



Exploring the Optimization of Teacher Training System in the Digital Transformation of Education Management

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Abstract. This paper reviews the impact of digital transformation on the global education field, especially the teacher training system. By analyzing international experiences, we find that digital transformation has become a consensus of global education reform, in which developed countries play a key role. In China, the teacher training system is undergoing changes to improve quality and efficiency, in which the blended training model has become the mainstream, significantly improving teachers' professional competence and satisfaction. Digital transformation not only promotes the balanced allocation of educational resources, but also facilitates the innovation of teacher training modes, enhances the personalized and interdisciplinary development of training, and thus improves teachers' professionalism and lifelong learning ability. The analysis in this paper shows that the impact of digital transformation on the teacher training system is far-reaching, which not only changes the mode and content of training, but also improves the quality and effect of training, and provides new opportunities and challenges for teachers' professional development.

Keywords: digital transformation; teacher training system; educational innovation

1 Introduction

In the context of the digital era, the field of education is experiencing unprecedented changes. Digital transformation has not only reshaped the way educational resources are allocated and utilized, but has also had a profound impact on teachers' professional development and training system. Globally, especially in developed countries, significant progress has been made in digital transformation, and China is also actively promoting digital reform of its teacher training system. The purpose of this paper is to explore the impact of digital transformation on the teacher training system through a literature review, and to analyze its development globally, as well as its specific practice and effectiveness in China. Through this analysis, we aim to reveal how digital transformation brings new opportunities for teacher training and how to enhance teachers' professional competence through innovative training models. [1]

2 Literature Review

2.1 International Experience of Digital Transformation

Digital transformation, as an important engine of global economic growth, has had a profound impact on the field of education. At the international level, the driving body of digital transformation is diversified, but still dominated by developed countries. Developed countries such as the United States rank first in terms of the scale of the digital economy, while China, as a representative of developing countries, ranks second in terms of the scale of the digital economy, forming a pattern of “double-wheel drive” between developed and developing countries in the field of digital economy. In the field of education, digital transformation has become a consensus, and many countries have introduced digital development strategies, with education as an important part of them. The United Nations Summit on Educational Transformation has listed the digital transformation of education as one of the five key areas of action, which has promoted the process of digital transformation of education on a global scale. These international experiences show that digital transformation not only promotes innovation in education models, but also promotes the balanced allocation of educational resources and improves the quality of education. [2]

2.2 Analysis of the current situation of the teacher training system

In China, the teacher training system is undergoing profound changes. The Report on the Development of Teacher Training in China (2023) shows that teacher training continues to improve in quality and effectiveness, and the sense of satisfaction gained by participants has increased. The report points out that the effectiveness of teachers' knowledge, skills, abilities, and educational concepts in all dimensions has improved significantly over the previous year, especially for teachers in western and rural areas. In addition, the mode of teacher training is also being innovated, with blended training becoming the mainstream, in which the proportion of face-to-face-based blended training has increased, while the proportion of purely online training has declined. This shows that the teacher training system is gradually being systematized and deepened, especially in the areas of mental health education and science education. Policies for teacher training are also being deepened and refined, reflecting an in-depth understanding of and precise response to the specific needs of different groups of teachers. [3]

2.3 Impact of digital transformation on teacher training

Digital transformation has had a significant impact on teacher training. First, digital transformation has promoted the digital transformation of teacher training resources, expanded the coverage of quality resource sharing, and led to a more balanced allocation of educational resources. Secondly, digital transformation has promoted the innovation of teacher training modes, such as the application of online learning platforms and virtual reality technology, which provides diversified training contents and

methods and enhances the interactivity and effectiveness of training. In addition, digital transformation has strengthened the personalized and interdisciplinary development of teacher training, guiding teachers to broaden their professional horizons and learn knowledge and skills in other fields to cope with the demands of comprehensive education. Digital transformation also promotes teachers' professional development, including the enhancement of teaching skills, assessment abilities, and educational research, in order to improve teachers' professionalism and lifelong learning ability. In summary, digital transformation has not only changed the way and content of teacher training, but also enhanced the quality and effectiveness of teacher training, providing new opportunities and challenges for teachers' professional development. [4]

3 Analysis of Teacher Training Needs under Digital Transformation

3.1 Evolution of Teachers' Skills Needs

Under the background of digital transformation, the demand for teachers' skills shows a remarkable trend of evolution. With the rapid development of information technology, teachers are no longer just knowledge transmitters, but are transformed into learning guides, technology integrators and innovation practitioners. This transformation requires teachers to master a new set of skills, including but not limited to the screening and application of digital resources, the operation and management of online teaching platforms, data-driven teaching assessment, and the guidance and support of students' online learning. In addition, teachers need to be information literate, able to recognize the authenticity of online information and protect the digital security of individuals and students. Teachers also need to develop cross-curricular integration skills to deeply integrate IT with subject teaching and learning to meet the needs of individualized and differentiated teaching and learning. It is therefore important for the teacher training system to respond to these emerging skill needs by designing and implementing appropriate training programmes to enhance teachers' professional competence and ensure that they can effectively use digital tools and resources to facilitate students' learning and development.

