

Research on individualized teaching mode from the perspective of "Internet teaching mode"

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Abstract: With the development of social information technology, the past single, formatted teaching mode can not meet the students' thirst for knowledge, so it is urgent to create a new personalized teaching mode. From the perspective of "Internet teaching mode", this paper explores the individualized teaching mode around the career planning direction of college students, and forms a mutual teaching form with clear division of responsibilities according to the characteristics of different career planning directions of students, so as to stimulate students' interest in learning. Teachers use the Internet to guide students to become the leader of learning, so as to enhance the positive interaction between teachers and students, improve teaching efficiency, and finally cultivate application-oriented talents with independent learning ability and lifelong learning ability.

1. Introduction

With the advent of the Internet+ era, the Internet-based teaching mode emerges as an inevitable product of learning. It attaches importance to learners' external learning environment. Especially, the Internet provides plenty of resources and information, which creates favorable conditions for implementing individualized teaching modes. These modes focus on teaching based on respecting individualized differences according to students' aptitude and help students with similar goals and motivations form groups of cooperative learning to work towards joint growth and progress. Nowadays, information technologies, such as data mining, resource sharing, and multi-terminal, have been closely integrated with the education realm, creating more urgent demands for implementing individualized teaching. Although a sizable number of scholars have realized the importance of individualized teaching modes and offered concrete advice, a majority of them are constructing individualized teaching modes centered on the differences between students' abilities to learn. Regrettably, little heed is paid to exploring the ways to arouse students' enthusiasm for learning. In this context, the paper classified college students into several groups by their future career directions to study individualized teaching modes from the perspective of the Internet-based teaching mode. The study aims to guide students to cooperate and communicate with teachers about learning on the Internet, set up an Internet-based individualized learning system, and eventually arouse students' enthusiasm for study. Specifically, the emphasis is paid to examining the teaching methodology suitable for implementing the individualized teaching mode in the Internet+ era. Thus the research findings of the paper are of high practical significance and values for promoting the educational process.

2. An Analysis of Individualized Teaching Modes From the Perspective of Internet-based Teaching Mode

Yangyang Cui held the view that Internet+ teaching was characterized by the separation of teaching subjects on the time and space dimension, the smart generation of teaching programs, and

students' comprehensive and timely evaluations of teaching. Also, he advocated that the Internet + teaching could duly handle the contradictions between traditional teaching and teaching goals, effectively solve the imbalanced allocation of teaching resources, encourage teachers to accumulate more professional knowledge, and give full play to the roles of the collective [1]. Lin Wang probed into the modes of individualized education and teaching in the Internet era, believing that the Internet information technology not only promoted reform and innovations in education and teaching but also made education a balanced, just, and lifelong undertaking. Besides, Wang also advocated that Internet information technology was conducive for transforming education and teaching modes and could be effectively applied to practice [2]. Based on defining the connotations and characteristics of individualized teaching accurately and comprehensively, Guiping Deng proposed deeply analyzing the bottlenecks faced by Internet+ and individualized teaching on the school, teacher, and student levels. Also, Deng believed urgent measures should be taken to break such bottlenecks, including creating conditions and atmosphere, reforming management and offering guarantees, improving teachers' qualifications through training, developing and expanding resources, promoting education, correcting concepts, changing the teaching modes, and improving teachers' abilities. Meanwhile, Deng advocated setting up a scientific and reasonable mechanism to provide referential paths for cultivating diversified talents for vocational education [3]. Shufang Yang proposed that big data was a valuable resource for the Internet education platform and the big data mining technology was also a crucial technique allowing the Internet education platform to offer individualized services to learners. Furthermore, Yang believed that big data mining technology would considerably make the Internet education platform more individualized and smart so that Internet education would eventually play a vital role in advancing the teaching reform [4].

