The Value Implication and Path Discussion of Rural Teacher's Digital Literacy under the Background of Digital Empowerment

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Abstract: Under the background of digital empowerment, the application of digital technology in rural schools can effectively optimize resource allocation and promote educational equity. The purpose of this study is to analyze the current status of digital literacy among rural teachers and propose improvement measures in response to the problems they face. Based on the theory of teacher professional development, researchers conducted theoretical analysis and empirical investigation, randomly collected questionnaires from rural teachers, and conducted in-depth interviews. They found that the digital literacy of rural teachers currently faces weak digital awareness, insufficient digital knowledge and skills, poor digital application ability, and difficulty in using digital skills to achieve professional development. After adopting the Delphi method and consulting relevant management departments, the following conclusion has been drawn: in the process of education and teaching, measures such as utilizing educational resources, building digital platforms, providing systematic training for teachers, and providing urban-rural targeted assistance can promote the improvement of digital literacy of rural teachers.

Keywords: Digital Empowerment; Rural Teachers; Digital Literacy; Path Discussion

1. Introduction

To better promote the modernization of education through digital empowerment, various countries has issued relevant policies to ensure the implementation. For example, in 2020, the EU published the Action Plan for Digital Education (2021-2027), which clarified that the EU "promotes the development of a high-performance digital education ecosystem" and "improves digital skills and competencies to achieve." digital transformation". [1] Teachers are the main body of digital empowerment in the field of education, and their digital literacy level directly affects the quality of teaching and learning. In 2023, the Ministry of Education released the "Digital Literacy of Teachers" industry standard, including five dimensions: digital awareness, digital technology knowledge and skills, digital application, digital social responsibility, and professional development. [2] Based on earlier research, it is found that the digital literacy of rural teachers is currently affected by conceptual recognition and real conditions, and the situation is not optimistic. Previous studies have shown that information on primary and secondary school teachers between urban and rural areas. [3] The development of cultural teaching literacy is uneven, and the overall level of rural teachers is significantly lower than that of urban teachers Therefore, this study explores the path of enhancing rural teacher's digital literacy under the background of digital empowerment, which is not only conducive to deepening understanding in theory but also helpful in improving teaching effects and promoting educational equity in practice.

2. The Value Implication of Digital Empowerment for Rural Teachers' Digital Literacy

The deep integration of information technology and curriculum requires teachers to play a leading role, use technology as a means, remember the essence of education, and promote the comprehensive development of students. Therefore, in order to achieve the digital literacy transformation of rural teachers and improve the high-quality development of rural education, it is necessary to clarify the value orientation, focus on the fundamental task of cultivating morality and talents, and achieve deep integration of technology and teaching; Under the guidance of the essence of

education, create a classroom that conforms to the cognitive characteristics of students, stimulates their interest in learning, and promotes their comprehensive development, achieving personalized teaching; Enrich teaching content, break through classroom boundaries, expand teaching time and space, and promote the professional development of teachers.

2.1 Tracing Back to the Essence of Education and Achieving Deep Integration of Technology and Teaching

The development of digital information technology has brought many challenges to the methods of education and teaching methods, but the fundamental task of cultivating morality and nurturing talents has not changed. Although information technology can build virtual educational relationships across reality, education is still a social activity that cultivates people. As Karl Jaspers put it, "Education is nothing more than the exchange of spiritual and flesh activities between human subjects, including the imparting of knowledge content, the understanding of life connotation, and the regulation of willful behavior."[4] Therefore, improving the digital literacy of rural teachers means that they can use big data to design teaching based on the personalized characteristics of students. Specifically, using an information platform before class to grasp students' learning situation and preview situation, implementing teaching monitoring during class, timely capturing students' learning process, conducting retrospective work after class, seriously reflecting on students' problems and shortcomings, conducting value-added evaluations, and inspiring students to grow into fully meaningful socialized individuals. Good digital application ability of teachers can create a teaching environment for personalized development of students, provide teaching resources, provide educational feedback, encourage students to engage in cooperative inquiry learning, and improve learning literacy.

