

Digital Village Construction Right Research on the Impact of Digital Literacy among Rural Residents

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Abstract. In the current era of digitalization, the creation of digital villages has become a major driving force behind rural rehabilitation, as well as a crucial component of modernizing rural areas and agriculture. Given how quickly the digital economy is growing, digital literacy is now a fundamental skill that every person should possess. By fostering and enhancing the digital literacy of rural communities, it is possible to close the digital divide that exists between urban and rural areas, generate endogenous motivation, enhance digital production, and achieve rural rejuvenation. China's rural resident's digital literacy practice there are still more problems. This paper deeply analyzes the connotation and characteristics of digital village construction and expounds that there are obstacles to the improvement of rural residents' digital literacy, such as imperfect digital infrastructure and weak digital awareness of rural residents. Finally, this paper puts forward corresponding suggestions for rural residents to improve their digital literacy: The first point involves bolstering the development of rural infrastructure to enhance the digital hard power of the countryside, and the second point is to promote communication between urban and rural informatization.

Keywords: Digital village construction, rural residents, digital literacy, digital divide.

1. Introduction

During its 19th National Congress, the CPC announced a scientific and strategic plan for creating the digital countryside. The implementation of China's digital rural construction and rural regeneration policy primarily targets rural residents. The first stage in putting the digital rural construction plan into action is to raise the level of digital literacy among rural communities. The ongoing development of digital rural construction has brought to light issues such as low levels of digital literacy among rural populations, a deficiency in digital governance, and a scarcity of digital competence in recent years. These problems collectively lead to an imbalance in the level of digital construction between urban and rural areas, delayed rural digital construction, and weak digital awareness among rural residents [1]. The digital divide between urban and rural areas is still widening, and a large number of rural populations in China live in digital poverty, which is the main obstacle to China's digital development. The Improving Farmers' Digital Literacy Outline is one of the objectives of China's Digital Rural Development Strategy. First, farmers need to be better trained in digital literacy and have a better grasp of digital technologies. Enhancing the use of digital "new agricultural tools" in rural families should be its second priority. Third, there is an emphasis on improving farmers' digital literacy and skills [2]. Therefore, this article focuses on studying the impact of digital village construction policies in China, focusing on the relationship between the improvement of digital literacy of farmers and the construction of digital villages. It provides theoretical support for the construction of digital villages to improve the digital literacy of rural residents in China and has important practical significance.

2. Policy Analysis of Digital Village Construction

Digitalization has permeated all fields, including the countryside, due to the rapid development of information technology. The Chinese government developed the digital countryside policy as a key initiative to encourage the modernization and informatization of rural areas.

2.1. Connotation Characteristics

Digital countryside first appeared in the 2018 Strategic Plan for Rural Revitalization, but for the time being there is no uniform definition. Academics generally agree that digital countryside is the development of rural and agricultural areas through the use of modern digital information processing technology [3]. And the modernization of traditional rural governance, rural industry, and rural production is widely carried out. Digital village construction plays an important role in rural revitalization strategy. Digital development has gradually become a global consensus, and the use of digital means to solve the three rural problems has become the main means to promote rural agricultural development [4]. Continuously deepening the various developments in digital rural construction is an inherent requirement for building a strong digital country and a strong agricultural country. The digital countryside's primary policy features. This includes the development of agricultural information infrastructure, creative utilization of digital technology, training for new types of farmers, sustainability of green ecology, etc. The adoption of these policies will enhance farmers' quality of life and sense of well-being, foster the modernization of agriculture and the growth of rural governance, and further the integration of rural and urban areas. Firstly, the rural revitalization strategy involves revitalizing the countryside, which is an important part of it. Its main goals are agricultural modernization and informatization, improving the rural living and production environment, enhancing agricultural level, and promoting urban-rural joint growth through digitization. Its main goals are agricultural modernization and informatization, improving the rural living and production environment, enhancing agricultural level, and promoting urban-rural joint growth through digitization. Secondly, its purpose is to highlight how commonplace digital technology is in rural management, agricultural output, and farmers' daily lives. It specifically includes the promotion of new agricultural production vehicles such as smart farmland, smart pasture, smart fishery, etc, and the popularization of digital services such as e-government, tele-education, telemedicine, etc. Thirdly, it is to construct agricultural information infrastructure, which includes a high-speed ubiquitous information network, intelligent agricultural production equipment, an agricultural product traceability system, etc. The efficiency and quality of agricultural production will be enhanced and the quality and safety of agricultural products will be guaranteed with the construction of these facilities [5]. Fourth, it emphasizes innovation in digital technology applications - including the application of new technologies such as 5G, big data, the Internet of Things, cloud computing, and the collection, analysis, and utilization of agricultural big data. The use of big data in agriculture involves computing, collecting, analyzing, and utilizing it. The agricultural industry's competitiveness will be enhanced by the scientific and precise decision-making basis provided by these innovative applications for agricultural production and management. Fifth, it will cultivate new farmers -through digital training and agricultural science and technology promotion, the digital literacy and skill level of farmers will be upgraded. So, they can better adapt to the development needs of the digital era, and become new professional farmers who are knowledgeable, technologically savvy, and good at business management. Sixth, focusing on green ecological, and sustainable. Digital technology can help agriculture achieve sustainable development, decrease the use of chemical fertilizers and pesticides, and preserve the ecological environment in rural areas. The rural economy's green development and recycling of rural energy and resources will be encouraged by digital technology at the same time.

