The Current Situation and Causes of Farmers' Digital Literacy

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ABSTRACT

The construction of digital villages is the catalyst for rural revitalization, and the digital literacy of farmers is the core foundation for realizing digital villages. Judging from the existing data, farmers' digital literacy needs to be improved urgently, while the lack of digital awareness, insufficient digital skills, the high proportion of the elderly group, and the structural factors of urbanization are the main reasons for the general low digital literacy of farmers.

Keywords: digital literacy; digital divide; digital countryside

1. INTRODUCTION

The construction of digital villages is an important foundation and priority measure for rural revitalization and agricultural and rural modernization. As early as 2019, the General Office of the CPC Central Committee and the General Office of the State Council issued the "Outline of the Digital Rural Development Strategy", which regarded digital villages construction as the key strategic direction for the comprehensive implementation of rural revitalization. "The Opinions of the State Council on Comprehensively Promoting the Key Work of Rural Revitalization in 2022" also pointed out that it is necessary to vigorously promote the construction of digital villages. Digital village construction is the only way for China to build a network power, digital China, and smart society, and farmers, as the main body of digital village construction, their digital literacy is directly related to the background of digital village construction and the effectiveness of digital China construction. In the digital age, "health code" and "itinerary card" have become essential elements of travel, and WeChat, Alipay and DingTalk have become important digital tools for our daily life, study and work. With the rapid development of the digital economy, digital industry, digital life, digital ecology, and digital governance, the digital society has reconstructed our living world, and digital literacy has become the core literacy and primary skill necessary for social citizens. Improving the digital literacy and skills of the whole people is not only the only way to realize China's transformation from a network power to a network strong,

but also an objective requirement for comprehensively promoting the construction of digital China. The CPC Central Committee and the State Council attach great importance to the issue of digital literacy and skill upgrading of Chinese citizens, and the "Proposal of the CPC Central Committee on Formulating the 14th Five-Year Plan for National Economic and Social Development and the Long-term Goals for 2035" put forward the "Upgrading of Digital Skills for the Whole People".

Although the construction of rural informatization has achieved remarkable results, the gap between urban and rural Internet penetration rates is still obvious, the information deficit and "digital divide" between urban and rural areas still exist, the phenomenon of insufficient rural development in the central and western regions and the imbalance between rural and urban development has existed for a long time, and there is still a long way to go through farmers' digital literacy and action skills. In November 2021, the Cyber Security and Informatization Commission of the Communist Party of China officially issued the "Outline for Improving the Digital Literacy and Action Skills of the Whole People", which made arrangements for improving the digital literacy and skills of the whole people, and provided paths for improving the digital skills of farmers.

Digital literacy is the core literacy that farmers urgently need to improve in the digital age, and it is also the core foundation for rural revitalization and agricultural and rural modernization. This paper will study the current situation of farmers' digital literacy and

explore its causes in depth, with a view to proposing a path to improve farmers' digital literacy.

2. THE DEFINITION AND CONNOTATION OF DIGITAL LITERACY

Digital literacy was first defined by Paul Gilster in his book Digital Literacy, which is "the ability to understand and use information from a variety of sources, especially through the Internet medium, when information is presented through a computer"[1], in other words, digital literacy is the comprehensive ability to obtain, understand, organize, and critique digital information. The European Commission has made digital literacy one of the 8 core literacy qualities necessary for European citizens in the 21st century, and has proposed a literacy domain that includes five problems: information domain, communication domain, content creation domain, security domain and solve problem domain.[2] Now, according to the "Outline for Improving the Digital Literacy and Action Skills of the Whole People", digital literacy has also been given a localization connotation, "a collection of digital acquisition, production, use, evaluation, interaction, sharing, innovation, safety and security, ethics and morality that citizens in the digital society should have to learn and work." China's academic circles have carried out in-depth exploration of various social phenomena from the connotation of digital literacy, and Jiang Minjuan et al. have expanded and redefined the digital literacy framework, and proposed the "five forces" model of digital literacy based on cognitive logic, namely perception, integration, absorption, practice and development, and the "five forces" are mutually integrated, gradually infiltrated and mutually influenced.[3]Su Lanlan et al. divided digital literacy into four aspects: digital literacy to improve the cognition and use of digital tools, enhance social initiative, promote interactive communication, stimulate creativity, innovative content and form of digital creative literacy, and promote individual and public safety and rights and interests protection to build a farmers' digital literacy level evaluation index system, and structure the theoretical framework of farmers' "digital education - digital literacy - digital life",[4] It is also found that farmers' digital literacy has a positive effect on rural digital governance,[5] and its follow-up research has expanded the digital expertise of giving play to professionalism and solving problems in the industrial field into the connotation of digital literacy. [6] Chang Lingchong also pays great attention to farmers' digital literacy, deeply analyses the reasons for the general low digital literacy of farmers, and proposes a comprehensive practice path for improving farmers' digital literacy. [7]

