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Research on the Strategy of Teaching Innovation Team Construction Under Smart Education

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Abstract: In the environment of intelligent education, the construction of teaching innovation team should be taken as an important means to conform to the new trend of information innovation development and education innovation development. The connotation and characteristics of smart education determine the necessity of teaching innovation team construction. The content of teaching innovation team construction in the intelligent education environment should include the dynamic development of intelligent teaching resources, the teaching organization of ubiquitous learning, the design and management of multi-dimensional interaction, the intelligent evaluation of data analysis, and the intelligent cultivation of information teaching literacy. In order to adapt to the development of smart education, teaching innovation groups must clarify the construction goals, and its members must have advanced educational concepts and full teaching enthusiasm. Optimize the personnel structure of teaching innovation teams in multiple ways from professional knowledge, teaching philosophy to information technology. Constantly innovate and improve the training system on the basis of members' independent learning to support their sustainable and effective development. Carry out team introspection through network collaborative class case study and various information technology means are used to realize the exchange of teaching ideas in the environment of intelligent education. Set up reasonable and effective incentive mechanisms to fully stimulate the enthusiasm of teachers teaching innovation team construction to promote the cultivation of high-quality innovative talents.

Keywords: Wisdom Education, Teaching Innovation Team, Information-Based Education and Teaching Innovation

1. Introduction

With the rapid development of digital technology, it has widely penetrated into all fields of social production and life. The reform of educational concept and teaching method is also deeply affected by the rapid development of information technology. Smart education is a new form of highly developed education informatization, which has become a major strategy of education development in many countries and regions around the world. Wisdom education has brought severe challenges to teaching reform, but also brought opportunities for development. The construction and integration of smart teaching resources, the innovation of smart learning mode and the visualization of smart evaluation and management mode are all challenges to teachers' personal ability and energy, and the importance of collective cooperation and joint labor is becoming more and more prominent. The construction of teaching innovation team is not only a broad platform for the construction and development of digital intelligent resources and the reform and innovation of information education and teaching, but also an effective way for the construction of teachers in the environment of intelligent education, and an important guarantee for the innovative teaching mode to cultivate high-quality talents.

2. The Connotation and Characteristics of Smart Education

2.1. Connotation of Smart Education

Professor Zhu Zhiting believes that: "The basic connotation of smart education in the information age is to

promote learners' Smart Learning by building Smart Learning Environments and using Smart Pedagogy, so as to improve their expectations of success. It means to cultivate people with High Intelligence and creativity, who can participate in various practical activities with appropriate technical intelligence and constantly create products and value, so that they can adapt, shape and choose their learning environment, living environment and working environment cleverly". [1] Yang Xianmin, from the perspective of ecological view, believes that "Smart education is an educational information ecosystem built by the Internet of Things, cloud computing, wireless communication and other new generation information technologies, which is connected, smart, perceptive and ubiquitous, and is the advanced development stage of digital education." [2] Professor Huang Ronghuai defines smart education as an educational behavior (system) featuring high learning experience, high content adaptation and high teaching efficiency. It can provide a series of differentiated support and on-demand services by using modern science and technology. Can comprehensively collect and utilize state data and education process data to promote equity, continuous improvement of performance and foster educational excellence. [3] For smart education, information technology has evolved into the key to deep integration and innovation with the education system. The rational and all-round introduction of information technology and its innovative application have accelerated the comprehensive reform and continuous evolution of the education system and become the core factor of the continuous development of education modernization.

2.2. The Characteristics of Smart Education

Digital education is a new form of education under the information environment, which is based on various digital technologies. Strictly speaking, smart education belongs to the category of digital education. The difference is that smart education is carried out smartly based on various advanced and enhanced digital technologies. As a new form of education, smart education is the deep organic integration of information technology, professional knowledge and teaching ideas, which has the following characteristics.

2.2.1. Dynamic Resource Interoperability

The teaching resources in the smart education environment will inevitably change from a one-way and static model to an open and collaborative model. Adhering to the concept of "open and sharing", smart education realizes the integration and sharing of high-quality educational resources through self-construction, purchase and other ways, so that learners can obtain massive educational resources.

2.2.2. Ubiquitous Learning Style

The popularization of various mobile terminals makes the teaching organization more novel and flexible. The network connects the classroom and various places and resources outside the classroom. Learning in the smart education environment has become ubiquitous, so that learners can use appropriate tools and environments to access resources for learning anytime, anywhere.

