

Research on the Talent Cultivation Mode of Application-Oriented Universities under the Education Digitalization

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Abstract

With the rapid advancement of information technology, the digital transformation of education has emerged as an inevitable trend in the development of higher education. This article analyzes the essence and significance of digital transformation in education, elaborates on the current state and challenges of talent cultivation in application-oriented universities, and puts forward innovative strategies for talent cultivation modes under digital transformation, aiming to offer theoretical and practical guidance for application-oriented universities to cultivate high-quality applied talents that meet social demands in the digital age.

Keywords

Education digitalization, application-oriented university, talent cultivation mode.

1. Introduction

In the current digital age, information technology is profoundly transforming various fields, including education. The digital transformation of education has emerged as a significant trend in worldwide educational development, bring unprecedented opportunities and challenges to higher education. China has explicitly proposed to promote the digitization of education and build a learning society and a learning country with lifelong learning for all[1]. As an important component of the higher education system, application-oriented universities aim to cultivate high-quality applied talents who can meet the needs of social and economic development. Under the wave of digital transformation in education, how to innovate talent training modes and improve the quality of talent training is an important issue faced by application-oriented universities.

2. The Essence and Significance of Digital Transformation in Education

2.1. The Essence and Connotation of Digital Transformation in Education

The digital transformation of education entails the comprehensive integration of digital technology into the field of education, resulting in systematic changes to educational concepts, teaching methods, curriculum frameworks, instructional strategies, and assessment methods[2]. It not only digitizes traditional educational resources, but also relies on emerging technologies such as big data, artificial intelligence, and virtual reality to build a novel educational ecosystem. For instance, online learning platforms enable students to access a wealth of learning resources anytime and anywhere; artificial intelligence technology facilitates personalized learning path planning and intelligent tutoring; and virtual reality technology provides students with an immersive learning experience that enhancing their comprehension and application of knowledge.

2.2. The Significance and Value of Digital Transformation in Education

Digitization will enhance educational equity. Digital educational resources have broken the limitations of time and space, allowing students to access high-quality educational content regardless of their location[3]. This helps narrow the education gap between urban and rural areas and regions, allowing more students to enjoy fair and quality educational resources.

The digitization of education will encourage personal learning. Using big data to assess learning behaviors and preferences, and developing personalized learning plans to fit each student's unique learning needs. Every student can learn at their own pace and in their own way to optimize their learning outcomes.

Digital transformation will improve educational efficiency. The use of digital teaching tools and platforms, such as online testing and automatic homework grading, greatly reduces the workload of teachers and allowing them to focus more on teaching design and student guidance. Meanwhile, students can employ effective learning tools to quickly and accurately extract crucial information points, thereby increasing their learning efficiency.

The digital revolution of education helps cultivate talents that fit the needs of the times. In the digital ages, talent with digital literacy and innovation skills is highly valued. The digital transformation of education can help students improve their skills in information intake, analysis, and application, allowing them to better adapt to the development of future society.

3. The Current Situation and Challenges of Talent Cultivation in Application-Oriented Universities

3.1. Current State of Talent Cultivation in Application-Oriented Undergraduate Universities

In terms of curriculum, while application-oriented universities have established a large number of theoretical and practical courses directly related to industry needs, the richness and updating speed of digital course content remain insufficient[4]. Some online courses have been timely offered, but the integration with traditional courses remains inadequate.

The teaching achieving is still based on multimedia tools combined with traditional teaching, and the teaching interaction and student participation need to be improved. New teaching approaches such as group cooperative learning and project-based learning have been applied to some extent, but have not formed the mainstream[5].

Although a number of digital teaching resources, including online course platforms and electronic journals from library have been built, there is a lack of integration and sharing of these resources, and the information island makes it difficult for teachers and students to access and utilize resources.

The teacher team has certain information technology application ability on the whole, however the proportion of teachers who can skillfully use digital teaching tools for teaching innovation and design is not high[6]. Some teachers' comprehension of digital education remains superficial, lacking the subjective initiative of in-depth exploration and practice.

3.2. Challenges of Talent Cultivation in Application-Oriented Undergraduate Universities

The speed of technology upgrading is too fast. The rapid development of digital technology requires application-oriented universities to constantly update teaching equipment and software to fulfill instructional needs, which poses a challenge to the capital investment and technical maintenance ability of universities[7]. Furthermore, teachers and students should constantly master new technologies and tools to adapt to the changes in teaching and learning methods brought about by technological advancements.

It is difficult to alter the concept of education. The traditional education concept is deeply rooted, which makes some teachers and management have a limited knowledge of the digital transformation of education and believe that digitization is merely a means to assist teaching, rather than the driving force behind education reform. As a results, changing this mindset takes time and requires extensive training.

Data security and privacy protection should be carefully considered. In the process of digital education, a large number of personal information data about teachers and students are involved. The secure storage and use of data, prevention of data leakage, and protection of the privacy are all significant challenges. Once a data security problem occurs, it will have a serious negative impact on the universities, teachers and students.

The difficulty of digitalization in practical instruction should be fully considered. Application-oriented universities attach importance to practical teaching, although some practical teaching links are difficult to be completely realized by digital means[8]. For example, how to ensure the quality and effect of practical teaching in the digital environment is an urgent challenge to be addressed for some courses that require actual operation equipment and contact with the real production environment.

