

Research on the Reconstruction of the Competence and Quality of College Teachers in the Digital Intelligence Era

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ABSTRACT

With the rapid development of Internet artificial intelligence technology, digital intelligence has profoundly changed the way of production and life of society, and has also put forward new challenges and requirements for higher education. As the core force of higher education, teachers' abilities and qualities directly affect the quality of talent cultivation and academic innovation level. Driven by emerging technologies such as artificial intelligence, big data, and cloud computing, traditional teaching models and knowledge transmission methods are undergoing profound changes; The role of teachers is gradually shifting from knowledge transmitters to learning guides and innovation drivers; The demand for interdisciplinary integration and innovation ability cultivation has put forward higher requirements for the ability and quality of university teachers. This paper starts from three aspects: the challenges faced by teachers in the era of digital intelligence, the abilities they need to improve, and the path of reconstructing their abilities and qualities. It explores in detail the topic of reconstructing the abilities and qualities of university teachers in the era of digital intelligence, in order to provide reference for the digital transformation of universities.

KEYWORDS

digital intelligence; college teachers; ability and quality

1 Introduction

The arrival of the digital intelligence era has profoundly changed all aspects of social development, ushering in a new stage of transformation for higher education. Traditional teaching models, knowledge dissemination methods, and forms of teacher-student interaction are being reshaped by artificial intelligence, big data, and intelligent network technologies. This puts forward new requirements for the abilities and qualities of university teachers. The deep application of informatization has made the acquisition of teaching resources more diverse and the speed of knowledge updating constantly accelerated. This has led to the inability of traditional single knowledge transmission methods to meet students' learning needs, requiring teachers to have the ability to integrate information, analyze data, and innovate teaching.

2 The Challenges Faced by College Teachers in the Digital Intelligence Era

2.1 Accelerating the Speed of Knowledge Updates and Iterations

In the era of digital intelligence, the rapid development of information technology has significantly shortened the knowledge update cycle. In the past, a theoretical knowledge or technology could exist stably for decades, but the continuous emergence of emerging disciplines and the acceleration of interdisciplinary integration have made the existing knowledge system easily outdated at present, bringing huge challenges to university teachers. In this context, teachers not only need to master existing knowledge, but also constantly pay attention to industry trends to ensure that their professional abilities match the needs of social development. Moreover, under the traditional education system, teachers' knowledge acquisition mostly comes from academic papers, monographs, and regular academic conferences. But in the information age, the widespread application of technologies such as artificial intelligence and big data has given rise to diverse and open knowledge platforms, such as online academic databases and MOOCs (Massive Open Online Courses), making knowledge dissemination more efficient. The emergence of these platforms has provided teachers with abundant learning resources, but it has also increased the difficulty of screening and learning, requiring more time for self-directed learning to effectively connect with new concepts and theories. Therefore, how to find a balance between busy teaching tasks and research work, while maintaining sensitivity to new knowledge, has become a practical challenge faced by college teachers.

2.2 The Pressure of Teaching Mode Reform is Relatively High

With the deepening application of digital technology, the traditional classroom teaching mode is undergoing profound changes. Traditional higher education mainly relies on teacher lectures, which forces students to passively

absorb knowledge; Nowadays, the introduction of new teaching models such as flipped classroom, blended learning, and smart classroom has promoted the reconstruction of teaching methods. This also puts forward new requirements for teachers' teaching philosophy and poses new challenges to their technical application abilities. The application of digital technology has broken the time and space limitations of traditional classrooms; The popularity of online teaching platforms allows students to access knowledge anytime and anywhere. In this process, teachers are no longer the only knowledge transmitters, but more like guides for learning, requiring mastery of more digital teaching tools such as learning management systems (LMS), data analysis platforms, etc. This is a significant challenge for teachers who have long been accustomed to traditional teaching methods. In addition, the reform of teaching also involves the reform of the education evaluation system, which gradually replaces the professional exam paper and pen and paper testing modes with diversified evaluation methods, and puts forward higher requirements for teachers' curriculum design ability. This requires teachers to reconstruct the curriculum framework, so that teaching practice can meet the new teaching needs and effectively measure students' learning outcomes.