2.2. Characteristics and Development

China's digital countryside policy has extensively carried out digital infrastructure construction in the initial stage to consolidate and build a firm foundation for digital construction. From the late 20th century to the early 21st century, the Chinese government began to recognize the importance of information technology for rural development and began implementing a series of rural informatization projects. In 2019, the Chinese government issued the "Outline of the Digital Rural Development Strategy", proposing strategic goals and key tasks for the development of digital rural areas. The construction of digital infrastructure has been accelerated due to the issuance of policies related to the development of digital countryside by provinces and cities since then. With the popularization of mobile Internet, the digital village policy has entered a deepening stage. The government has encouraged the use of agricultural information technology, expanded the building of network infrastructure in rural areas, and raised rural productivity.

Digitalization is the technical support for the construction of digital rural areas, industrial digitization is the driving force for the integrated development of digital rural industries, and digital governance is the correct direction for the transformation of the digital rural governance system [6]. With the increase of Internet coverage and the improvement of production technology such as smart agriculture, the digital countryside policy develops horizontally and vertically, constantly expands the new business forms of the digital industry, and constantly promotes the combination of digital technology and rural industrial governance. In recent years, the focus of digital rural policies has shifted towards innovation, supporting the diversification of innovative economic enterprises in rural areas such as e-commerce and smart agriculture. In 2020, the Ministry of Agriculture and Rural Affairs released the "Digital Agriculture and Rural Development Plan (2019-2025)", which outlines the main goals and work areas for developing digital agriculture in rural areas, including big data in agriculture and rural areas, e-commerce in agriculture and rural areas, agricultural technology innovation and informatization, digital transformation of agriculture and urban-rural production and operation, and smart agriculture construction. In addition, the Ministry of Agriculture and Rural Affairs and the Ministry of Industry and Information Technology (MIIT) jointly issued a cooperation agreement on promoting the development of digital agriculture and rural areas and improving the modernization level of agriculture and rural areas. Localities are actively exploring new modes and paths for digital rural construction in practice.

Shaanxi Province's digital village policy, for example, seeks to encourage the growth of digital villages within the province by bolstering the digital economy of the rural areas, updating the information infrastructure of the rural areas, enhancing the governance of digital areas, and setting up a dependable mechanism for coordination.

In general, the process of developing digital rural policies is progressing, and various provincial and municipal governments are actively investigating and putting new models and avenues for development into practice to support the modernization and growth of rural regions and agriculture. Local governments' actions have demonstrated that boosting investment, stimulating innovation, and supporting the use of technology are crucial strategies for advancing the creation of digital villages. Future implementation of the digital village program in other regions will come as information technology develops, giving China's rural modernization a boost.

3. Problems and Dilemmas in the Construction of Digital Villages

The purpose and characteristics of creating a digital village are explored, along with the results of earlier research on the topic. The building of digital villages in China is still beset by issues such as inadequate rural digital infrastructure and low awareness of rural digital development, which make it difficult to raise the level of digital literacy among rural populations. The disparity between rural and urban development keeps getting worse.

3.1. Lack of Rural Digital Infrastructure

Good digital infrastructure is the basic guarantee for rural residents to improve their digital literacy and skills, and it is also a necessary condition for the construction of digital villages. Digital infrastructure is an infrastructure system that is based on communication networks, has data computing facilities at its core, and is driven by data innovation. In recent years, China's digital village construction has achieved remarkable results. However, there is a significant difference in many aspects when compared to urban digital construction because the economic growth condition is still plagued by numerous restraints.