3.2 Transformation of Teachers' Roles

The impact of digital transformation on the role of teachers is far-reaching. Teachers are no longer confined to the traditional role of classroom lecturers, but need to become organizers of learning communities, creators of learning resources and facilitators of the learning process. In the digital environment, teachers need to utilize technology to enhance students' learning experience, such as providing immersive learning experiences through technologies such as virtual reality (VR) and augmented reality (AR), or facilitating student communication and collaboration through social media and online forums. Teachers also need to be models of lifelong learning, constantly updating their knowledge base and skill sets to adapt to rapidly changing edu-

cational technologies. In addition, teachers are responsible for developing digital literacy in their students by teaching them how to use technology safely and responsibly. Therefore, teacher training systems need to emphasize these role changes and enhance teachers' self-renewal, technology application and cross-cultural communication skills through training in order to adapt to the new requirements of digital education.

3.3 Adaptability of training content and methods

As the digital transformation deepens, the content and methods of teacher training also need to be continuously adapted to the new educational environment. Training content should cover the latest educational technologies and teaching strategies, such as catechisms (MOOCs), flipped classrooms, gamified learning, etc., and how to integrate these technologies into teaching practice. At the same time, training methods need to be innovative in order to increase teachers' motivation and engagement. For example, a blended learning model, combining online learning and offline workshops, should be adopted to enable teachers to apply what they have learned in actual teaching. In addition, training should also focus on the personalized development of teachers by providing customized training pathways to meet the needs of different teachers. Teacher training should also include a reflection and evaluation component that encourages teachers to assess the effectiveness of technology application and make adjustments based on feedback. Through these adaptive training contents and methods, teachers will be able to better understand and utilize digital tools to improve teaching and learning outcomes and promote the holistic development of students.

4 Strategies for optimizing teacher training systems

4.1 Design of the training system framework

In the context of digital transformation, it is especially urgent to optimize the framework design of the teacher training system. First of all, the training system needs to build a multi-level and modularized training structure with the core of teachers' professional development. This structure should include three levels of basic training, advanced training and advanced training to meet the needs of teachers with different levels of experience. Basic training focuses on introductory knowledge and basic skills of IT, such as computer operation and retrieval of online resources; advanced training goes deeper into the digital application of instructional design and teaching strategies, such as online course development, interactive teaching, etc.; and advanced training focuses on educational leadership and innovative educational practices, such as analysis of educational policies and forecasting of trends in educational technology. In addition, the training system should include a continuous professional development pathway to encourage teachers to learn and grow throughout their careers. To ensure the effectiveness of the training, a set of evaluation and feedback mechanisms should also be established to regularly assess the effectiveness of the training and to adjust the content and methods of the training based on the feedback. By designing

such a framework, teachers can be provided with a clear professional development path to help them adapt to the new challenges of digital education. [5]

4.2 Innovation in training content

As educational technology continues to advance, innovation in teacher training content becomes crucial. The training content should not only cover traditional teaching theories and methods, but also include the latest educational technology applications, such as artificial intelligence, big data analysis and cloud computing. The application of these technologies can help teachers to be more effective in instructional design, student assessment and classroom management. In addition, the training content should also include knowledge of teaching ethics and laws in the digital environment to ensure that teachers can comply with relevant laws and regulations and protect students' privacy when using technology for teaching. At the same time, the training content should also pay attention to the development of teachers' interdisciplinary competence and encourage them to combine IT with knowledge of other disciplines in order to develop students' comprehensive literacy. In order to improve the relevance and effectiveness of the training, the training content should also be dynamically adjusted according to the actual needs and feedback of teachers. Through such content innovation, the teacher training system can be better adapted to the development of digital education and enhance teachers' professional competence.

4.3 Integration of Training Methods and Technology

In the process of digital transformation, the integration of teacher training methods and technology is the key to improving the effectiveness of training. Although traditional face-to-face training methods have their advantages, they are limited in time and space. Therefore, it is necessary to combine online training with offline training to form a hybrid training model. Online training can utilize online platforms to provide flexible learning times and locations so that teachers can learn at their own pace. At the same time, online training can also utilize multimedia resources, such as videos, animations, and simulation software, to make learning content more vivid and intuitive. Offline training, on the other hand, can provide opportunities for practical exercises and interactive exchanges so that teachers can learn and apply new knowledge in practice. In addition, training methods should also focus on active participation and reflection by teachers, who are encouraged to ask questions, share experiences and conduct self-assessment during the training process. By integrating methods and technology in this way, the flexibility and interactivity of teacher training can be improved, enabling teachers to better adapt to the new requirements of digital education.

5 Conclusion

The impact of digital transformation on the teacher training system is comprehensive and profound. It not only changes the way educational resources are allocated, but also promotes the innovation of teacher training modes and enhances the personalized and interdisciplinary development of training. China's practice shows that digital transformation can effectively improve teachers' professional competence and satisfaction, and provide new platforms and tools for teachers' professional development. With the deepening of digital transformation, we can foresee that the teacher training system will become more flexible, efficient and precise, providing solid support for the training of teachers adapted to the needs of future society. In the future, we need to continue to explore and optimize teacher training strategies under digital transformation to ensure the high-quality development of education.

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