

# Crossing the Digital Divide: A Study on the Mechanism and Path of Improving Rural Residents' Digital Literacy from the Perspective of Rural Revitalization

Shixuan Liu\*, Tingting Xu, Yiru Zhu, Tingting Rao

*School of Economics and Management, Institute of Science and Technology, Benxi, China*

*\*Corresponding author*

**Abstract:** In the context of the vigorous development of digital economy, the improvement of digital literacy of rural residents in China plays an important role in rural revitalization. This paper studies its necessity, existing problems and solutions. At present, the holding rate of rural digital equipment is low and there will not be many users. The development of urban and rural digital economy is very different, and the application scenarios are limited, leading to the incomplete development of rural digital economy. In this regard, this paper proposes to build a digital literacy cultivation system, improve the infrastructure construction to break the information island, build a guarantee mechanism, improve the policy support and other improvement paths, to provide theoretical and practical guidance for them.

**Keywords:** Rural Revitalization; Digital Literacy; Digital Economy

## 1. Introduction

With the rapid development of the digital age, how to improve the digital literacy of rural residents and promote the development of rural digital economy has become a new development direction of rural revitalization. Many scholars have also conducted studies, and believe that the improvement of digital literacy in rural areas is an inevitable requirement of the digital age, and also an important problem that must be solved in the process of digital rural construction. In the background of digital rural construction, strengthening the training of farmers' digital ability and improving the digital literacy of farmers can promote the construction of digital countryside, and then help to promote rural revitalization. Through our analysis and research found that digital literacy is one of the key

factors in the digital economy seize the opportunity, and rural residents digital literacy is conducive to make them realize the importance of digital information, and to learn digital technology applied to daily life, improve the quality of life and production efficiency, further make the rural digital economy development, promote rural revitalization.[1] However, there are still many problems in the improvement of rural residents, such as infrastructure, rural network penetration and digital equipment ownership and the development of digital economy. Agricultural digital transformation is relatively backward in cities and towns. In terms of digital application scenarios, rural areas are still relatively traditionally, and there are not many digital applications in the field of life and production.

Based on this situation, this paper aims to deeply study the mechanism and path of the improvement of the digital literacy of rural residents under the background of the digital economy, and explore how to effectively improve the digital literacy of rural residents, so as to promote the development of the rural digital economy and the realization of the rural revitalization strategy. Through the analysis of related problems and the discussion of solution paths, we provide theoretical support and practical guidance for the upward development of digital economy in rural areas.

## 2. The Necessity of Improving the Digital Literacy of Rural Residents from the Perspective of Digital Economy

In recent years, the digital economy has become a new engine for the global economic development, providing new impetus for the further development of the global economy. Not to be outdone, In 2023, the scale of China's digital economy will reach 53.9 trillion yuan, with the digital economy accounting for 42.8%

of GDP, the contribution rate of digital economy growth to GDP growth will reach 66.45%, and the scale of digital economy is the second in the world. In 2023, China's digital industrialization scale will be 10.09 trillion yuan, with a year-on-year nominal growth of 9.57%. The scale of China's digital economy is much higher than that of other countries. In the future, the digital economy will continue to promote China's economic development. In this era of the digital economy, the main body of rural construction is rural residents. If rural residents have high-quality digital literacy, they can better improve the production efficiency of agricultural products and better implement the strategic goal of rural revitalization.[2]

### **2.1 Improving the Digital Literacy of Rural Residents is Conducive to Implementing the Strategic Goals of Rural Revitalization**

In this era of the digital economy, rural residents are the main body of rural construction. Improving the digital literacy of rural residents is inevitable under the conditions of The Times. Similarly, this is also a problem that must be solved in the construction of the digital countryside. With high digital literacy farmers can integrate digital technology and rural industry, through intelligent ways such as "intelligent payment", "e-commerce" development wisdom agriculture, the smart agriculture, sharing new forms, such as the rapid development of e-commerce, let the studio into the farmland, let rural residents never leave home to sell produce to customers all over the country, these new forms promote the digital technology and the coupling development of rural economy, rural tourism industry, cultivating "Internet + tourism" new scene, build the rural 123 industrial integration development system.[3]

### **2.2 Improving the Digital Literacy of Rural Residents will Help to Improve the Quality of Life of Rural Residents**

Daily use of network platforms to watch videos and receive messages invisibly improves the frequency of residents' activities on the Internet. Furthermore, the awareness of rural residents regarding the practicality of the Internet. In daily life, many businesses can be handled online, such as online shopping, online payment, medical appointment, etc. Digital life is becoming increasingly popular, but it is a

challenge for older people in rural areas. In the future, more advanced digital technologies will soon enter the countryside, such as drone delivery, intelligent robots and so on. Only by constantly improving their digital literacy cognition can rural residents enjoy the digital dividend brought about by digitalization better. In addition, the improvement of digital literacy not only enhances the practical skills of rural residents, but also deepens their understanding of the potential value of the Internet, which helps to motivate them to accept digital behavior, thus improving the quality of life and helping to bridge the "digital divide" between urban and rural areas.

