Students' Personalized Targeted Homework Based On Knowledge Mapping

Jiang Xia
Northwest Normal University, Lanzhou, Gansu China

Abstract. After the implementation of the dual reduction policy by the country, the direction of education development has changed. Future education requires teachers to develop intelligent teaching methods based on the different characteristics of different students. Based on intelligent teaching, corresponding ability goals are constructed, but the representation of such ability goals is difficult to present systematically and accurately. Using artificial intelligence and high school students as the core and carrier of learning, guided by the theory of multiple intelligences, and guided by subject knowledge graphs, students choose homework sheets that are suitable for themselves based on their actual learning situation. In the process of completing homework, they follow the principle of easy to difficult to avoid repetitive assignments. To fully stimulate students' interests and enable them to have better personalized learning abilities, ensuring that future teaching is more intelligent and real-time.

Key words: Knowledge map; Targeted operation; Wisdom Education

1. Implement the "double reduction" strategy and make smart learning more effective

In order to implement the spirit of the Fifth Plenary Session of the 19th CPC Central Committee and make the school have a higher level of education. In response to this situation, the National Education Department recently issued relevant opinion documents, proposed specific measures to comprehensively reduce the total amount of students' homework in the compulsory education stage, and put forward specific requirements for the length of homework. So that students will not feel nervous when studying. The key point is to make students have a higher quality of homework, give full play to the functions of homework diagnosis, and add homework design to the teaching and research system. In addition, the design of homework teaching and research system should not only meet the requirements of students of different ages, but also reflect the guiding role of quality education. When assigning operations, it is more important to reflect the characteristics of flexibility and personalization to avoid mechanized and repetitive operations.

1.1 Smart learning to strengthen quality education

As we all know, high-quality education can promote the development of a country, thus making the country stronger. The issuance of relevant documents in the Fifth Plenary Session of the 19th CPC Central Committee is not only the policy guidance for future education, but also the clarification of future teaching objectives. The relevant documents issued by the Ministry of education and other departments proposed to "speed up the construction of new education infrastructure with the goal of improving the existing level of education security". The development goal during the 14th Five Year Plan period is to establish a high-quality education system.

With the help of intelligent technology, it can create an intelligent learning environment for the student camp. From different perspectives, collect information related to students. For example, students have the characteristics of strong learning ability. We often use big data to understand students' situation in school, comprehensively and accurately analyze students' learning situation, and then carry out intelligent system diagnosis, demand information feedback, and intelligent guidance, so as to make students' learning more personalized. Cultivate students' basic quality and promote their all-round development. Through relevant analysis, it can be concluded that both the establishment of a high-quality education system and intelligent learning have the same essence. In
other words, with the help of intelligent technology and new learning methods, we can create an intelligent learning environment for students, collect students' relevant learning data, and on the basis of these data, diagnose and regulate their learning situation, so that students can achieve comprehensive development. To create a high-quality education system, we must rely on intelligent learning.

1.1 Intelligent learning to achieve personalized training

From the perspective of class teaching system, in order to realize personalized learning, we must provide students with core learning mode and accurately grasp the details of students. Starting from the learning situation, the existing learning environment is optimized through dynamic regulation, combining online and offline, finding learning resources that can meet their learning requirements, reshaping the original learning process, changing the original learning methods, and helping students with personalized learning.

The main task of intelligent learning is to make full use of intelligent technology, create an intelligent learning environment for the society, collect and control the learning data and learning process, and find out suitable learning methods and learning partners who are willing to help themselves, so as to guide themselves and help them develop towards wisdom. The implementation of intelligent learning, not only from their own reality, to find their own learning content, but also to find suitable learning methods for themselves, and on this basis to carry out personalized learning, to achieve the diversified development of students.

1.2 Intelligent learning to cultivate the core quality of the discipline

The fundamental problem of education is how to cultivate talents in line with social development. The Ministry of education proposed in the relevant documents that we should comprehensively promote the deepening of reform and take deepening reform as the fundamental task of Building Morality and cultivating people. At present, all countries in the world are carrying out customer level reform on this basis. Relevant scholars put forward the organization for economic cooperation and development in their research. After the concept was put forward, UNESCO and other organizations as well as the United States began to study the core literacy. In this context, China has also started the research in this area. The overall framework of relevant documents was released in 2016. The core quality of a subject is gradually formed by students in the process of learning, and it is also the ability and quality to adapt to it. From the core quality of discipline, we can see the value of discipline education, and present the party's education policy. In order to achieve moral education and carry out education reform, we must cultivate students' subject core literacy. In today's society, the most concern in the field of education is how to integrate the cultivation of subject core literacy into classroom teaching.