2.2.3. Multidimensional Interactions

The interactive activities under smart education are multi-dimensional and deep interactive integration between people, people and things, and even things and things. People can realize interactive communication between teachers and students, between students, and between teachers at any time and anywhere, providing a platform for deep learning, talking about research, exchanging experience, and sharing resources. People-object interaction is the interaction between man-machine and information space, which can automatically record the whole process of teaching and interaction as data support for feedback management. The interaction between objects can be understood as the interaction between devices, systems and even resources breaks through the limitations of static independence in the past and forms dynamic interaction.

2.2.4. Learning Management Visualization

Visualization is the inevitable trend of data processing and display in the information age, and is an important feature of smart education system. Reflected in the following aspects (1) Visualization of teaching resources: make full use of various means to display teaching resources in a visual way, for example, the abstract content can be visualized to promote students' understanding, and ultimately improve learning efficiency and optimize teaching effect. (2) Visualization of management services: all kinds of mobile device network teaching platform can be operated and applied by visual means, and can monitor and record its running status, learning activities and environmental information. (3) Visualization of evaluation analysis: through the mining of massive information through big data, it can realize the analysis of students' evaluation and learning mode, teaching management and other situations, and intuitively present it with visual numerical data.

3. The Concept of Teaching Innovation Team and the Necessity of Its Construction

3.1. The Concept of Teaching Innovation Team

Innovation team consists of two key words, innovation and team, which are the organic integration of innovation and team, a team with innovation consciousness and innovation ability, and at the same time, the innovation consciousness and innovation ability of team cooperation. Under the guidance of common goals and advanced educational concepts, the teaching innovation team is a core team composed of teachers with complementary knowledge and skills, who can use creative thinking and ability to deepen the reform of information education and teaching, develop dynamic teaching resources, start innovative teaching practices, carry out the construction of teachers'

comprehensive quality, and finally realize the cultivation of innovative talents. Teaching innovation team construction opens up new ideas for talent development and professional construction, conforms to the requirements of information innovation development and education innovation development, which is an important means of smart education construction.

3.2. The Necessity of Research on Teaching Innovation Team Construction Under Smart Education Environment

Under the environment of smart education, the construction and sharing of dynamic resources, the innovation and exploration of teaching mode, the interactive evaluation of learning and the comprehensive development of teachers themselves all need the concerted efforts of the teacher team to complete. In traditional teaching, most teachers work alone, and their individual teaching resources are relatively closed. The necessity of teaching innovation team construction in the environment of smart education is reflected in the following aspects.

The cooperation among teachers in the teaching innovation team can effectively promote the connection of knowledge and the co-construction and sharing of resources, and promote the integration and development of smart teaching resources.

The teaching innovation team emphasizes deep cooperation and complementary advantages, and pays attention to the interaction and experience sharing in the learning process. It can make members think about their own educational practice when the team solves practical problems, and implement the reflection 6 results into practical actions while improving the reflection learning and communication. Through the mutual supervision of the team, the repeated discussion and exchange from reflection to action can be continued. In order to constantly explore the effective teaching mode, improve the teaching effect.

Teaching innovation team emphasizes the interaction of team and group effect, which can promote the interactive evaluation of learning. In the environment of smart education, teachers need to analyze and process massive information, and the complexity of information is far beyond any previous period. Evaluation and analysis is no longer the responsibility of a teacher, but the overall smart analysis of the teacher team based on data.

The teaching innovation team can stimulate the independent development of teachers' comprehensive quality, which means that teachers take the initiative to stimulate their creativity and individual role for development. The teaching innovation team has a common goal, creates a harmonious atmosphere of support and encouragement, breaks the set of thinking, and stimulates teachers' deep potential and consciousness of professional development. Motivate teachers to form more advanced teaching concepts and teaching behaviors.

4. The Content of Teaching Innovation Team Construction Under the Smart Education Environment

4.1. The Dynamic Development of Smart Teaching Resources

Although traditional digital resources also have massive data and various forms, they cannot seamlessly support ubiquitous learning, deep interaction and visualization in the smart education environment. Smart education should first upgrade and transform traditional digital resources smartly, innovate the use of smart resources, so as to meet the needs of the transformation of smart learning and teaching methods, and serve the training of smart innovative talents.

The construction of smart teaching resources is a dynamic and complex process. The foundation stone of the system is composed of learning resource base and open course base, which is also the basis of the construction task of smart teaching innovative group. When building smart resources, the smart teaching innovation group should first make scientific plans, take "people-oriented" and "learner-centered" [4] as the construction concept, creatively develop and design, and establish humanized resources. Open courses should embody the high integration of wisdom, education, science and art, and the learning resources should focus on the content that can be personalized and easy to understand. Secondly, resources should be integrated to achieve seamless sharing. Many high-quality resources on the Internet have not been effectively gathered, and many high-quality resources cannot be truly shared due to interest reasons. Smart teaching innovation teams should use portals to achieve high-quality integration, guided by "joint construction and sharing as the main task, supplemented by commercial construction and public sharing" [5], and realize seamless sharing of resources, to ensure the dynamic generation and evolution of resources.