### **2.3 Improving the Digital Literacy of Rural Residents will Help to Improve the Quality of Agricultural Products**

In the era of digital economy, rural residents with high digital literacy can apply their digital knowledge and digital technology to the construction of agricultural modernization, and then promote the digital transformation and high-quality development of agriculture. Nowadays, digital, intelligent technology has penetrated into all aspects of peoples production and life, parts of rural residents advancing with The Times reference intelligent technology, traceability technology, automatic irrigation and monitoring soil, monitoring weather conditions and other modern agricultural technology is developing rapidly, some conditional areas also use satellite monitoring, remote sensing technology and uav technology of farmland refinement, digital, intelligent management and monitoring, maximum improve the utilization efficiency of farmland and yield. The output of agricultural products has been greatly improved and the quality will be better than traditional agriculture, and the economy has also been improved. The improvement of farmers digital literacy is conducive to rural residents to master advanced production technology, improve output and quality, and promote economic development.[4]

## **3. Problems Existing in the Improvement Of Digital Literacy of Rural Residents under the Perspective of Digital Economy**

### **3.1 Insufficient Infrastructure Construction**

In the context of the booming digital economy, the level of infrastructure construction in rural

areas lags far behind that of cities. In terms of network coverage, although the country vigorously promotes the network popularization project, there are still some remote rural areas with weak signals, unstable networks, or even no networks. This prevents rural residents from having smooth access to the Internet, limiting their access to digital resources. Moreover, the ownership rate of digital devices, such as computers and smartphones, in rural areas is relatively low, and some families are unable to buy this necessary equipment due to economic conditions. Even if there is equipment, it may be unable to use the equipment normally because of a lack of maintenance knowledge and channels. The lack of these hardware conditions fundamentally hinders the improvement of digital literacy of rural residents. In compliance with graph 1 As shown, the scale of rural netizens reached 304 million, accounting for 27.7% of the total, and urban netizens reached 795 million, accounting for 72.3% of the total. In compliance with graph 2 As shown, the Internet penetration rate in urban areas in China was 85.3% in 2024, 1.9 percentage points higher than in December 2023; the Internet penetration rate in rural areas was 63.8%, 2.7 percentage points higher than in December 2023.

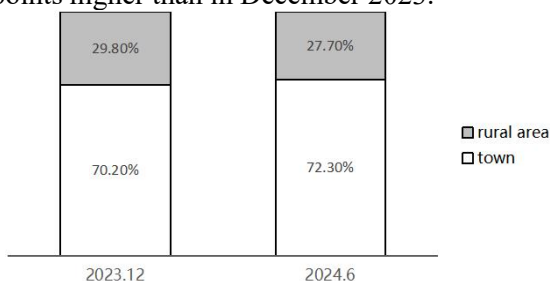


Figure 1. Urban and Rural Structure of Internet Users

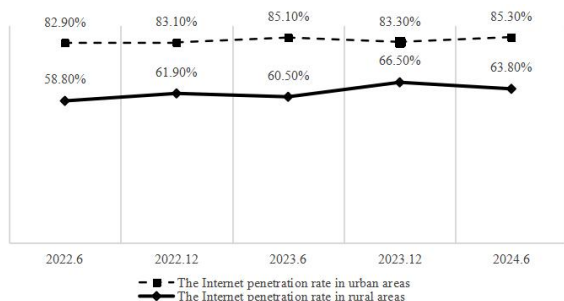


Figure 2. The Internet Penetration Rate in Both Urban and Rural Areas

### 3.2 There is a Large Gap Between Urban and Rural Digital Economy Development

Digital infrastructure is a new driving force for the driving role of investment, a strong domestic

market, and a new round of endogenous growth. The systematic layout of new digital infrastructure and consolidating the new base of digital society are of great significance for promoting rural revitalization. In compliance with Figure 3 Penetration rate of digital economy in China, In terms of absolute scale, in 2023, the digital economy of China's primary, secondary and tertiary industries accounted for 10.78%, 25.03% and 45.63% of the industry added value, respectively, and the integration of digital economy and real economy continued to deepen. In terms of relative scale, in 2023, the penetration rate of the digital economy in China's primary, secondary, and tertiary industries increased by 0.32, 1.03 and 0.91 percentage, respectively, compared to the same period last year. For the first time, the penetration rate of the digital economy in the secondary industry increased beyond that of the tertiary industry. The steady progress of the primary industry, the accelerated penetration of the secondary industry and the deep expansion of the tertiary industry have become the main trend characteristics since last year. It can be seen that agriculture, as the pillar industry of rural economic development, lags relatively behind industry and service industry in the process of digital transformation.