Some scholars carried out empirical research on teaching interactions based on the Internet-based teaching mode. Zhuoyu Xu et al. constructed Internet-based modes and basic development modes based on SPOC. Specifically, four links were put forward, including selecting course concepts, selecting technologies, designing teaching modes, and carrying out teaching practice, to study and implement the mode of teaching interactions [5]. Lingmei Kong discussed methods for setting up an online teaching evaluation system and concluded the basic process of construction to improve the quality of online courses and carry out teaching evaluation tasks more effectively [6]. The support from Internet technology is indispensable for individualized teaching modes in the Internet era. Also, the demands for talent cultivation vary widely in different environments. A sizeable number of Chinese scholars have explored the environmental foundation for individualized teaching modes. It is found that individualized teaching modes are mainly constructed in the Internet technology environment, the context of network-based interactive teaching, and the SPOC platform. Aiming at achieving individualized learning, Zhihui Jiang constructed an Internet-based mode for the individualized teaching process and proposed strategies for individualized learning to optimize the Internet environment [7].

Huihui Shen upheld the following view: With the popularization of the mobile Internet, the way to learn is changing unconsciously, turning universal education and quality education into a reality. Correspondingly, there emerges a necessity for individualized learning, individualized teaching, and lifelong learning. In this context, the innovative education mode of ubiquitous learning becomes a trend. For example, micro-lecture is a creative way of learning that allows students to innovate in learning independently [8]. Tao Wang thought that "Internet+" offered a hotbed for individualized learning because learners were capable of obtaining individualized and diversified learning resources based on their hobbies and learning demands through Internet technology and independently determine the schedule for learning [9]. Besides, different individualized teaching modes lead to widely different learning effects. That is why many scholars have studied the practice of implementing the mode. For instance, Weiyi Shen advocated developing and using individualized experimental and teaching resources, designing theme cases, and evaluating teaching effects. These measures aim at empowering students to prove the hypothesis through online exploratory activities, cultivate students' ability in practical explorations, and enhance students' core qualities in disciplines [10].

3. Construction of Individualized Teaching Modes from the Perspective of the Internet-based Teaching Mode

The essence of the Internet-based teaching mode lies in deeply integrating Internet technology and classroom teaching. It has not only fundamentally changed the classroom teaching supported by traditional technology but also largely promoted the development of Internet-based, smart classroom teaching. Therefore, the paper probed into the driving mechanism for individualized teaching modes from the perspective of the Internet-based teaching mode. Meanwhile, it discussed ways to construct individualized teaching modes, the transmission modes of individualized teaching, and the evaluation mechanism for individualized teaching. Such explorations and discussions are conducive for constructing individualized teaching modes from the perspective of the Internet-based teaching mode.

3.1 Driving Mechanism for Individualized Teaching Modes From the Perspective of Internet-based Teaching Modes

Institutions of higher learning not only undertake the arduous mission of training applied talents with overall qualities and abilities but also shoulder the responsibility for providing qualified teaching resources for college students. In reality, however, students have different career orientations, development goals, and learning motivations. If universities adopt the unified teaching modes and pay little heed to the unified teaching mode, it will inevitably lead to a myriad of problems, including the loss of interest in learning, lower enthusiasm for learning, deficiency of application practices, and inadequate utilization of teaching resources. In contemporary society, the talent market places increasingly high requirements for college graduates. It will be a waste of teaching resources from institutions of higher learning if students fail to apply the professional knowledge learned from universities. Thus factors such as the orientation of national policies, social demands, and individuals' demands for development should be taken into considerations. Meanwhile, students should be classified into the career-oriented, entrepreneurship-oriented, and admission-oriented types and given individualized training. Specifically, career-oriented students should be subdivided into cooperative groups according to the occupations related to their majors. The division aims at helping students with the same or similar career orientations to share out the work and work in cooperation. In the meantime, online teaching and offline teaching should be combined so that students can apply the professional knowledge learned from a specific industry to practice and eventually achieve joint progress for each group. Students in the entrepreneurship-oriented category have a solid foundation for systematic theories and knowledge, as well as the consciousness of innovations and entrepreneurship. A small platform of entrepreneurship and innovations should be provided to improve students' advanced skills and essential skills for entrepreneurship. The admission-oriented group is targeted at students who wish to receive further education after graduation and aims to consolidate their foundation and improve their comprehensive abilities.