2.2 Returning to the Rationality: Strengthening the Awareness of Responsibility, Improving Students' Digital Abilities

Digital empowerment helps to improve the overall quality of rural education, enabling rural students to receive higher quality education through online education platforms, online educational resources, and other means. At the same time, the wider the application of digitalization in the field of education, the more indispensable it is for teachers to assume ethical responsibilities and regulatory constraints. The entry of digital technology into human society has triggered reflections on ethical, legal, and moral issues.[5] Students are increasingly tempted by the internet, making it difficult for them to make the right choices. They also have difficulty distinguishing between real and fake learning resources online, which hinders their healthy development. As guardians of students' souls and disseminators, teachers, due to their transcendent value, are powerful weapons to respond to the negative impact of digitization. This requires teachers to strengthen their awareness of digital social responsibility, based on warm and authentic teacher-student relationships, to achieve interaction between their spiritual worlds. One is to guide students to correctly respond to network security issues, avoid risks, use secure educational resources, regulate online learning behavior, and promote the improvement of students' digital abilities in the face of the temptation of digital networks. Secondly, teachers themselves should respect online intellectual property rights, learn relevant online legal norms, ensure online privacy and security, become intelligent and personalized mentors for students, and become disseminators and guides that enable students to possess the value of truth and beauty.

2.3 Development Demands: Promoting Professional Integration and Promoting Equity in Urban and Rural Education

Due to insufficient hardware facilities and limited software support in rural schools, the educational resources for development are not sufficient. It is difficult for teachers to form a fixed teaching and research team, and there is a lack of mutual learning in training and further education. Digital empowerment enables rural schools to use online courses, professional training, and other methods to provide development support for teachers and improve the level of education and teaching. In recent years, the country has narrowed the advantage gap and expanded resource sharing

through various online platforms. For example, the promotion and use of the MOOC Education Platform and the National Smart Education Platform for Primary and Secondary Schools have provided more opportunities for improving the quality and excellence of rural education, as well as strong support for the professional development of teachers. Teachers can use fragmented time to acquire professional knowledge online, reconstruct and construct knowledge, update teaching abilities with the times, promote professional integration and deepening research, promote digital transformation and upgrading of their own roles, and enhance self-efficacy and technological application abilities. On the one hand, in the classroom, students are unconsciously taught to use digital technology, obtain effective information, and acquire effective knowledge. On the other hand, teachers from various disciplines can achieve effective integration, guide students to learn how to think, learn to build knowledge systems, and thus achieve comprehensive development, effectively promoting urban-rural education equity.

3. The Practical Difficulties of Rural Teachers' Digital Literacy under the Background of Digital Empowerment

Due to the comprehensive influence of internal and external factors, current rural teachers generally have weak digital awareness, insufficient digital knowledge and skills, poor digital application ability, and difficulty in using digital skills to achieve professional development. Existing survey data shows that the digital literacy level of basic education teachers in China is still at a relatively low level, [5] and the digital literacy of rural teachers urgently needs to be improved.

3.1 Cognitive Dimension: Weak Digital Awareness, Over-reliance on Digital Resources

The digital awareness of teachers is the primary focus of digital literacy, which refers to their understanding of the value of digitization and their willingness to actively use digital technology. More emphasis is placed on the initiative of teachers, rather than becoming digital tools. Digital technology is only the carrier of teaching, but not the entirety of teaching. The era of artificial intelligence has simplified the time and methods of resource collection and education. It also includes digital literacy with integrated thinking, value recognition, and other connotations, highlighting the comprehensive abilities and basic qualities of teachers in data understanding, perception, application, and other aspects. [6] For example, the emergence of ChatGPT has also brought many challenges to education and teaching. However, the relationship between teachers and students has not changed, and the dual subjectivity of teachers and students has not been challenged. Rural teachers should be more aware of the need for emotional interaction and resonance with students, promoting individual growth and development of students. However, in some areas, rural schools are overly reliant on digital resources, leading to the neglect of traditional education methods and the impact on traditional teachers and students. Some rural schools excessively use online platforms for teaching, and teachers overly focus on technology applications, neglecting the personalized needs and emotional care of students, leading to a deviation from the essential requirements of education.

3.2 Skill Dimension: Lack of Standards, Insufficient Mastery of Digital Knowledge and Technology

Due to the lack of unified industry standards, rural teachers lack the ability to integrate and transform a large amount of digital information resources, resulting in insufficient mastery of digital technology. On the one hand, the platforms used by different science associations are not uniform, and there are also different requirements on each major platform, which increases the difficulty for teachers to use them; On the other hand, many teachers only initially master the technology of using the Internet, but do not have a clear perception of how to dig deep into teaching resources and improve professional skills. Teachers also only act as "porters" in massive amounts of information. They lack creative ability and transformative application, are difficult to master the skills of equipment software, and are even more confused when encountering software failures. Even in some areas, due to the relatively backward network infrastructure and technological level in rural areas,[7] it is difficult for teachers to enjoy the convenience

brought by digital education. These problems all lead to a lack of strategies for teachers to choose digital technology resources and master the methods of using digital technology resources. Therefore, it is necessary to improve teachers' digital skills through the establishment of unified standards.

