



# Digital Ecological Perspective of Rural Education Development

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**Abstract:** Nowadays, with the rapid development of digital technology, rural education in our country is facing an unprecedented opportunity of transformation, and the future of rural education is also full of many new challenges. This paper discusses the impact of this transformation on rural education from the perspective of digital ecology. This paper first analyzes the important influence of social structure and economy on digital education, and comprehensively expounds how economic development and social change shape the implementation of digital education, this paper discusses the impact of changes in student resources, such as the reduction of student numbers and the diversification of demand, on rural education. New trends in the flow of educational resources between urban and rural areas were also discussed, and the potential of digital education in narrowing the educational gap between urban and rural areas was demonstrated. This paper analyzes the challenges and opportunities faced by rural education in the digital ecology, and emphasizes the importance of solving the key problems such as the shortage of infrastructure and the improvement of teachers' technical ability. The purpose of this paper is to provide strategic recommendations and insights for the digital transformation of rural education.

**Keywords:** digital technology, digital education, rural education

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## 1. Economic and social structure and digital education

In 2019, the CPC Central Committee and the state council published “China's educational modernization 2035”, we should attach great importance to the application of modern technology in educational governance, and accelerate the reform in the era of educational information. “China Education Modernization 2035” under the guidance of rural education digitization process exploration is particularly important. Among them, social structure and economic status play a key role, and even directly affect the allocation of educational resources and the construction of digital infrastructure. Especially in rural areas where the economy is relatively backward, grassroots schools can not afford the costs associated with supporting digital education, such as building network infrastructure and purchasing multimedia equipment such as computers, this is constrained by local budgets. The ability of students to access digital educational resources is also affected by the economic situation of their families.

Changes in social structures, such as the migration of large numbers of rural workers to cities and changes in family structures, have led to a decline in the number of students in rural schools, which in turn has affected the demand for digital education and development strategies, that is why, in addition to rural school students, who to some extent can make up for the lack of family and school resources, a strong community support network is essential to the promotion of rural education, especially the implementation of digital education.

The development of digital education has a far-reaching impact on the economic and social structure of rural areas. In order to realize the effective digitalization of rural education, the practice of digital education needs to consider the factors of regional economic development, social structure and relevant policy support.

## 2. The impact of student change on digital education

The quantity and quality of students that rural education has been facing have changed significantly with the development of social economy and population mobility, these changes have a direct impact on the implementation of rural digital education strategies and implementation results. The reduction in the number of students in rural areas, especially the loss of school-age children, will inevitably lead to the reduction of the size of schools, which will affect the operation of schools and the allocation of educational resources, it forces schools to pay attention to how to use digital educational resources efficiently to meet the needs of students. Changes in the family environment and society have changed the learning needs of students, which requires digital education to provide more personalized learning experience. Rural students are more adaptable to digital technology, which requires digital education to pay more attention to the cultivation of information literacy and innovation ability.

The change of the demand for skills in the job market urges the rural students to acquire relevant skills through digital

education. At the same time, digital lifestyles have increased the demand for digital technology.

Therefore, the change of student source brings new challenges and opportunities to the implementation of digital education in rural areas. Rural schools need to adjust their educational methods and use digital education to provide more personalized, future-oriented education and improve the quality of education, to reduce the disparities in education caused by demographic and socio-economic changes.

### **3. Migration of educational resources between urban and rural areas**

With the rapid development of information technology, especially the rise of digital platform and distance education, the flow pattern of educational resources in urban and rural areas is undergoing profound changes, providing students in rural areas with unprecedented educational opportunities and access to quality educational resources in cities. This has made a big difference in rural education.

Through online courses and online education platforms, students in rural areas to some extent already have access to educational resources and learning experiences similar to those of urban students. This not only broadened their knowledge and vision, but also significantly closed the urban-rural education gap. Students' easy access to online courses, interactive educational software and a wealth of e-book resources may once have been the preserve of urban schools. Despite the opportunities brought by digitization, there are still many challenges in the process of the actual flow of educational resources between urban and rural areas. The main challenge is that high-quality digital education resources are still mainly concentrated in economically developed urban areas, and rural schools are better equipped to access and use these resources effectively, it is often constrained by poor infrastructure and lack of professional skills, which in turn exacerbate the uneven distribution of educational resources.