3.2 Construction of Individualized Teaching Modes From the Perspective of Internet-based Teaching Mode

The feature analysis of individualized teaching modes lays a foundation for guiding students' individualized learning. Students are subjects of learning, so their goals for future development, abilities to learn, and cognitive foundation all profoundly affect the final effects of learning. Only by classifying and thoroughly knowing students' conditions can teachers optimize their teaching efficiency and students' learning efficiency. The environment and tools of learning are two vital guarantees for achieving individualized learning. Thus elements such as support for individualized learning, the Internet environment, digitalized teaching resources, digitalized platforms, and learning-supporting services are essential. Supporting online learning resources and the design of offline teaching activities support individualized teaching. To achieve corresponding learning objectives, efforts should be made to construct supporting resources and make efficient study plans.

A multi-evaluation mechanism offers critical guidance for promoting individualized teaching. Evaluation is one effective means for accepting results. Thus multi-evaluation should be adopted, including the learner's usual performances, the final score, and practical skills. To be specific, usual performances include the completion of career planning, performances in cooperation and communication, in-class discussions, and extracurricular practice. Each link is scored proportionally, and the total score is used to judge each student's study performances comprehensively. The process of constructing the mode of individualized learning from the perspective of the Internet-based teaching mode is listed in Fig.-1.

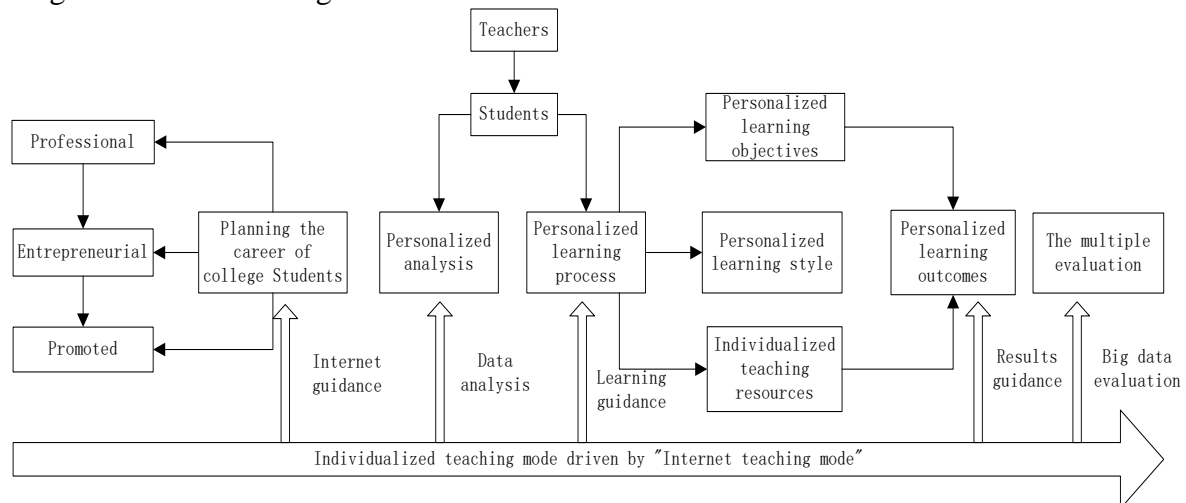


Fig. 1 block diagram of personalized teaching mode from the perspective of internet teaching mode