3.3 Action Dimension: Insufficient Training and Inadequate Digital Application Ability of Teachers

In the context of digital empowerment, the demand for teachers' application abilities is increasing. However, some teachers in rural schools lack relevant skills and training, resulting in the inability to effectively utilize digital technology to improve the quality of education. The digital application ability of teachers can be understood as the ability to use digital technology to carry out teaching, including teaching design, teaching implementation, teaching evaluation, collaborative education, etc.[8] According to the survey, teachers' digital application abilities are mainly focused on the use of multimedia courseware and electronic lesson plans, but there is insufficient use of online teaching platforms and open courses, resulting in the level of digitalization still remaining at the primary level, making it difficult to effectively integrate and innovate resources. For teaching evaluation, more traditional offline methods are used, which fail to leverage the advantages of online timely, efficient, and personalized evaluation, and cannot monitor the development and changes of students. However, moral education has not achieved efficient integration in the curriculum, and the mechanism of home school collaborative education is extremely lacking, which poses great challenges to the current digital education in rural areas.

4. The Optimization Path of Digital Empowerment for Rural Teachers to Enhance Digital Literacy

In response to the current problems in rural digital literacy, optimization is needed to truly empower rural education with digital technology, promote the improvement of teacher's ability and quality, and enhance the overall level of modern education development.

4.1 System Design to Enhance the Subjectivity of Rural Teachers

One is to clarify the goals of digital teaching. The application of digital technology in teaching in the new era aims to help learners enjoy high-quality educational resources across time and space, and form a habit of self-directed learning and exploration. By using high-quality online resources to inspire students to find their own interests, they can develop innovative and enterprising qualities in the process of exploring knowledge. This requires teachers to play a guiding role, by clarifying the focus of digital technology and teaching, enhancing their initiative in using multimedia teaching resources, and introducing relevant systems to encourage them to flexibly use technology to achieve teaching innovation. The second is to build a teacher learning platform that integrates digital technology. Intensify publicity efforts on the platform, create a good digital teaching atmosphere, enhance the sense of acquisition and happiness of rural teachers towards digital experiences, so as to deepen their understanding, change their attitude towards digital teaching, and find their own value.

4.2 Multidimensional Integration to Achieve Professional Development of Rural Teachers

One is to carry out regular training on digital resources. Rural schools can use online courses, professional training, and other methods to provide professional development support for teachers and improve their educational and teaching level. Meanwhile, teachers can utilize digital resources for self-learning and enhance their professional competence. The second is to establish a sound supporting system that integrates multiple linkage mechanisms between families, schools, enterprises, and communities. Through multi-party linkage, teachers, parents, and society can communicate and implement a "one-on-one" enterprise assistance policy, providing technical support for schools and jointly solving technical problems encountered in the education and teaching process. The third is to enhance the matching assistance efforts of urban schools. Relying on the development opportunities brought by rural revitalization, the government should take the initiative to assume responsibility, promote

paired assistance between schools in the region, and enable rural teachers to improve their professional skills and enhance their digital application capabilities with the help of urban teachers.

4.3 Precise Policy Implementation to Optimize the Application Ability of Rural Teachers

One is to create a precise detection platform for teaching evaluation, achieving timely and efficient tracking and recording of the entire teaching process. Evaluation is to measure the development status of digital literacy among teachers and is a important ways to promote their abilities. [9] Rural schools are equipped with specialized technical personnel to conduct real-time monitoring and evaluation of the operation and application of teachers and the learning situation of students, forming data. Through big data analysis, students can fully grasp their learning progress, update existing problems in a timely manner, and ensure teaching quality. Rural teachers should strengthen the innovative use of teaching resources on online platforms through continuous experimentation and teaching practice. [10] The second is to combine regional characteristics, accurately develop local teaching cloud platforms, provide rural teachers with teaching resources with local and school-based characteristics, improve the pertinence and effectiveness of teaching, enable teachers to truly improve their digital application ability, and digitally empower the improvement of rural education quality and efficiency, promoting the development of education.

5. Conclusions

Digital empowerment has brought significant changes to the field of education, and the digital literacy of rural teachers is particularly important for the development of rural education. To address the challenges faced by rural teachers in improving digital literacy, various optimization paths can be taken, including system design, professional development, targeted support, and incentive strategies. By implementing these optimization paths, rural teachers can improve their digital literacy, promote high-quality development of rural education, and promote educational equity.

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