In order to cultivate students' subject core literacy, it is necessary to cultivate students' problem-solving ability. At the same time, we should cultivate the students' innovative ability, especially the students' thinking ability. However, it is difficult to cultivate this kind of "thinking" in conventional teaching. In this case, it is necessary to use the advantages of intelligent technology to create an intelligent learning environment for students, so that students can carry out the corresponding discussion process in such an environment, and accumulate rich thinking experience in this process. This process coincides with promoting the development of students' multiple intelligences. Smart learning is based on moral education to cultivate the core quality of the discipline.

1.3 Big data supports smart learning

In recent years, big data has been widely used in the field of education, and education big data has also emerged. In the process of carrying out educational activities, educational big data has been generated. These data contain many data sets, which are of great value and can have an important impact on students' learning and promote the development of smart learning. The development of
smart learning needs the help of various intelligent devices, such as wireless sensor design, which can collect and summarize all kinds of data in the process of learning, so that it can become the big data needed by education, lay a certain foundation for smart learning, and guide the essence of education. The purpose of smart learning is to meet students' learning needs, such as precision. To achieve these needs, we must rely on educational big data. Data can promote intelligent learning. In the process of intelligent teaching, through the collection and storage of massive data, various types of information in the data are deeply excavated. On this basis, combined with the characteristics of learners, the cognitive state is evaluated for accurate judgment. Combined with the actual situation of students, various resources suitable for their learning are recommended for them to cultivate intelligent learners. The use of various intelligent technologies has created various intelligent learning scenes for students' learning, which not only promoted the reform of intelligent learning, but also promoted the development of intelligent learning and accelerated the pace of intelligent technology innovation. Through the analysis of intelligent learning, it is concluded that the development of various intelligent technologies has greatly changed the existing learning content and environment. The collection of various data has also made intelligent learning a reality and promoted the development of intelligent learning.

2. Intelligent learning helps teaching and learning to teach students in accordance with their aptitude

2.1 Four "independent" to establish precise teaching based on homework management

Let teachers keep their teaching habits. Improve teachers' digital teaching ability, and formulate corresponding learning plans for students from the perspective of scale and according to the actual situation of students. Paper answers can meet the needs of examination. Make learning more precise and personalized. And abandon all kinds of electronic equipment in learning, such a learning method does not need to invest too much cost, and also has a certain protective effect on students' eyesight. Maintain the school network hardware environment and adapt the corresponding information-based teaching equipment according to the different needs of different regions.

2.2 Teaching students in accordance with their aptitude

Reform the original teaching mode, implement personalized teaching, and carry out intelligent teaching according to the characteristics of each student. The National Smart Education cloud platform strengthens school-based smart homework and completes the corresponding teaching positioning on the basis of learning based teaching. Set a high standard for the basic knowledge of the course, strictly implement their basic abilities, so as to develop the corresponding synchronous learning resources, and ensure that the resources can meet the requirements of each school. Make accurate judgment on the learning situation of different schools, especially in the process of judgment, based on the "school-based smart homework", to make future teaching more accurate, give full play to the initiative of teaching compensation, improve the corresponding service system by improving the teaching quality, and make the regional education more distinctive. Let homework be more normalized in the process of teaching and research. We should combine the "school-based homework" and carry out corresponding research on this basis. We should implement the normalized collaborative mechanism in learning. We should not only strengthen the normalized use of "school-based homework", but also analyze the relevant data. Through the normalized research, teachers can accumulate more experience, so as to realize the sharing of resources.

2.3 Application runs through the whole cycle of teaching and learning

If you want to achieve the class goal, you must preview in advance. In the process of teaching, teachers should not only give consideration to students with relatively poor learning, but also strengthen the cognitive goal of subject guidance resources. From the perspective of classroom
feedback stage, this stage is mainly based on class hours, which can be used not only in process evaluation, but also in the analysis of learning situation in class or after class. Whether it is the analysis of learning situation or the wrong question book, it can provide students with corresponding supplementary resources; The personalized improvement manual is a means to complete the collection of students' various data, expand the scale of intelligent learning, complete accurate evaluation, and optimize the existing teaching service quality and corresponding service efficiency, so as to achieve accurate guidance.