4.2. Teaching Organization of Ubiquitous Learning

Intelligent education breaks through the limitations of time and space, teaching resources and teaching forms, and the ubiquitous nature of learning requires continuous adjustment of teaching concepts and educational modes to better promote educational reform and development. The teaching organization in the smart education environment should take learners as the center and integrate the teaching design concept, take technology as the support, meet a variety of teaching methods and learning modes, combine informal and formal learning, and realize the integration of physical space and virtual space. [6] First of all, teaching design must be based on the characteristics of learners, fully consider their cognitive level, learning attitude and style and other dimensions, and integrate cultural and psychological factors to provide personalized learning resources and environment for learners. Secondly, it technically relies on the linkage of mobile terminals, multi-screens and other devices to meet the switch of learners' scenes, and conducts behavior analysis and

evaluation feedback for learners through big data and cloud computing to improve learning support services. Finally, the teaching and learning mode should adapt to the change of new technology, and freely combine experiential learning, situational learning, flipped classroom and other modes, so as to adapt to the learner-centered and the idea of ubiquitous learning.

4.3. Design and Management of Multi-Dimensional Interaction

Interaction is essentially an interaction initiated by the exchange of information. According to Moore, there are three types of interactions in distance education, namely, the interaction between learners and learning content, the interaction between learners and teachers, and the interaction between learners and learners. [7] In the context of smart education, interactive activities develop in multiple dimensions and in depth. [8] Emphasize deep learning, attach importance to the connection with previous knowledge and experience, and pay attention to logical relationships and conclusions of evidence. [9] The design of interactive questions should pay attention to openness, and topics for discussion at different levels can be set to help different types of learners to actively discuss. In the virtual community, the teaching innovation group can track the changes of interactive data in real time, understand the distribution of the learning community through the division of labor of the group members, and make full use of the data advantages of the intelligent network to compare the total number of posts and clicks, and analyze the activity of learners. [10] According to the collected data, the team discussed the problems and situations together, discussed and formulated solution strategies in a timely manner, paid full attention to the enthusiasm and emotional attitude of participants, and gave timely praise or patient guidance according to their different performances.

4.4. Intelligent Evaluation of Data Analysis

Learning evaluation is the feedback and adjustment of the learning system. Currently, the way of learning evaluation is generally relatively simple, lacking of multiple evaluation of learning process and learning ability. The evaluation in the environment of smart education is based on big data to provide wisdom evaluation for teaching. The judgment basis is no longer the unified standard, but turns to solving real problems and focusing on effectiveness. Learning analysis technology guarantees the realization of intelligent learning evaluation. Through the learning analysis of the comprehensively collected process information, it can explain and describe the learning phenomenon, guide and interfere with the learning style, and deduce and predict the development trend. Such "intelligent" learning evaluation will revolutionize and innovate evaluation methods, from empirical evaluation to scientific data analysis to developmental evaluation; It will also provide scientific basis for improving teaching and learning and serve the practice of smart learning. [11] In the

process of learning, learners will generate a large amount of behavioral data, which is the scientific basis for providing personalized learning diagnosis, learning decision, precise push and multiple assessment and other personalized adaptive learning services. [12]

5. The Development Strategy of Teaching Innovation Team Under Smart Education Environment

In order to adapt to the development of smart education and promote the cultivation of innovative talents in smart education, the teaching innovation team must clarify the construction objectives, update the teaching concept, optimize the personnel structure of the teaching innovation team, constantly innovate and improve the training system, carry out team introspection, and set up a reasonable and effective supervision and incentive mechanism. Specifically, the following measures can be taken to promote the development of teaching innovation team.

5.1. Define Goals and Renew Ideas

The construction of teaching innovation team in the intelligent education environment should have a clear goal, and its members must have advanced educational concepts and full of teaching enthusiasm. Under the guidance of modern teaching ideas, the teaching innovation team should take improving the quality of talent training as the core, work with new ideas and new measures, and set clear and feasible teaching reform goals in the aspects of resource construction, teaching design and interactive evaluation. Teachers should continuously improve the ability of information-based teaching with a lifelong learning attitude, regard it as a lifelong practice process, internalize information-based teaching into a teaching concept of their own, and form information-based teaching wisdom including learning and reflection. Teachers should update their ideas, actively adapt to the pattern of multiple functions of ability, actively become proficient in information technology, master advanced teaching means and methods, so as to effectively use information technology to develop digital resources, guide learning, analyze and evaluate the learning process and give timely feedback, and truly realize innovative talent education with learners as the center.