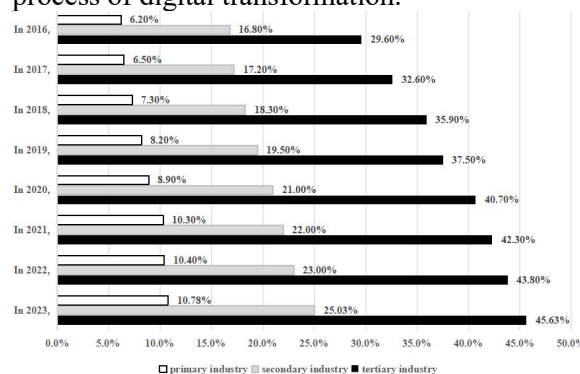


Figure 3. The Penetration Rate of Digital Economy in China's Three Industries

### 3.3 Digital Application Scenarios Are Limited

Digital application scenarios in rural areas are not rich enough. In contrast to the diversified digital application scenarios in cities, rural residents' lives and production modes are relatively traditional, and the integration degree of digital applications is low. In the field of life, in addition to simple social software applications, digital consumption scenarios, such as online shopping, online entertainment, and other digital consumption scenarios, have not been fully

developed in rural areas, and rural residents have little experience with these digital applications and low proficiency. In the field of production, although agricultural digital has certain development, but many rural residents still adopt the traditional mode of agricultural production, the digital agricultural technology such as precision agriculture, intelligent irrigation understanding and application, which makes them do not have enough power to improve their digital literacy, because they can't see the value of digital technology in the actual production and life.

#### **4. Improving the Digital Literacy Path of Rural Residents under the Perspective of Digital Economy**

In the process of digital rural construction and digital economy have been extended to every corner of the countryside, and digitization and informatization have become the key driving force of agricultural modernization. Improving farmers' digital literacy is not only crucial to increasing their income, but also a key factor in improving their quality of life. At the same time, the current imbalance of digital development still exists, which bridges the gap between the literacy and skills of different groups in the acquisition of digital resources and the use of digital economy, to promote the all-round development of people, break the existing barriers of rural residents, and promote the construction of digital power in the new era.

##### **4.1 Build a Capability-Oriented Digital Literacy Cultivation System**

To build a capacity-oriented digital literacy training system, an objective analysis of the current situation of rural residents' digital literacy is needed to accurately match their weaknesses and current needs. Starting from the rural development of the digital economy and the real life of rural residents, we should build a digital literacy cultivation system that is conducive to strengthening literacy ability and has a practical nature, visualization, and high feedback degree.

In practice, different levels of training are created according to different ages, needs and learning levels. On the one hand, for example, for a series of problems such as the use of smartphones by rural residents, we carry out intelligent teaching of the aging of residents and deeply feel that their knowledge is weak.

Training for young people on e-commerce, computers, and other related courses and ideological education and training to return young people. To realize the profound ideology of young people driving the elderly not only makes the improvement rate of elderly digital literacy reach a new high, but also enables rural residents to feel the warmth of society.

In terms of content, for difficult learning content, such as the combination of digital finance and agriculture, digital finance, government affairs, and other related courses to carry out free education of different digital literacy experts according to the needs and educational level of rural residents, so as to provide a steady stream of high power for rural residents' digital literacy. Accordingly, the quality of rural residents enables them to continue learning and solving problems, so as to improve their enthusiasm for learning and problem-solving ability, and constantly experience the convenience and sustainability of the digital economy. According to the 2024 National Report on the Development of High-quality Farmers, the training has continuously improved the education of rural residents, and the proportion of the professional titles and national professional qualification certificates amounted to 62.86 percent and 24.83 percent, respectively, up 5.54 percentage points and 2.39 percentage points compared with the previous training.

##### **4.2 Improve Infrastructure to Break Information Islands**

Improving rural infrastructure construction and breaking the information island of rural residents is an important "pillar" to promote the high-quality development of rural digital economy.