These studies either study rural governance and farmers' digital empowerment based on the various connotations of digital literacy, or study the structural causes of farmers' low digital literacy, and there is little

in-depth research on the current situation of farmers' digital literacy.

3. THE CURRENT SITUATION OF VILLAGERS' DIGITAL LITERACY

With the popularization and development of a new generation of information technology such as mobile Internet, big data, cloud computing, Internet of things, and blockchain, digitalization has penetrated into all corners of society and affected people's way of life, learning, production and thinking. As the digital transformation of society continues to accelerate, the digital space of society grows sharply, and the digital divide between urban and rural areas is also widening.

According to the dynamics of the Ministry of Industry and Information Technology, as of November 2021, the existing administrative villages in China have fully realized the "broadband connection between villages and villages", and the problems of communication difficulties in poor areas have been historically solved. Although the problem of rural digital infrastructure has been solved, the gap between the number and enthusiasm of rural residents and urban Netizens is increasing. According to the "Statistical Report on the Development of China's Internet Network", as of December 2021, the scale of China's Internet users reached 1.032 billion, and the Internet penetration rate reached 73.0%, but from the perspective of urban and rural distribution, the gap between urban and rural Internet penetration rate is obvious, the urban Internet penetration rate is 81.3%, and the size of Internet users is 748 million, accounting for 72.4% of the total Netizens; while the number of Netizens in rural areas is 284 million, accounting for only 27.6% of the total Internet users, affected by urbanization, compared with last year, The number of Internet users decreased by 13%. There are still many rural areas that have been marginalized into "digital blind spots" and have not enjoyed the fruits of the development of the Internet.

Farmers' digital literacy needs to be improved urgently. According to the "Survey and Analysis Report on China's Rural Digital Literacy under the Background of Rural Revitalization Strategy" released by the Information Center of the Chinese Academy of Social Sciences on March 3, 2021, the gap between urban and rural residents' digital literacy is 37.5%, and the digital literacy score of the peasant group is only 18.6 points, which is significantly lower than that of other occupational groups and 57% lower than the average of the entire population. As the awareness, attitude and ability to use digital resources, build new knowledge, innovate media expression and communicate with others, digital literacy is closely related to learning, work and life, and is an essential literacy for citizens. The low digital literacy of farmers is not conducive to digital consumption and digital production taking root in the

local area, which will hinder the development of the local digital economy.

4. THE CAUSE OF FARMERS' LOW DIGITAL LITERACY

4.1. Lack of Digital Awareness, Lack of Digital Skills

Different groups have different ages and levels of education, which also creates a large gap in the ability of digital resources to accept, understand, and apply digital resources and technologies. According to the "Survey and Analysis Report on China's Rural Digital Literacy under the Background of Rural Revitalization Strategy", the overall relationship between digital literacy scores and age shows an inverted U-shaped relationship, and the highest score is "post-90s", followed by "post-80s" and "post-00s", and as the age increases, the digital literacy score gradually declines. The digital literacy scores of primary schools and below, secondary schools, secondary vocational schools, universities and above are 31.9, 46.3, 51.0 and 57.2 respectively, and the digital literacy scores are directly proportional to the level of education, and education and training can effectively improve digital capabilities. The age, education level, income, experience, attitude and so on of farmers restrict their attitudes and abilities in using digital technology, and the age composition of farmers is generally older, and the level of education is not high, mainly concentrated in primary schools and junior high school.