Rural teachers also face certain challenges, they are using new technology to change their teaching methods. In order to train teachers systematically and make them use emerging technology more effectively, so as to promote the teaching effect, the optimal allocation of rural teacher resources is also indispensable. While distance education can be helpful in solving some of these problems, teachers with the appropriate qualifications and experience are required to provide guidance to rural schools, especially in the application of new technologies and innovative teaching methods, professional training for rural teachers is also critical. In order to address these challenges, the government and relevant educational institutions, while increasing their investment in rural infrastructure, are giving priority support to rural teachers in applying emerging technologies to improve the quality and efficiency of teaching, provide targeted professional training for teachers. In addition, the sharing and cooperation of educational resources between urban and rural areas should be encouraged and promoted, such as through peer-to-peer support between urban and rural schools, so that rural students and teachers benefit directly from quality educational resources in cities, to achieve the goal of quality resource sharing.

After entering the digital era, the flow of urban and rural education resources has new features and trends, and the effective use of digital technology is of great help to narrow the urban-rural education gap. However, to ensure that rural residents can also make full use of these resources and lay a solid foundation for their long-term educational development, on the need to make more efforts to raise the educational level of rural residents in the areas of technical training, resource management, overcoming challenges, promoting the integration of urban and rural education and raising the educational level of rural residents, this needs to be done in rural areas.

Rural Education in the digital age is facing many challenges, but also has great opportunities for development. Traditional education model has been changed by the integration of digital technology, for students in rural areas to bring unprecedented learning resources and learning methods. But the relative shortage of teachers in rural areas has also caused the difficulty of digital transformation. In addition, educational managers and teachers are also faced with certain challenges in the process of digital transformation. As rural teachers often lack the necessary training and experience in the application of digital technology, their ability to enhance teaching effectiveness has been limited.

In addition to increasing the possibilities for more innovative teaching for teachers through digital tools and platforms, digital education offers significant opportunities for rural communities, the use of interactive software and online educational resources to enrich classroom teaching, online courses and distance learning to expose rural students to a wider range of knowledge and information would go a long way towards reducing the urban-rural education gap. In addition, digital education can bring new perspectives and tools to educational management decision-making to assess teaching effectiveness and student performance through big data analysis, so these opportunities must be fully utilized to face the challenges. Bring digital education to the countryside. Spread more knowledge and give children a good education. This requires the coordination and cooperation of all relevant government departments, increasing investment in infrastructure construction in rural areas, and providing continuous technical training and support to rural teachers, and targeted to the development of

digital teaching content and resources, so that rural students have better digital teaching content and resources for reference. In addition, in order to enhance students' information literacy and make them have the ability to use digital tools effectively, it is also an important point.

With the rapid development of Internet, artificial intelligence and big data, digital technology has been deeply embedded in all fields of human social governance, shows strong dominance and traction, forming a "Technology governance" of a new paradigm. The digital ecology has brought the important transformation opportunity for the rural education, but at the same time, there are also a series of challenges. Faced with these challenges and opportunities, rural education needs to adopt effective strategies for the successful implementation of digital education, thus promoting the overall development and promotion of education in rural areas.

## 4. Conclusion

Marx pointed out that the essence of technology is human nature, or human nature. It is of far-reaching significance to explore the promotion path of rural education digitization under the background of digitization transformation. To achieve high-quality development of rural education is not only a key step for China to build a digital China, but also an important step that can not be ignored. The training of talents in rural areas and the knowledge and skills needed by students to adapt to future social life are closely related to the development of rural education digitization. Since the birth of artificial intelligence technology, information technology has been constantly updated and iterated, bringing challenges but also containing opportunities for technological development. Only by making full use of digital information technology, can rural education effectively fill the information gap between urban and rural areas, and promote educational equity. In order to promote professional development and help students grow up, teachers need to deeply understand the importance of digital technology and stimulate internal motivation to improve their digital literacy. At the same time, the connotation of digital education, teachers should also be more clear with the deep integration of education and digital technology. Therefore, in the process of digitalization and under the background of digitalization transformation, teachers should stick to their leading position and respond to the educational digitalization transformation scientifically through self-identification and self-improvement, grasp the law of teaching development and achieve excellence in teaching.

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