In the construction of digital service platform, we should first strengthen the construction of broadband network and optical fiber network, and constantly enrich the foundation of rural Internet construction. Secondly, the development and design of the platform should be divided into different versions according to the needs of different levels, reflecting its differentiation and personalization. For example, the complexity of the digital platform should be simplified as far as possible, and knowledge popularization and practical education should be emphasized. Finally, the government and the village committee should continue to cooperate, actively communicate and carry out a series of

mutual assistance work such as government services. For the construction of the digital economy platform, establish an evaluation mechanism and feedback system, and constantly push new knowledge and reasonable understanding mechanism based on the above. A series of activities, such as mutual assistance for the digital economy platform to rural residents, to improve the bridging degree of rural residents to the digital economy. For example, Xian District of Mudanjiang City has independently developed a digital rural intelligent platform integrating multi-function, which has solved more than 1000 questions of rural residents, visited 21 scenic spots and entered enterprises through the platform, online consultation and successfully signed 2 projects and other achievements, and continuously optimized the way to improve the quality of rural residents. In the training, more efforts should be made to improve the teaching infrastructure and supplement the complete facilities construction. And through the combination of online and offline methods, the recording and broadcast courses to the digital platform, and the course should focus on the practical part of the face-to-face courses for difficult problems for on-site guidance.

#### **4.3 Establish a Guarantee Mechanism for the Digital Economy**

With the continuous development of the Internet, there are still a series of problems such as security of digital economy in rural areas. Rural residents still hold a wait-and-see attitude towards the unknown things. They should break the "panic" of the digital divide and build a security guarantee for the improvement of the digital literacy of rural residents.

In his article, Yin Yifan pointed out that to improve the digital literacy of rural residents, we must first start with improving their correct cognition, willingness and ability regarding digital technology and digital literacy. Part of older rural residents, are not willing to accept new things, restricted by cultural level and cognitive thinking, make them in and digital economy has a "digital barriers", to break the barriers should establish digital science and humanistic emotional care double joint mechanism, improve their interest in new things and constantly encourage rural residents to form the correct cognition, eliminate their panic and strangeness. The needs of residents should be

put first, and the improvement of teaching and quality should be put second. Combine flexible methods with practice to reduce fear and constantly help the elderly rural residents to open up the actual needs for digitalization.[5]

#### **4.4 Improve Policy Support to Lay the Foundation Stone**

In order to continuously promote the strong development of digital economy and society, the digital literacy of rural residents should keep up with the digital literacy of urban residents and implement the new development concept. We will continue to build a blueprint for new development, deepen supply-side structural reform, and continue to meet the needs of rural residents. The government should actively cooperate with local universities to carry out the talent "return home" plan, actively encourage young and middle-aged talents to return to their hometowns, constantly improve the welfare mechanism, and encourage young and middle-aged talents to promote the development of digital literacy of elderly rural residents. Relevant policies should be introduced to enable rural residents to adapt to the development of rural social informatization, shape a new model of digital rural development, and promote the construction of rural modernization of digital economy in China.

#### **5. Conclusion**

Digital literacy of rural residents is very important. It covers many aspects such as digital acquisition and production. This is closely related to the digital economy and is of great significance in promoting rural revitalization. However, there are many problems, such as a limited understanding of digital technology, conservative attitudes, and passive sources. Some residents do not realize the necessity of improvement, rural gaps, resources, rural education systems, and the main body; the sustainability of digital agricultural production is poor; and villagers lack motivation and ability to use digital tools. The improvement path includes villagers establishing correct ideas, the government and village committee strengthening publicity and guidance, optimizing talent policies to attract young people and professionals to balance resources, introducing intelligent devices to expand application scenarios, carrying out practical training to create an atmosphere, optimizing the digital

public service platform, and strengthening digital information security protection. Collaborative efforts are needed to comprehensively improve the digital literacy of rural residents to promote the digital development of rural areas and achieve the strategic goal of rural revitalization.

#### **Acknowledgements**

Foundation project: The 2025 Entrepreneurship Training Project of Liaoning Institute of Science and Technology -- Crossing the digital divide: A study on the mechanism and path of improving rural residents' digital literacy from the perspective of rural revitalization. The 2024 Project of Liaoning Provincial Department of Education—The Internal Mechanism and Practical Path of Digital Economy Empowering rural Industrial Revitalization in Liaoning Province(project No.2024JYTKYTD-07)

#### **References**

- [1].Ke Xiaodan, Research on the path of Rural digital literacy Improvement under the background of digital village construction [J]. Wuzhou Agricultural School, Guangxi, 2024,(11),104-106.
- [2].How is the development of digital economy in China? A set of data with you to see \_ central Radio network
- [3].Yin Yifan. Exploration of the path of improving digital literacy from the perspective of digital economy [J]. Shanxi Agricultural Economy, 2024, (11): 30-32.
- [4].To Yun Hua Cheng Peng Huang Rong | digital literacy impact on the quality of life of rural residents
- [5].Yin Yifan. Exploration of the path of improving digital literacy from the perspective of digital economy [J]. Shanxi Agricultural Economy, 2024, (11): 30-32.