

Research on the Integration and Development of Technology and Teaching Innovation

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Abstract: Under the background of education informatization 2.0, this paper conducts research on the integration and development of information technology and education and teaching innovation in Linyi University. Summarize the achievements of education and teaching innovation and development of Linyi University. Collect and organize educational and teaching achievements, summarize successful experiences, and establish a typical image through literature method, interview method and investigation method. Summarize development achievements and share successful experiences, so that other schools can establish a development plan that fully integrates information technology and education and teaching according to actual conditions and local conditions. Linyi University uses information technology to display Yimeng spiritual education in the classroom through holographic projection technology combining light and shadow, immersive VR technology and other channels, which deepens the impression and deepens the feelings.

Keywords: information technology, education informatization 2.0, integration, development

1. Educational Informatization 2.0 and Its Development Significance

With the widespread popularization and in-depth application of Internet information technologies such as cloud computing, big data, Internet of Things, mobile Internet, and artificial intelligence, human society is transforming from the era of industrial economy to the era of knowledge economy and information economy, which will inevitably increase the productivity of society. Reconstruction and improvement will inevitably affect various production relations in society. The development of the higher education industry is also deeply affected.

Educational informatization refers to the process of comprehensively and deeply applying modern information technology in the field of education to promote educational reform and development. Its technical features are digitization, networking, intelligence and multimedia, and the basic features are openness, sharing, interaction and collaboration. [1] Promote the modernization of education with educational informatization, and use information technology to change the traditional model. The development of educational informatization has brought about major changes in educational forms and learning methods, and promoted educational reforms. It has had a huge impact on the traditional educational thought, concept, mode, content and method. Education informatization is an important part of national informatization. It has far-reaching significance for transforming educational thoughts and concepts, deepening educational reform, improving educational quality and efficiency, and cultivating innovative talents. It is an inevitable choice to realize the leap-forward development of education. The construction significance of educational informatization can be summarized into four aspects: promoting the wide application of information technology in the field of education, promoting the reform and development of education, cultivating innovative talents who meet the requirements of the information society, and promoting the modernization of education. Under the guidance of the new

requirements, we should combine the "Internet +" technology to explore a new mode of practicing student management. In the "Education Informatization 2.0 Action Plan" issued by the Ministry of Education of the People's Republic of China on April 13, 2018, the construction goals of educational informatization were stated as follows: "Strive to build a new model of talent training under the conditions of 'Internet +' , develop a new model of Internet-based educational services, and explore a new model of educational governance in the information age." [2]

2. Reasons for the rapid integration and development of information technology and teaching innovation

Build a solid foundation and comprehensively improve the level of informatization construction. Linyi University attaches great importance to informatization work. As early as 2008, it established the school's digital campus construction leading group to plan, guide and coordinate the entire school's informatization construction work. Especially since the opening of the new campus, leveraging on the high starting point and high-level hardware configuration of the new campus, a large amount of funds have been invested to carry out the campus informatization construction in an all-round way. The informatization construction has achieved rapid development and gradually built a relatively complete and solid network foundation. facilities, a relatively advanced and mature digital campus platform, and a relatively comprehensive and high-quality modular application system [3].

Early start: Our school started the campus card system in 2004, built the educational administration system in 2005, and became the city node unit of China Education and Computer Network in Linyi City in 2007. At present, the campus network covers three places and seven campuses, with nearly 20,000 information points, 3.1G export bandwidth, and a total of nearly 100 million yuan in information equipment. The

IPv6 experimental network implements dual-stack access to CERNET2.

Higher starting point: In 2009, the school made a one-time investment of 11.66 million yuan to build a relatively advanced digital campus system in China. Relying on the three platforms of unified identity authentication, unified information portal and shared database, it integrates and operates more than 20 business information systems such as educational affairs, scientific research, academic engineering, all-in-one card, and office automation. At the same time, actively exert the support guarantee and multi-service bearing function of the campus network, and highlight the informatization means in the construction and operation of modular application systems such as campus security monitoring, standardized test rooms, energy-saving supervision platforms, TOEFL and GRE test centers, and digital campus broadcasting. of quality and efficiency.

Channel integration: The school also attaches great importance to the use of social resources to promote the construction of informatization, actively explores strategic cooperation with communication operators, and adheres to the principle of "co-construction, sharing and mutual benefit" in relevant experimental teaching, graduation practice. Substantial progress has been made in cooperation, employment guidance and campus wireless network construction. In 2013, WLAN coverage of teaching area, experimental area, office area and public activity area has been realized.

Exchange and sharing: Actively carry out exchanges and promotion in the field of informatization. In recent years, the school has successively hosted important activities such as the Shandong Higher Education Informatization Construction Seminar and the Shandong Computer Society Annual Meeting, and conducted extensive exchanges in computer teaching and research, forward-looking exploration and practical experience of informatization.

Consolidate and improve: Since the pilot program, the investment and application have been continuously increased, the information infrastructure has been continuously improved, the configuration of the core equipment of the campus network has been improved, the export bandwidth has been expanded, and the wireless network has basically achieved full coverage. The digital campus platform and business system were upgraded and optimized. Strengthen network security protection work, and effectively carry out the project of quality assurance and legalization of important information systems.