4. Innovation Strategy of Talent Cultivation Mode in Application-Oriented Universities under the Transformation of Digital Education

4.1. Construction of Digital Curriculum System

a. Integration of online and offline course resources. Break the boundary between traditional courses and online courses, and integrate high-quality online course resources into the professional course system. For example, for some basic courses with strong theoretical nature, online open courses from well-known universities at home and abroad can be introduced as supplementary teaching resources to allow students to broaden their knowledge through online learning, whereas offline classes focus on answering questions and solving doubts and deepening the application of knowledge.

b. The launch of digital characteristic courses. According to the industry development and digital demand corresponding to the major, characteristic courses such as Digital Technology and Innovative Application and Big Data Analysis and Practice are offered. These courses aim to develop students' digital literacy and innovation ability, enable students to master cutting-edge digital technology and apply it to professional fields.

c. Dynamic update of course content. Establish a dynamic update mechanism for course content, and timely integrate new technologies, methods and cases in the industry into the course. Using the digital platform, teachers can easily obtain the most up-to-date information in the industry, and swiftly update the teaching content to guarantee the timeliness and practicability of the course content.

4.2. Innovation of Teaching Methods

a. The combination of project-based learning (PBL) and digital tools. During the teaching process, create the learning activity based on the actual project and allow students to execute it in groups. With the help of digital tools, such as project management software and online collaboration platform, students can improve their project planning, division of labor, collaboration and progress tracking. Teachers monitor students' project progress in real time through the online platform and give timely guidance and feedback.

b. The teaching application of virtual reality (VR)/augmented reality (AR). For some courses requiring virtual reality scenes, such as engineering practice and Metalworking Training, VR/AR technology is introduced. Through immersive experience, students can better grasp and master knowledge and skills, and improve the effect of practical teaching. For instance, in the

course of mechanical manufacturing, students can use VR technology to simulate the operation of machine tools for virtual training of parts processing.

c. Intelligent teaching interaction. Intelligent question answering systems, virtual learning partners, and other intelligent teaching interactions are made possible by artificial intelligence technologies. Students can ask questions of the intelligent question answering system at any moment and receive prompt answers when they run into difficulties throughout the learning process. Virtual learning partners can have conversations and discussions with students to stimulate their learning interest and thinking ability.

4.3. Accumulation of digital teaching resources

a. Forge of integrated teaching resource platform. Integrate the existing digital teaching resources of the school, including online courses, electronic textbooks, academic articles, experimental and training resources, and build an integrated teaching resource platform. Students and teachers may easily find information by searching, browsing and using a variety of resources, resulting in effective resource sharing.

b. Teachers are encouraged to independently develop digital resources. The school develops appropriate incentive programs to encourage teachers to independently generate digital teaching resources based on teaching needs, such as micro lectures, teaching animations, virtual experiments, etc. The resources developed by teachers can be published to the resource platform and used by all teachers and students. At the same time, it can also promote the teaching collaboration and sharing of ideas.

c. Introduction of high-quality external resources. Actively cooperate with enterprises and introduce high-quality external digital teaching resources. For example, collaborate with leading enterprises in the corresponding industries of various specialties to obtain resources such as internal training courses and case bases; Cooperate with professional education resource providers to purchase high-quality online courses and teaching tools to enrich the teaching resource library.

4.4. Construction of Digital Teaching Staff

a. Carry out digital teaching and training. Regularly organize teachers to participate in digital teaching training, including the use of digital teaching tools, teaching design, online course development and other aspects. Digital teaching ability can be improved by training, so that teachers can skillfully use a variety of digital teaching tools.

b. Establishment of a community of teachers' digital teaching development. Encourage the establishment of digital teaching development communities among teaching teams to carry out teaching discussion, experience sharing and cooperative research. The community can regularly organize online and offline activities to jointly explore new modes and methods of digital teaching and promote professional development.

c. The introduction of teachers with digital background. Paying attention to the introduction of talents with digital background and interdisciplinary knowledge in the process of talent introduction can not only bring new teaching ideas and methods to the school, but also promote the cross integration between disciplines, and promote the development of digital courses and teaching innovation.

4.5. Improvement of Digital Teaching Evaluation System

a. The combination of process evaluation and summative evaluation. Use the digital teaching platform to record students' learning process data, such as online learning duration, assignment completion, classroom interaction participation, etc., and incorporate these process data into the teaching evaluation system. At the same time, combined with the final examination

and other summative evaluation methods, comprehensively and objectively assess the students' learning effect.

b. Diversified evaluation subjects. In addition to teacher evaluation, tools for students' self-evaluation and mutual-evaluation are established. The online platform allows students to self-assess their learning process and achievements, as well as analyze the work of group students. Diversified evaluation subjects can improve the comprehensiveness and fairness of evaluation results, as well as help students develop self-management and teamwork ability.

c. Evaluation feedback based on data analysis. Teachers and students receive reliable evaluation feedback based on the analysis of their learning data. Teachers may comprehend students' learning issues and weak links based on data results and adjust teaching strategies in time; Students can identify their learning problems according to the feedback information and make focused learning improvements.

5. Conclusion

The digital transformation of education provides broad space and opportunities for the innovation of talent training mode in application-oriented universities. Through the construction of digital curriculum system, innovative teaching methods and means, the accumulation of digital teaching resources, the construction of digital teaching staff and the improvement of digital teaching evaluation system, application-oriented universities can better adapt to the development needs of the digital age, and cultivate high-quality application-oriented talents with innovative spirit, practical ability and digital literacy.

In this process, the development planning departments of universities need to play a leading and coordinating role, establish scientific and reasonable development plans, and promote the steady progress of the digital transformation of education in universities. At the same time, it also needs the joint participation and efforts of all departments, teachers and students to form a strong force for the digital transformation of education and lay a solid foundation for the sustainable development of application-oriented universities. In the future, with the continuous development and application of digital technology, the talent training mode of application-oriented universities needs to be constantly explored and innovated to satisfy the dynamic needs of social and economic development.

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