2.4 Multi dimensional academic situation analysis push personalized promotion resources

First, we should establish digital school-based resources. In the relevant school-based database, it is necessary to establish both personal question bank and students' wrong question bank. Secondly, based on the operation management, establish the corresponding system. Select good homework and establish "homework supermarket" on this basis to provide students with different types, improve teachers' teaching philosophy, and grade students' homework. Elaborate on the operation of the operation. Students should choose their own homework list according to the actual situation of their study. In the process of completing homework, they should follow the principle from easy to difficult, avoid repeated homework, and fully stimulate students' interest. When explaining the homework, we should seamlessly connect the homework data with the teaching scene in the classroom. Combined with the relevant homework data, we should elaborate the homework, so that teachers do not have more pressure, so as to improve the quality of teaching in the classroom. We should carry out time effective management on students' homework. We should not only complete the collection of homework, but also optimize the relevant homework design, reduce the total amount of students' homework, and ensure the quality of the whole teaching. Let students have better academic performance; With the help of the knowledge map in the learning platform, we can complete the after-school counseling. To achieve accurate counseling, we must do the following: first, targeted homework; 2  Create a common mistake book; Third, create a personalized promotion manual. Finally, it analyzes the current learning situation through different dimensions. Accurately grasp the relevant data of learning situation, such as the error rate of exercises. From the perspective of visualization, establish the corresponding big data Kanban to have a certain understanding of the real-time situation of the school, such as the use of school-based resources and the teaching progress of students in all grades. The four quadrant diagram of operation management not only includes the distribution of operation time and operation time, but also includes the difference of operation time, operation time and performance. With the help of the data generated in the teaching process, teachers' explanations are more accurate. Through after-school reflection, students can have better personalized learning ability and ensure that future teaching is more intelligent and real-time.

3. Accurate effect of education big data

3.1 Accurately depict the level of learners and recommend personalized learning services

Under the influence of systematization, the guidance of the theory of multiple intelligences can promote the development of learners' intelligence. From this perspective, the constituent elements of intelligent learning are explored and explained to find out the internal principle of intelligent learning and the corresponding operating mechanism. Under the support of six core elements, it completes the quantitative representation of the subject ability goal, accurately depicts the level of learners, and provides personalized learning services for learners. Artificial intelligence has been widely used in the field of education, which promotes the development of intelligent learning and the construction of corresponding models, and then promotes the development of intelligent learning system.
3.2 Accurate quantitative representation of discipline ability objectives

Accurate quantitative representation mainly includes three parts: first, problems; Second, the composition of ability; Third, subject knowledge, whether it is the core problem or the task, can be used as a clue to find out the relationship between the three. The quantitative standard of subject ability should not only solve the related problems, but also accurately describe the completion of the task. This is the so-called map of subject knowledge.

The problem of subject core is the clue of the map of subject knowledge. It combines problem solving and task completion in a scientific way, establishes corresponding connections based on subject knowledge, and clearly expounds these connections. On the basis of basic problems and tasks, find out relevant solutions and strategies through iteration, and establish the relationship between them. Starting from the core problem and the key ability of the discipline, find out the relationship between them, and form a complete accurate description ability by solving problems. Based on the subject knowledge of design, the subject problem, subject technology and subject ability are described. On this basis, the corresponding amount correlation relationship is constructed from the knowledge, problem and ability. Through the description of the problem-solving ability, with the help of quantitative representation, the subject ability goal is turned into reality. Therefore, the subject knowledge map can support the smooth development of intelligent learning.

3.3 Accurately depict learners' portraits and recommend personalized learning paths

Based on the map of subject knowledge, collect all kinds of information of learners, such as the basic information of learners, and establish the corresponding calculation model based on the various situations. From multiple aspects, establish the portrait of learners, such as knowledge, in order to achieve the accurate portrayal of learners. When it is suggested to use the learning path, priority should be given to the use of subject knowledge mapping. We should not only collect behavior data, but also collect result data. At the same time, we should make corresponding improvements to ant colony optimization algorithm and make corresponding transformation to the group learning path. At the same time, with the help of recurrent neural network, hidden Markov model and learning analysis technology, we can diagnose and guide learners and make the final accurate analysis, and build the corresponding learning community from different aspects, so as to provide a strong guarantee for learners to find the optimal learning path.

References


[8] Jinxiaoyan, zhoushixiang "National Smart Education Platform for primary and secondary schools" was updated and launched [n] Guangming Daily, March 2, 2022 (008)

