Research on Digital Literacy Survey and Promotion strategies of Rural E-commerce under the Perspective of Digital Economy

——Taking Yiwu as an Example

Hongquan Shao

Yiwu Industrial & Commercial College, Yiwu 322000, China.

Abstract: Digital technology and the e-commerce industry are deeply integrated, and the pace of digital transformation of various industries is accelerated; in this context, it has given rise to the rise of e-commerce operated by rural residents, and as a digital depression, digital literacy has become one of the most important influences on rural e-commerce practitioners' future survival and development. Through literature survey, expert survey method and other methods, the indicators of their digital literacy evaluation were designed. And the questionnaire on digital literacy level is prepared according to the derived indicators, and the survey data of 436 rural e-commerce practitioners in Yiwu are statistically analyzed; finally, the path of enhancement is given.

Keywords: E-Commerce; Rural Residents; Digital Literacy

1. Introduction

According to the data of the White Paper on Digital Economy Index of Chinese Cities (2018), the recruitment of digital talents in developed e-commerce cities such as Shanghai, Hangzhou, Nanjing, Suzhou and other cities has a gap of varying degrees[1], and there is a labor shortage of digitally skilled talents.2021 In November 2021, the Central Office of Internet Information Technology (CNIO) issued an "Outline of the Action Program for Enhancing the Digital Literacy and Skills of the Entire Population", which points out that enhancing the digital literacy and skills, is to comply with the requirements of the digital era, to enhance the digital literacy and skills of the entire population as a fundamental, strategic and pioneering work to build a strong network country and digital China. [2]

E-commerce, as an important form of expression derived from the digital economy, [3] has greatly promoted the development of rural e-commerce in the information age.Reviewing its development history, it can be traced back to the "Golden Farmer Project" and the "Village Phone Project" in 1994, and in 2005, China ushered in the first agricultural products online retailer "Yiguo Fresh" on-line, marking the beginning of the development of rural e-commerce. "In 2005, China welcomed the launch of the first e-tailer for agricultural products, EGo Fresh, marking the beginning of a period of full-scale development of rural e-commerce. By 2015, the development model of rural e-commerce has gradually taken shape[4], and has now entered the stage of scale and specialization. [5].

At this stage, the infrastructure of rural e-commerce has been improved, but the main problem is the lack of talent, which restricts the pace of rural revitalization [6]. In order to make up for this shortcoming, China has issued the "Outline of Digital Rural Development Strategy", "Action Plan for Digital Rural Development (2022-2025)", "Key Points for Enhancing Digital Literacy and Skills of the Whole Population", and "Key Points for Digital Rural Development", respectively, which have put forward the requirements for the improvement of farmers' digital literacy: to improve the digital literacy of farmers [7]; to strengthen the training of farmers' digital literacy, and to Enhance farmers' ability to master digital technology [8]; improve the application level of farmers' digital "new farming tools" [9]; and improve farmers' digital literacy and skills [10].

The study closely focuses on the issue of rural e-commerce digital literacy, firstly, it sets up evaluation indexes through literature survey method and Feld expert survey method; again, it takes rural e-commerce groups in Yiwu as the research object, and investigates their digital status quo through questionnaires; finally, it gives the enhancement path according to the status quo.

2. The research status

Through the study of domestic-related literature found that domestic scholars have studied the connotation, development, current sit-

uation, and the digital literacy of rural residents and e-commerce practitioners from different perspectives, and have achieved certain results, which play a certain theoretical guidance for the study of this paper; however, there is no more systematic and authoritative digital literacy evaluation model and skills framework research for rural e-commerce practitioners in China; and the content of literature related to the rural However, there is no systematic and authoritative digital literacy evaluation model and skills framework research for rural e-commerce practitioners in China; the literature on rural e-commerce practitioners' digital literacy investigation and enhancement paths is relatively rare.

3. The design of the digital literacy evaluation index

Through the existing literature at home and abroad, the preliminary indicators of digital literacy are collected, and then the evaluation indicators of digital literacy suitable for rural e-commerce in China are determined by field expert survey. After consulting and researching the 15 experts through the Field Expert Method, six first-level evaluation indicators and sixteen second-level indicators of digital literacy of rural e-commerce were finally determined, as shown in Table 1.

Table 1 Evaluation index of digital literacy of rural e-commerce

Primary index	Secondary index
Digital technology domain	Technical cognition
	Technology use
Digital information domain	Information search
	Information evaluation and processing
Digital security domain	Equipment safety
	Data security
	secret protection
Professional content creation domain	Digital content creation
	Digital professional quality
	Digital professional learning
Online communication domain	Digital thinking
	Digital communication
	Digital collaboration
Problem-solving capacity domain	Hardware equipment problem handling ability
	Software system problem handling ability
	Operation ability of digital advanced equipment

4. The survey design

Based on the evaluation index obtained by the research, the questionnaire of the digital literacy status of rural e-commerce is edited. The questionnaire is divided into two parts: demographic factors and the status quo of digital literacy; Among them, demographic factors include gender, age, education level, income, working years, and jobs.

4.1 Demography of the respondents

This study takes rural e-commerce practitioners in Yiwu as the research object, and sends online questionnaire links to them on the platform of WeChat and QQ from June 5, 2023 to June 20, 2023. After that, a total of 482 questionnaires were obtained, 46 invalid questionnaires were eliminated after screening, 436 valid questionnaires were finally obtained, and the effective rate of questionnaire recovery was 91.5%. See Table 2 for sample details.

