.

After class, feedback on the teaching process can be realized through the online course network platform. Teachers and students, students and students can also interact to solve problems that still exist in the class. Through online tests of different difficulty questions, teachers can understand the students learning effect. By analyzing questions which most students get wrong, the students will well understand the theoretical knowledge in the analysis. Besides, the teacher can assign the difficulty of the final exam according to the actual situation of the students.

C. Teaching Should Be Guided by the Needs of Learners and Centered on the Practice of Learners

In one side, to accurately grasp the needs of students, the teachers can use big data and cloud computing technology to intelligently analyze learners' inclinations, interests, abilities, goals, etc. In another side, to meet the students' learning experience, the links of production, design, and supply of the "Internet + Education" products can be optimized. Making the learning process more convenient and more interesting will help the students to participate deeply. In addition, the

role of teachers should be changed from the leader of teaching to the assistants and service providers of students.

D. Revising the Cultivation Program and Attaching Much Attention to Students' All-round Development

The cultivation program should make students more convenient to use information technology to develop independent learning, inquiry learning, and personalized learning. On the goal of talent training, it should highlight the literacy needs such as social responsibility, innovation, practical ability, and self-development awareness of college students; in the process of talent cultivation, it should establish the concept of learner-centered and promote the focus of education shifts to both knowledge transfer and ability development.

- It's necessary to cultivate cognitive ability and guide students to have the literacy of independent thinking, logical reasoning, information processing, learning language expression and writing, and develop the consciousness and ability of lifelong learning.

- It's necessary to cultivate cooperation ability, guide students to learn self-management, learn to cooperate with others, learn to live collectively, and learn to handle the relationship between individuals and society, and observe and implement moral norms and codes of conduct.

- It's necessary to cultivate innovative ability, stimulate students' curiosity, imagination and innovative thinking, develop innovative personality, encourage students to explore and innovate.

- It's necessary to cultivate professional ability, guide students to adapt to social needs, establish a professional spirit of dedication, practice the unity of knowing and doing, and actively solve practical problems.

- It's necessary to establish a long-term mechanism to promote students' physical and mental health and overall development.

IV. CONCLUSION

"Internet + Education" should not be limited to changing certain educational teaching links or content, but should also be devoted to comprehensively promoting the deep integration of information technology and education and teaching, and reconstructing the personnel training system as a whole to cultivate students' comprehensive ability. The teaching programs that promote students' ability-based cultivation should advance with the times. By continuously improving the teaching programs in practice, the teachers should guide and promote students from receiving learning to participating learning to contributing learning, strengthen the cultivation of aspects such as information technology knowledge, skills, application ability, information awareness and information ethics of students in and out of class.

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