Firstly, an individualized knowledge system under the Internet teaching mode should be set up. Before dividing students into individualized groups, teachers should excavate data related to students' learning behaviors through the platform of big data analysis and analyze such data from a multi-perspective oriented on development planning. Generally speaking, the evaluation should include not only development planning but also the learner's features, including the learning ability, cognitive competence, and knowledge structure. For instance, online course platforms such as SPOC should be adopted to abstract the learner's features from multiple channels and variables to analyze and evaluate students accurately. Next, students are preliminarily divided into several groups of cooperative learning through big data analysis. Then questionnaires are released to know learners' personality characteristics, strengths, hobbies, and enthusiasm for learning. Afterward, the members of each cooperative learning group are readjusted according to analytical findings. Each group of cooperative learning should first make collective goals for long-term learning and development. After that, the members of each group should make short-term personal goals for learning and development according to their abilities in learning. Finally, each member should share out work and cooperate in finding appropriate resources for teaching and learning. Last but not least, students should set up their unique knowledge network systems and make effective plans for learning and development. It should be noted that the members of each cooperative learning group have widely different knowledge structures, thinking habits, cognitive competence, and likes for learning. Therefore, students should incorporate their thoughts into accumulated knowledge while setting up an individualized knowledge network. For another, the incorporation is conducive for group members to learn from each other and improve their learning efficiencies. For one thing, it helps students to grasp knowledge systematically and arouses their curiosity for exploring unknown information.

Secondly, an individualized teaching course system should be set up under the Internet-based teaching mode. The mode of online teaching courses + offline teaching courses should be adopted to achieve the long-term and short-term development goals of each cooperative learning group. Meanwhile, efforts should be made to set up the course structure featured with public theoretical courses, classroom practice courses, practice courses for professional groups, and elective courses. Each type of courses plays a distinctive role. Public theoretical courses aim to enable students to

understand the fundamental knowledge of all courses systematically and lay a foundation for professional development and lifelong education. Classroom practice courses aim to complement existing theoretical knowledge, arouse students' enthusiasm for learning, and train students with strong hand-on skills. For example, classroom practice courses should be taught through classroom discussions, teaching experiments, and case sharing. In particular, more teaching experiments should be added to specialized courses to exercise students' professional skills. The practice courses for professional groups are provided for all cooperative learning groups. These courses combine the online courses related to the development directions independently selected by each group and the instruction courses taught by offline professional teachers. These courses aim at cultivating professional groups' core abilities in different development directions. Owing to the differences between the core abilities needed by each direction, the specialized core courses for each vary widely. Elective courses mainly refer to the courses selected by students according to their interests and hobbies. These courses are divided into humanistic quality elective courses and professional elective courses, aiming to make up for the differences between students' interests and hobbies. Students are not only allowed to select offline courses independently but also capable of accomplishing study tasks by taking online courses. Of course, credits can be obtained by participating in a variety of social practices and voluntary activities.

Thirdly, the results of individualized learning should be evaluated under the Internet-based teaching mode. For one thing, each group has different learning modes and learning goals. For another, even the members of the same group vary widely and have different learning results. Therefore, the evaluation of each member's learning achievements should be diversified and individualized. An online course platform can record students' self-study performances and test scores automatically. Therefore, online course platforms such as SPOC should be adopted. Meanwhile, the Internet teaching-driven mode, including self-evaluation, mutual evaluation, and automatic system evaluation, should be employed. Next, each student's subject learning should be proportionally evaluated according to the performances in cooperative learning, improvement in abilities, practical achievements in each direction, and the construction of a personal knowledge network. The individualized and diversified evaluation mode for learning achievements differs from traditional evaluations of classroom teaching. Besides, it is characterized by individuality and caters to the demands for individualized development. Teachers play a dominant role in traditional evaluations of classroom teaching. This single evaluation mode pays little heed to the differences between learners' individualized study, failing to meet the requirements on individualized learning and diversified teaching. The evaluation of individualized learning achievements should fairly and justly evaluate learners' learning achievements, with considerations to students' different learning objectives and differences between courses.