To begin with, network infrastructure is not being built in rural areas in a comprehensive manner. The geographical location of rural areas is generally remote, and the network information is not smooth. This has constrained the adoption of the local digital economy, resulting in a smaller range and slower speed for network devices to receive signals [7]. Second, most villages have not yet built county-level data centers, and the digital rural application system cannot operate efficiently. Due to the incomplete construction of digital governance systems and infrastructure platforms in multi-sectoral fields, there are digital faults in artificial intelligence, digital agricultural product trading platforms, and other fields. Furthermore, there are deficiencies in the digital infrastructure system and a dearth of management and maintenance systems in rural areas. The core of digital construction is being replaced rapidly, but the infrastructure in many rural areas is not properly maintained and managed, resulting in the problem of rapid depreciation and hindering the construction of digital villages. Finally, not only is the economic foundation relatively weak in rural areas, but the permanent population is also relatively scarce. There is a relative shortage of reserve construction forces and application subjects, resulting in a lag in the construction of digital infrastructure [8]. Major enterprises pay little attention to and invest in the construction of rural digitalization, resulting in a serious lack of digital construction in rural areas. Under these realities, the process of improving the digital literacy of rural residents through actual construction has been hindered.

3.2. Weak Awareness of Digital Development in Rural Areas

Understanding rural digital development is the cornerstone and driving force behind creating a digital village, which helps to raise the standard of living and literacy of rural populations. The development of digital village awareness mainly includes capital, human resources, and technological innovation capabilities. The geography of the countryside is complex, with mountains and hills predominantly. Rural communities' digital transformation foundation is likewise trailing behind. Therefore, rural digital construction needs a lot of financial support, but there is a large gap in resources. Most investors are only in a wait-and-see state because of the long cycle of rural investment and low rate of return, and will not make the next investment. Simultaneously, the aging and hollowing out of rural society is caused by a lack of local talent in the construction industry, a significant loss of young and middle-aged labor in rural areas, and insufficient development of new agricultural operators [9]. Having a solid understanding of rural digital development is essential to establishing a digital village. As a result, rural areas are unable to attract digital talents to guide rural residents to participate in digital construction, and cannot help rural residents improve their digital literacy and skills. Technology innovation is essential to the development of digital villages, yet there is not enough technology available for rural areas. The application of the Internet and artificial intelligence in precision production and smart logistics is only in its infancy. Due to the lack of research on digital technology in rural areas in China, there is a large gap between technology supply and actual demand, and there is a lack of digital technology innovation in rural areas. In addition, due to the low level of education and limited digital resources received by most rural residents, farmers are slow to accept new things and technologies, and their recognition and attention to technological innovation are low. As a result, the quality of residents has stagnated, and the construction of digital villages has been hindered.

4. Implementation Path for Improving Digital Literacy of Rural Residents

In response to the challenges and difficulties China's digital rural construction is currently facing, relevant departments should focus on digital rural construction, integrate theory with practice, look into the high-quality development of rural digitization, and support the improvement of digital literacy among rural residents.

4.1. Enhance Rural Digital Hard Power and Strengthen Rural Infrastructure Construction

4.1.1 Emphasize digital education in rural areas

China is presently at a pivotal phase in its digital transformation. As digital rural development advances, digital literacy has become essential for rural areas as a literacy requirement and a basic survival ability [10]. In rural areas, basic education should be emphasized to ensure that rural residents have basic cultural knowledge and literacy. By strengthening the construction of rural schools, improving teacher salaries, and attracting excellent teachers to teach in rural areas, the aim is to improve the quality of rural education and lay a foundation for cultivating digital literacy. Provide digital skills training for rural residents, including skills training in computer fundamentals, network usage, and office software operation. Training can be conducted through a combination of online and offline methods, making it convenient for rural residents to learn anytime, anywhere. In the meanwhile, the training materials must be more suited to the real requirements of rural dwellers and improve their capacity to use digital skills. Encourage enterprises to participate in rural talent cultivation, and provide internships, practical training, and other opportunities through cooperation with rural schools, training institutions, etc., to enable rural residents to understand the application of digital technology in modern society. Meanwhile, enterprises can provide employment opportunities for rural residents and promote talent mobility. The government and society should establish incentive mechanisms to encourage rural residents to actively learn and improve digital literacy. For example, providing rewards and subsidies to outstanding students in digital skills training to stimulate their learning enthusiasm. Meanwhile, rural residents who have made outstanding contributions to the field of digital technology should be commended and rewarded.

4.1.2 Strengthen support for digital technology

It is an important role that technology will play in the advancement of digital rural construction. Digital infrastructure is the foundation for the deliberate creation of digital rural areas, as well as the robust endorsement of the digital economy and digital administration of rural areas [10]. Building more digital infrastructure in rural areas and fortifying the development of rural network infrastructure is imperative. To make sure that rural populations can easily use the internet, to improve the transfer of information, and to increase their ability to receive digital content. Simultaneously, this will raise the degree of rural digitalization, encourage rural internet usage, offer digital services that are comfortable, and boost the ease with which rural dwellers may utilize digital technology.