5.2. Multiple Optimization Team Structure

Different from the ordinary teaching team, the composition of teaching innovation team members under the perspective of smart education also has different requirements. Smart education is the deep integration of professional knowledge, teaching concept and information technology, which involves both surface technology application and deep education concept, which determines that the personnel composition of its teaching innovation group must also have relative ability. The composition of team members requires backbone

teachers with rich professional theoretical knowledge and subject teaching experience, as well as information technology teachers with practical operation ability. Through discipline division and cooperation, complementary advantages, teaching problems can be solved and teaching ideas can be innovated. Meanwhile, diversified knowledge composition is more likely to bring innovation and stimulate team creativity. [13] Among them, high-level leaders are the key to the development of innovative teams.

5.3. Continuous Innovation and Improvement of the Training System

In order to ensure the innovation and development of the teaching innovation team, it is necessary to ensure the comprehensive and intelligent development of the information-based teaching quality of its team members. In terms of training methods, information teaching skills training and online learning training can be carried out, information teaching competition can be carried out to promote practice [14], and a platform for teachers to exchange ideas can be built to promote practical reflection. In the training content, first of all, we should carry out the basic training of information teaching information technology, master the tools and methods of teaching resource design and development, and popularize information technology. Then it is necessary to carry out comprehensive training of teaching design, teaching mode, teaching evaluation and interactive mode integrating information technology, professional knowledge and teaching method layer by layer, so as to improve teachers' practical ability of intelligent education. At the same time, we will provide academic and economic support for teachers in terms of external conditions, increase efforts to apply for various teaching reform projects, and improve the assessment and reward mechanism.

5.4. Team Introspection Through Network Collaborative Class Case Study

As a developing smart education, there will inevitably be various problems in each link from resource construction to teaching mode, evaluation and interaction, which requires team members to jointly reflect on and discuss improvement measures, and timely apply action plans to online and offline teaching practices to improve learning effectiveness. In the environment of smart education, the new feature of self-examination is that it can use various information technology means to realize the exchange of teaching ideas. It is an effective way to carry out lesson example research by teaching innovation team, which is a process for teachers to jointly plan, observe and discuss in the teaching process. [15] Under the background of smart education, lesson example research can be carried out in the form of network collaborative lesson example research. The main carrier for teachers to carry out collaborative teaching or reform is virtual online community, which is technically realized by relying on the Internet and mobile technology, avoiding the problem of struggling among members of the general course

teaching team. As an organized cooperative teaching and systematic discussion method, So that members can achieve good communication and feedback in teaching mode, teaching reform and innovation, which is conducive to the effective improvement of individual comprehensive level and the collective development and construction of innovation team.

5.5. Improvement of the Supervision and Incentive Mechanism

The sustainable and stable development of teaching innovation team cannot be separated from the formulation of effective supervision and incentive mechanism. At this stage, we should first fully encourage the enthusiasm of the majority of teachers in teaching innovation team building, and appropriately lower the threshold of team building, so that each course has a special teaching team, and every teacher can participate in team building. At the same time, a number of teaching innovation teams with obvious reform and innovation effects, clear construction goals and clear development trends will be selected for key support and included in the next round of funding plan. In the management of teaching innovation team, the method of phased target management is adopted, and the assessment results of target management and process management are combined. If the teaching innovation team can obtain national or provincial teaching projects, special policy support and special financial support will be given. The school should adopt a relative accountability system for the team that fails to pass the acceptance of the construction project, so as to supervise and constrain the team building.

6. Conclusion

Under the environment of smart education, from the construction and development of smart resources to the reform and innovation of information-based education and teaching, from the development of teachers' information-based intelligent literacy to the cultivation of high-quality innovative talents, it is inseparable from the support and guarantee of teaching innovation team. The teaching innovation team can effectively promote the integration and development of smart teaching resources, emphasizes deep cooperation and complementary advantages as well as the interaction of team and group effect, also stimulate the interaction of team and group effect. In order to adapt to the development of smart education, teaching innovation groups must clarify the construction goals, update the teaching concept, optimize the personnel structure of teaching innovation teams in multiple ways, constantly innovate and improve the training system, carry out team introspection, and set up reasonable and effective incentive mechanisms, so as to promote the cultivation of high-quality innovative talents. The innovation team is constantly changing and developing dynamically, and the external education reform, including learning mode, education mode, evaluation and management, is constantly developing and

innovating; The continuous changes of the diversity of teachers' team members and the diversity of development needs in the internal environment indicate the complexity and challenge of the construction of teaching innovation team. In the environment of smart education, we should take teaching innovation team construction as an important means to explore new ideas of talent development and resource construction, and comply with the new trend of information innovation development and education and teaching innovation development.

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