4. Practical Application of Individualized Teaching Modes from the Perspective of Internet-based Teaching Mode

Individualized teaching should be applied to practice by teaching students who major in applied statistics according to the Internet-based teaching mode. Currently, the groups of cooperative learning are classified into the career-oriented group, entrepreneurship-oriented group, and admission-oriented group. The career-oriented group is subdivided into the groups oriented on banking, financing, Internet, and governmental statistical departments. Firstly, each group should set individualized learning goals for cooperation, set up an individual knowledge system, offer individualized guidance on the study, push individualized teaching resources, and evaluate students' learning achievements through an individualized evaluation mechanism. From the perspective of the Internet-based teaching mode, teachers and students are both learners. Thus a knowledge base should be constructed in the following mode: driven by the Internet->dominated by teachers> students as objects->Internet-based evaluation. The individualized activities where students serve as subjects and teachers play dominant roles should be designed as follows:

1) Design Student-Oriented Activities

Firstly, students look up relevant knowledge on the Internet and undergo the individualized

analysis before being divided into several cooperative learning groups. Next, each group should make effective study goals and plans according to all members' conditions. Secondly, each group should set up a targeted knowledge system according to their development directions and learning goals. For example, cooperative learning groups of the banking industry should set up links between core knowledge on banking business and applied statistical skills. Thirdly, students should participate in group discussions and evaluate each other's study performances. Fourthly, each group should score members' learning achievements through the Internet and report achievements. Fifthly, all group members should share, summarize, and reflect on past learning experiences.

2) Design Teacher-Dominated Activities

Firstly, guidance and advice should be provided to help each group of cooperative learning to set goals and make plans for learning. Secondly, teachers should carry out data analysis and set up a core knowledge base according to each group's development directions and demands. For example, students should be given the freedom to select courses according to their demands, which is conducive for raising the efficiency of searching for study-related resources. Thirdly, attention should be given to the latest news and trends of each cooperative learning group to know students' learning schedules and offer support when necessary. Fourthly, targeted practical activities should be designed according to different development orientations. Fifthly, students should participate in the evaluation of individualized learning results to offer guidance and advice.

3) Evaluations of Individualized Teaching Modes Under the Internet-Based Teaching Mode

Firstly, students should be divided into several cooperative learning groups according to their career planning and learner characteristics, including abilities to learn, cognitive competence, and knowledge structures. Meanwhile, the arrangement should be publicized. Secondly, the members of each cooperative learning group should make distinctive goals and plans for learning. Specifically, the career-oriented group should make goals and plans centered on their requirements on positions and personal competence. The entrepreneurship-oriented group should make goals and entrepreneurship plans centered on the object group, industrial prospects, and promotion strategies. The admission-oriented group should make a systematic study plan for their academic admissions. Thirdly, all team members should select appropriate learning resources according to their distinctive learning directions and set up an effective personal knowledge network system. Next, all group members should score each other according to individual performances and study achievements. Fourthly, teachers should regularly check the tasks and schedule of each group, as well as provide guidance and advice accordingly. Fifthly, distinctive support should be offered to each group. Specifically speaking, activities related to the major should be designed for the career-oriented group. For example, some expenses should be allocated to the entrepreneurship-oriented group. A favorable teaching environment and professional supervisors should be provided for the admission-oriented group.

5. Conclusions

Promoting the innovation and development of personalized teaching methods under the "Internet teaching mode" is a long way to go. China has vigorously promoted the Internet plus strategy. With the help of the Internet, higher education has provided a good opportunity for the exploration of personalized teaching mode. This paper first analyzes the current situation of individualized teaching mode under the "Internet teaching mode" of the Internet, and explores the driving mechanism of individualized teaching mode, the construction method of individualized teaching mode, the communication form of individualized teaching and the evaluation mechanism of individualized teaching from the perspective of "Internet teaching mode". The sea is vast enough for fish to swim, and the sky is high enough for birds to soar. With the Internet, teachers can guide students to dominate their learning. For one thing, it enhances positive interactions between teachers and students and raises teaching efficiency. For another, it helps to train talents capable of independent study and lifelong learning. In conclusion, Internet+ teaching will create a wider platform for teaching.

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