4.1.3 Innovative digital technology

Establish a communication bridge between smart agriculture and smart city systems. The new generation of digital technology is supporting a comprehensive, long-term, and revolutionary change in agriculture and rural areas: the digital transformation. It is necessary to consider both the immediate and long-term impacts of new technologies [11]. Modern technologies such as the Internet of Things, big data, and artificial intelligence can be used to share agricultural information resources and provide more accurate and personalized services. Meanwhile, innovative digital technologies can provide a common infrastructure and platform for smart agriculture and smart cities, enabling data exchange and system integration. In addition, innovative digital technologies can also promote technology transfer and collaborative innovation in smart agriculture and smart cities. The platform offers case teaching and sharing of digital technology applications, assists rural residents in better utilizing digital technology to improve digital literacy, and fosters technological cooperation and exchange between rural and urban areas. It promotes coordinated development between rural and urban areas through

the establishment of agricultural science and technology innovation centers and technology exchange platforms.

4.2. Improve the Digital Soft Power of Residents

4.2.1 Promote the flow of talents between urban and rural areas

There are major variations between urban and rural areas in terms of economic level, resource endowment, population structure, and educational background when it comes to China's digital development process of integrating them. It is necessary to provide a large amount of differentiated information content at different levels to meet the diversified information needs of farmers at different levels. At the same time, encourages rural residents to leverage their advantages, actively participate in market competition, and enhance their competitiveness. The government needs to create pertinent policies and enhance the system that allows talent to move between rural and urban areas. Encourage urban talents to participate in rural revitalization in rural areas, injecting new vitality into rural development. At the same time, outstanding rural talents should also have the opportunity to enter urban development, improve their abilities and levels, and strengthen the exchange and cooperation between urban and rural talents through organizing urban-rural talent exchange activities, building urban-rural talent cooperation platforms, and other means. Enable urban and rural residents to understand and learn from each other, and promote the sharing of knowledge, technology, and resources. At the same time, through cooperation projects and other means, promote the joint participation of urban and rural residents in rural revitalization, optimize the talent introduction and service guarantee system, and provide strong support for the flow of urban and rural talents. By improving talent introduction policies and providing high-quality service guarantees, aim to attract more outstanding talents to engage in rural revitalization. At the same time, corresponding rewards and honors should be given to talents who have made outstanding contributions to rural revitalization.

4.2.2 Increase government participation

The government should actively support digital rural policies by increasing financial investment as well as by enacting pertinent laws and policies that provide financial, talent, and other policy support, as well as by fostering favorable development conditions for the construction of digital rural areas. Besides, the government should strengthen its awareness of bridging the urban-rural divide and increase the publicity of digital villages [5]. Therefore, it is important to increase the publicity and promotion of rural digital rural construction to enhance the awareness and use of digital technology among rural residents, such as encouraging residents to use electronic voting, elections, and handling village affairs, further reducing the gap between the digital literacy of urban and rural residents [12].

4.2.3 Cultivating professional talents

Establish training institutions or courses related to agricultural digitization to cultivate professional talents. Training can be provided from basic knowledge to advanced skills, such as agricultural digital technology, agricultural management, data analysis, and other related knowledge. In addition, universities and research institutions are encouraged to conduct research on agricultural digitization and to cultivate researchers and professional technical talents. Relevant research projects can be established to support scientific innovation and academic exchange in related fields. The government has established an agricultural digital entrepreneurship incubation base to provide entrepreneurial guidance, resource support, and financial support for people with entrepreneurial intentions. Entrepreneurship competitions, entrepreneurship training, and other activities can be organized to motivate entrepreneurs to engage in agricultural digital enterprises.

5. Conclusion

Improving the digital literacy and abilities of the general public, advancing improved services, and incorporating the digital economy into new development models are all imperative. Through the analysis of the connotation and characteristics of digital village construction, the practical difficulties

of digital village construction are pointed out, namely the imperfect rural digital infrastructure and weak rural digital awareness. The solutions that were suggested for the development of digital communities from the perspectives of "hard power" and "soft power." It has contributed to the growth of digital villages and raised the level of digital literacy among rural populations. Demands for rural communities' digital literacy have increased as a result of the digital economy. Accelerating the creation of digital villages, bridging the "digital divide" between rural and urban areas, educating new farmers about the digital era, and empowering farmers and rural communities with digital technology are all necessary. Adhere to state laws governing the execution of the rural revitalization plan, promote the growth of virtual communities, and start a rural rejuvenation road in the Chinese manner.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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