Digital technology is both abstract and complex, and for villagers, it is stranger and more difficult to use than words. Although many Internet applications show the characteristics of "zero threshold" in daily life, once it comes to digital management, networked operation and big data applications, it is necessary not only to have certain operating technology and application capabilities for the Internet, but also to have flexible thinking and a good understanding of the operation logic of the network society.

4.2. The Proportion of the Elderly Group is High

As a large group, elderly farmers play a decisive role in improving the overall digital literacy of farmers. As the weaker group of the digital divide, the elderly not only show an irreversible decline in physiological function, but also have psychological barriers to the absorption of digital technologies, making it difficult for them to efficiently integrate into the increasingly intelligent digital life. Because the mobile phone settings and applications do not take into account the age-appropriate design, limited by the level of education, coupled with the degree to which the elderly are affected by the self-sufficiency of the local society, self-enjoyment, closed

eyes and listening habits, the elderly are limited in their activities on the digital platform. Elderly people "do not operate smartphones" and "do not use mobile software" and other phenomena are becoming more and more serious. According to the "Statistical Report on the Development of China's Internet Network", the scale of non-Netizens in China is still 382 million, rural residents account for 54.9%, and the elderly aged 60 and above account for the main part, of which "do not understand the Network or computer" is the main reason for non-Netizens not to go online, accounting for 48.4%; educational attainment restrictions like don't know how to spell, accounting for 25.7%, and no computer and other Internet access equipment accounted for 17.5%.

4.3. Structural Causes of Urbanization

The continuous urbanization process is the structural cause of the low digital literacy of farmers, and a large number of young and middle-aged people continue to flow from the countryside to the towns, which seriously affects the process of digital rural construction. With the arrival of information technology in the era of artificial intelligence, most of the peasant groups at the end of information are affected by the superposition of restrictive factors such as insufficient network equipment, limited education level, and lack of Internet access skills, and may be unable to participate in the wave of informatization in the construction of digital villages. Worryingly, this situation will continue to continue, when the digital age accelerates the evolution, due to the existence of a series of technical barriers such as machine identification, data analysis, software operation and platform use, the Matthew effect of the "digital divide" is aggravated, and some groups are unable to obtain effective basic information in a timely manner.

5. CONCLUSION

The construction of digital villages only relies on the superposition of digital technology and agricultural information production is far from enough, and the cultivation of farmers' digital literacy and the wisdom of rural life are the core. The intelligent digital literacy education of the main body of farmers has been lacking for a long time, and it is necessary for digital information technology to continuously infiltrate and support the modern production of agriculture and rural areas. The improvement of farmers' digital literacy is an urgent problem to be solved in the construction of digital villages, and problems such as obvious lack of awareness of network security, very limited ability to use mobile media, and serious lack of digital income increase capacity have become increasingly prominent. Digital literacy is not automatically acquired with the use of the Internet or computers, and knowledge and competence may become a new obstacle. The "Outline for Improving the Digital Literacy and Action Skills of the Whole

People" also points out that it is necessary to integrate high-quality training resources such as new technology promotion, e-commerce sales, and new media applications, promote farmers' mobile phone application skills training, and improve farmers' ability to use digital tools, so as to realize the beautiful vision of digital socialization, intelligent survival, and high-quality life. Through the current situation of low digital literacy of farmers, this paper deeply analyzes the causes of it, provides a reference for follow-up research, and enriches the research on digital villages and digital literacy.

AUTHORS' CONTRIBUTIONS

Yimin Qian conceived the study on farmers' digital literacy, designed the basic framework for the study, read a large amount of literature and collected existing data. All the authors analysed the data and participated in the writing of the paper, drawing conclusions.

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