2.3 The Dilemma of Changing Teachers' Role Concept

In the era of digital intelligence, the role of college teachers is no longer limited to knowledge transmitters, but gradually transforms into "learning facilitators," "research innovators," "technology adopters," and even "social service providers. This transformation of multiple roles is not achieved overnight. Under the higher education system, the core responsibilities of teachers are focused on teaching and research, with relatively fixed teaching content and research directions mainly revolving around personal academic interests. But with the development of technology and changes in social demands, university teachers have been given more "positions", such as promoting the integration of industry, academia, and research, participating in social governance, and carrying out interdisciplinary cooperation. This expansion is both an opportunity and a pressure for teachers. On the one hand, it needs to adjust its career plan and keep up with the trend of social development; On the other hand, role diversification also requires individuals to possess certain abilities in different fields, which increases teaching pressure.^[1] Moreover, education in the era of digital intelligence emphasizes a student-centered teaching philosophy, requiring teachers to transform from "leaders" to "guides" in the classroom. However, many university teachers have formed fixed teaching methods in long-term teaching practice, leaning towards one-way imparting of knowledge. Faced with this role concept, some teachers may feel uncomfortable and even develop resistance.

3 The Reconstruction of the Competence and Quality of College Teachers in the Era of Digital Intelligence

3.1 Teacher Ethics and Moral Literacy

Teachers should possess a high level of professional ethics and maintain a rigorous attitude towards learning. Faced with the popularization of artificial intelligence assisted teaching, teachers must adhere to the originality of teaching and avoid excessive reliance on intelligent technology. While ensuring the accuracy and depth of knowledge transmission, teachers should also establish correct values, resist academic misconduct, and create a fair and just academic environment. In addition, good teacher ethics are also reflected in respecting individual differences among students. Teachers should continue to pay attention to students' growth needs, adopt intelligent educational methods, and provide students with broad development space according to their aptitude. At the same time, teachers can also use these technologies to analyze students' learning situations, develop personalized guidance strategies, and find a balance between technology and humanistic care.

3.2 Teaching and Information Abilities

The widespread application of digital intelligence technology is profoundly changing the teaching methods in universities and enhancing teachers' teaching and information abilities. Firstly, teachers need to have the ability to design digital teaching materials. In current classroom teaching, intelligent teaching tools, or online education platforms have become important teaching aids. This requires teachers to use big data to analyze students' learning characteristics, design teaching content reasonably, optimize teaching processes, and choose appropriate teaching modes, such as blended learning and flipped classroom, to enhance classroom interaction and learning effectiveness. Secondly, teachers need to learn how to efficiently search, filter, and analyze information on web pages to cope with the massive updating of knowledge. At the same time, it is also necessary to cultivate students' ability to discern information, help them form independent thinking habits in the digital environment, and prevent them from being misled by false information.

3.3 Research and Innovation Capability

College teachers not only undertake teaching tasks, but also bear the responsibility of scientific research and innovation. In the era of digital intelligence, research paradigms have undergone profound changes, requiring teachers to possess new research abilities to cope with academic competition and knowledge innovation challenges. The academic research in the era of intelligence presents a trend of cross integration, which requires teachers to strive to break through traditional disciplinary boundaries, actively cooperate with experts in different fields, promote interdisciplinary research, and use intelligent data analysis tools to timely discover research hotspots and expand the depth and breadth of research. In addition, teachers need to enhance their academic innovation ability. The combination of traditional research methods with artificial intelligence and big data analysis provides new ideas and methods for scientific research. For example, the application of technologies such as computer-aided modeling and intelligent predictive analysis in research can significantly improve research efficiency and accuracy. Therefore, teachers should be adept at using these technological tools, exploring new research methods, and promoting academic innovation. In addition, with the development of globalization, academic research is no longer limited to local areas. College teachers need to continue to pay attention to international cutting-edge trends, actively participate in international academic exchanges, enhance the influence of their own research topics, and open up new perspectives and ideas for their own research.