Table 2 Demographic data of respondents

Demographic variable	category	frequency	Proportion
gender	man	194	44.50%
	woman	242	55.50%
	other	0	0.00%
age	18-30	174	39.91%
	30-40	186	42.66%
	40+	76	17.43%
occupation	operator	47	10.78%
	customer service	107	24.54%
	storehouse	67	15.36%
	Live streamer	90	20.64%
	art designing	39	8.94%
	logistics	86	19.72%
working experience	Within 2 years	185	42.43%
	2-5 years	134	30.73%
	5-8 years	70	16.10%
	More than 8 years	47	10.78%
Level of education	High school and below	160	36.70%
	universities and colleges	95	21.79%
	undergraduate course	147	33.71%
	Graduate students and above	34	7.80%

4.2 Test of questionnaire items

The questionnaire consists of 25 questions and 6 fields, including digital technology domain, digital information domain, digital security domain, professional content creation domain, online communication domain, and problem-handling ability. The questionnaire draws lessons from Likert's five-point scale [12], and gives a score of 1 to 5 from "completely disagree", "disagree", "neutral attitude", "agree" and "very agree". For the measurement of the questionnaire, because it is a self-made questionnaire, it is necessary to use exploratory factor analysis method to test the items.

As for the reliability of the questionnaire, Cronbach's α coefficient of the questionnaire as a whole is 0.979. KMO value is 0.921, which indicates that the correlation between variables is good. By factor rotation, some items with a load coefficient less than 0.4 are deleted, and finally, 25 items remain.

5. The conclusion and reasons of the investigation

5.1 Cause analysis

① Low average education level: According to the survey, the cultural background of most rural e-commerce practitioners is junior college or below, and some practitioners can only receive junior high school or even lower education. Because the e-commerce industry needs certain professional knowledge and skills, these practitioners cannot rely on their own knowledge level to master the required digital technology by themselves, thus limiting their digital literacy development and ultimately affecting their career development.

② Lack of professional experience and skills: The e-commerce industry has really flourished for a short time. Compared with the traditional sales model, e-commerce practitioners have relatively insufficient understanding and experience of their own industries. Moreover, most employees only use limited equipment and tools in their daily work and work, such as ordinary mobile phones and televisions. They lack skills in using computers, networks and digital products, and even some employees are not skilled in using office software and sales platform backstage. Their digital technology and knowledge reserve are also different. Some practitioners engaged in the traditional sales in-

dustry may not have received relevant digital training, and they are not familiar with the business model and operation mode of e-commerce, which makes it difficult for them to adapt to the working mode of e-commerce.

③ Learning habits and attitudes: For e-commerce practitioners, mastering digital technology and knowledge requires continuous learning and accumulation. Some practitioners may not have formed good learning habits and attitudes to keep pace with the times, and they are not aware that e-commerce itself is undergoing changes, so it is difficult to master and apply the new digital knowledge.

5.2 Promotion measures

① Provide training so that village committees and relevant villagers' self-governing organizations can regularly invite relevant experts to provide basic digital training courses covering such aspects as e-commerce platform operation, online promotion skills and online customer service. These trainings can be conducted either online or offline to ensure that rural e-commerce practitioners have the right learning path for basic digitalization knowledge. Utilizing the educational role of public libraries in rural and township governments, libraries dominate in digital literacy skills enhancement [13], and public libraries should sink their high-quality talents and digital resources into rural areas to benefit more people. [14]

② Establish an inter-village exchange and cooperation network: an official formal channel should be opened up for the exchange and cooperation between rural e-commerce practitioners, and rural e-commerce learning and exchange groups can be established to organize exchange activities, share successful experiences and solve problems through online or offline methods; At the same time, we can hold regular seminars on village-to-village exchanges, cooperate through various channels, jointly carry out marketing promotion and resource integration, and give full play to the advantages of block economy.

③ School-enterprise cooperation, resource replacement and intellectual support

Industry-teaching integration, school-enterprise cooperation has always been an important way to train students in vocational education; fully mobilize high-quality rural e-commerce enterprises and schools to jointly invest in capital, technology, manpower, projects, resources, etc., for example, with the school to open the internship site for students in the rural areas, the outstanding graduates to start early, and other initiatives, to promote the virtuous cycle of the digital development of the rural e-commerce ecosystem. On the one hand, students' theoretical knowledge can be combined with the actual experience of e-commerce, which is conducive to the cultivation of composite talents with high digital technology and ability , and on the other hand, it can also help rural e-commerce companies to absorb high-quality experienced workers in the institutions earlier, and promote the competitiveness of enterprises.

6. Conclusion

Based on the digital literacy framework for farmers' e-commerce practitioners and the specific literacies proposed in this paper, in order to further improve farmers' digital general literacy, digital safety and ethics literacy, digital communication literacy, digital creativity literacy, and digital problem-solving literacy, China can explore the formation of a synergistic mechanism for the construction and sharing of the government, public libraries, enterprises, and other multiple actors, and a system of policymaking based on the specific needs and requirements for the enhancement of specific literacies. China can explore the formation of a synergistic mechanism and category-based policy-making system for the government, public libraries, enterprises, and other multiple actors to build and share in response to specific literacy needs and requirements.

Acknowledge

Fund project: the project of Yiwu Social Science Association in 2023, "Research on Digital Literacy of Rural E-commerce in Yiwu from the Perspective of Digital Economy" (project number: 89798)

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