3. Contents of the integration and development of information technology and teaching innovation

In order to deepen the reform of education and teaching, accelerate the in-depth integration of information technology and curriculum teaching, and gradually realize the transformation from "teacher-centered" to "student-centered", Linyi University will improve the level of education and teaching and the quality of talent training. The first batch of pilot universities for the construction and application of educational informatization at the undergraduate level, actively promote the construction of smart campuses, constantly update educational concepts, use information technology, and realize the principles of intelligent technology, diversified functions, comprehensive services and scientific management. Data sharing of key business systems

such as educational affairs, scientific research, personnel, and academic engineering, and actively build a new model of smart education suitable for undergraduates. It has laid a good foundation for further comprehensively improving the level of informatization work of Linyi University, building a smart campus, and boosting the development of the school's connotation. [4]

Construction of digital teaching resources. The construction of teaching resources is the foundation of educational informatization. Use modern information technology to complete the digital transformation of all course teaching resources. The development and production of teaching resources must comply with the national "Technical Specifications for Educational Resources Construction", and the material-based teaching resources must meet the requirements of students' online learning. Encourage teachers to collaboratively develop or introduce high-quality teaching resources.

Construction of online teaching platform. The school's online teaching platform provides a controllable and manageable teaching and learning space for teachers and students in the school. Teachers are required to use cyberspace to carry out teaching activities such as lesson preparation, teaching, and study guidance; students use cyberspace to achieve autonomous learning, collaborative learning and inquiry learning; educational administration departments use cyberspace to conduct comprehensive student evaluations and comprehensive analysis of teaching to improve management efficiency.

The construction of teachers' informatization teaching ability. The school adopts a variety of methods and means such as training, seminars, and observation to improve teachers' teaching ability in an information-based environment, guide teachers to establish the educational concept of "teacher-led, student-centered", help teachers learn and master information technology, and encourage teachers to explore "teaching". A diversified blended teaching model that integrates and complements internal and external classes, online and offline, on-campus and off-campus, and mobile and fixed. [5]

Construction of teaching evaluation system. Reform teaching and evaluation methods. The school uses information technology to record the teaching process of teachers, integrates teachers' online teaching behavior, student satisfaction, expert evaluation, etc., and establishes an evaluation system for the effectiveness of curriculum informatization. Teachers improve course assessment methods, use information technology to record students' learning process, focus on the evaluation of students' ability and quality of teaching objectives, and establish a formative evaluation system for students by integrating students' online learning behavior, classroom performance, daily homework and examinations.

4. Compared with other colleges and universities, the characteristics of education informatization construction of Linyi University

Course informatization teaching is divided into three application levels: primary, intermediate and advanced. The school plans to complete the curriculum informatization construction in 3 years. By the end of 2018, all courses will meet the primary application requirements; by the end of 2019, 50% of the courses will meet the intermediate application requirements; by 2020, 20% of the courses will

meet the advanced application requirements; courses that fail to meet the primary application requirements will not be offered. .

Primary application requirements. Each course needs to publish basic teaching information and main teaching materials such as course introduction, teacher information, teaching syllabus (course standard), teaching calendar, assessment methods, teaching plan, reference materials, etc. on the school's online teaching platform.

Intermediate application requirements. While sharing teaching resources for each course, teachers need to use the school's online teaching platform to publish course notices, conduct academic surveys, assign and correct homework, organize online discussions and answer questions, improve test question banks and online tests, etc.

Advanced application requirements. Teachers should make full use of the network learning space to conduct research and practice of "teaching" and "learning". All teachers of the course group jointly build course resources, carry out collaborative course preparation and teaching, and form a joint force of course construction; timely update teaching content, refine teaching design, and realize the refinement of the student assessment process, the analysis of teaching effects and the real-time feedback; flexible use of flipped classroom, Independent classrooms, micro classrooms and scene classrooms, etc., actively carry out seminar-style teaching, and form an information-based teaching model with certain characteristics. Strive for 1-2% of the courses to be launched on platforms such as Wisdom Tree and Erya .

Measures to ensure the integration and development of information technology and teaching innovation:

Organizational guarantee. The Office of Academic Affairs takes the lead in establishing a working group for the reform of curriculum informatization teaching, which is responsible for the promotion of the entire school's curriculum informatization teaching work. Each teaching unit has set up a curriculum informatization teaching reform working group headed by the top administrator, responsible for the planning and implementation of the curriculum informatization teaching work in the unit.

Policy guarantee. The application level of course informatization teaching is one of the basic conditions for teachers to apply for various teaching-related projects and awards. The school organizes a selection of "Excellent Informatization Teaching Courses" every school year. The school selects the best to cultivate high-level online open courses facing the society. Each teaching unit may formulate incentive policies suitable for the unit.

Financial security. The school sets up special funds every year for informatization training, awards, teaching resource library construction, software and hardware operation and maintenance, etc.

Technical support. The Academic Affairs Office and the Network Center are responsible for the operation and service of the school's online teaching platform, statistics and analysis of the implementation of curriculum informatization teaching, and holding information technology training and experience exchange meetings. The network information center is responsible for providing the system environment, data storage space and network services of the network teaching platform. [6]

5. Integration and development achievements of information technology and teaching innovation

Linyi University adheres to the principle of educating people, takes the renewal of educational concepts as the guide, takes the construction of high-quality educational resources and information-based learning environment as the foundation, takes the innovation of learning methods and educational models as the core, and takes the system mechanism and team building as the guarantee, and has always attached great importance to it. The construction and application of educational informatization shall accelerate the integration and innovation of information technology and education and teaching. [7] In 2014, it became the first batch of educational informatization pilot units in Shandong Province. In the first half of 2017, in the pilot acceptance review organized by the Shandong Provincial Department of Education, Linyi University passed the acceptance inspection with excellent results and high quality, becoming one of the 11 demonstration units of ordinary colleges and universities in the province. In three years, the digitalization and network transformation of all courses have been completed, an information-based learning environment with high - quality teaching resources that everyone can enjoy, and a diverse and effective information-based teaching mode and learning method have been formed. The teaching ability of teachers has obvious origins Students' interest in learning and learning effect have been significantly improved, and the role of informatization in promoting education and teaching reform has been fully demonstrated.

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