4 The Reconstruction Path of the Ability and Quality of College Teachers in the Era of Digital Intelligence

4.1 To Strengthen Top-Level Design and Improve Training System

In the era of digital intelligence, the abilities and qualities of university teachers need to be systematically improved at the overall level. This requires education management departments and universities to strengthen top-level design and build a scientific and reasonable training system. Firstly, the education management department should formulate a teacher development plan that meets the needs of the new era based on the characteristics of the discipline and the trend of digital technology development. Each university can establish a dedicated digital teaching guidance institution, responsible for coordinating the improvement of teachers' digital literacy, and designing phased and hierarchical training programs based on actual situations. Secondly, colleges should establish a scientific and effective teacher training mechanism according to the plan, integrate internal and external resources, and build diversified training models. For example, high-quality online education platforms at home and abroad can be introduced to offer practical courses covering cutting-edge technologies such as artificial intelligence, big data, and educational informatization, to ensure that teachers can timely grasp the latest technologies and apply them to teaching practice.^[2] Finally, schools should establish a continuous assessment and evaluation system for teachers' digital abilities, using a dynamic evaluation mechanism and combining learning records, teaching observation, and achievement display to comprehensively examine teachers' teaching innovation abilities in the digital environment. For outstanding teachers, certain incentives should be given, such as bonus points for professional title evaluation and special research funding support, to encourage teachers to continuously improve their digital literacy.

4.2 To Build a Communication Platform to Promote Teacher Experience Sharing

The improvement of teachers' digital abilities cannot rely solely on personal learning, but also requires communication and sharing among peers. To this end, universities should establish a cross departmental and interdisciplinary teacher digital teaching exchange mechanism, and set up regular activities such as "Digital Teaching Seminar" and "Education Informatization Forum". This can provide teachers with opportunities to showcase digital teaching achievements and explore technology application issues; Alternatively, universities can use social media, online learning communities, and other channels to establish digital teaching communication groups for university teachers, allowing them to discuss teaching in the groups. At the same time, we should promote the "mentorship" and "partner based" learning models. A digital teaching mentor system should be established within universities, and a "mutual assistance and improvement plan" should be launched to encourage teachers to learn together in groups, with experienced teachers guiding newly hired teachers or teachers with relatively weak digital abilities. Through this, universities help teachers adapt to the intelligent teaching environment as soon as possible and jointly explore the deep application of intelligent technology in education.^[3] In addition, universities can also establish cooperative relationships with well-known domestic and foreign universities, research institutions, or technology enterprises, organize cross campus training, visiting study projects, and digital teaching resource sharing plans; Teachers should also be involved in global digital education practices to gain a more comprehensive understanding of the impact of intelligent technology on education, and to optimize their teaching models based on what they see and learn.

4.3 To Transform Traditional Concepts, Actively Learn and Enhance Literacy

Faced with the rapid development of digital intelligence technology, university teachers need to fundamentally transform traditional educational concepts, actively embrace technological changes, and continuously learn to enhance their comprehensive literacy. Firstly, teachers should establish a lifelong learning philosophy, maintain a continuous learning state, and constantly update their knowledge system. On this basis, universities should encourage teachers to develop personal growth plans and use their spare time to learn cutting-edge technologies such as AI driven personalized teaching, virtual reality (VR) assisted classrooms, etc; Teachers can also be encouraged to actively participate in online courses, workshops, industry conferences, and other activities to continuously enrich their digital teaching abilities. Secondly, teachers should actively enhance their interdisciplinary integration abilities. In the digital age of education, teachers also need to possess certain technological literacy and data thinking, in addition to traditional subject knowledge. Meanwhile, interdisciplinary collaboration is also an important trend in future education. College teachers should actively communicate and learn from peers in different majors, and use a multidisciplinary perspective to enhance their digital teaching level.

5 Conclusion

Overall, in the era of digital intelligence, the reconstruction of the abilities and qualities of university teachers needs to be approached from multiple levels. By strengthening top-level design, improving training systems, and building communication platforms, they can continuously "recharge" themselves and enhance their professional competence. I believe that with the joint efforts of policy support, resource integration, and personal efforts, college teachers can quickly adapt to the educational changes of the intelligent era and provide better teaching services for cultivating high-quality talents.

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