



Re-mining the Silver Dividend: A New Model of Elderly Social Participation Based on Urban-Rural Mutual Assistance

Yishan Zhou*, Caihong Wen, Guochao Wan

School of Management, Chengdu University of Information Technology,
Chengdu, 610225, China

*2720669446@qq.com

Abstract. As China's population aging intensifies, older adults are often viewed as "care recipients," while their accumulated knowledge and experience are overlooked. Based on survey data from 612 elderly participants across six urban and rural pilot areas in Sichuan, Guangxi, and Henan, this study explores how an urban-rural mutual assistance mechanism can transform older adults from "care recipients" into "social participation resources," thereby releasing the "silver dividend." Results indicate that urban and rural elderly populations possess naturally complementary skill sets; age-friendly design significantly enhances learning self-efficacy and eliminates participation barriers; the "low-cost universal access + social incentive" model aligns well with elderly payment willingness. This research validates the effectiveness of the urban-rural mutual assistance skill exchange model.

Keywords: Silver Dividend, Urban-Rural Mutual Assistance, Elderly Social Participation, Age-Friendly Design, Self-Efficacy

1 Introduction

By 2023, China's population aged 60 and above exceeded 280 million amid deepening aging. Traditional welfare models label the elderly as a social burden while neglecting their participatory potential. Jun, Kim and Han [1] noted that digital technology usage enhances life satisfaction among older adults, reframing them as valuable social resources.

Studies confirm that social participation improves seniors' well-being. Yang and Zhang [2] demonstrated that the urban-rural digital divide significantly affects elderly life satisfaction, with digital inclusion serving as a key mediating factor. Li, Shao and Gao [3] further added that digital literacy positively impacts health behaviors among rural older adults, highlighting the potential of skill-sharing platforms. Tang, Li and Wu [4] found that the digital divide significantly undermines mental quality of life among rural older people, suggesting that bidirectional skill exchange mechanisms can bridge this gap.

Nevertheless, participation remains constrained by uneven digital literacy and limited mobility. Amouzadeh et al. [5] highlighted that age-friendly mobile app design is critical to bridging the digital divide, while Hao et al. [6] noted that usability and social support improve technology acceptance, lowering overall participation barriers.

Based on the "Sangyu Xinchuan" project, this paper constructs an urban-rural elderly mutual assistance skill-exchange model. It explores three research questions: the resource complementarity of urban and rural seniors, the influence of age-friendly design on self-efficacy and participation barriers, and the sustainability of low-cost social incentives. This study enriches research on elderly social participation and silver dividend activation.

2 Hypotheses and Model

2.1 Theoretical Model Construction

According to the four core pain points identified in the project application research (inability to operate, lack of mentorship, fear of fraud, physical inconvenience), and based on the self-efficacy theory within Social Cognitive Theory (Bandura, 1986), the following theoretical model is constructed:

Antecedent Variables: Insufficient digital literacy, lack of social support, trust crisis, decline in physiological functions; Mediating Variable: Decreased learning self-efficacy; Outcome Variable: Degree of learning difficulty (operational difficulty, cognitive difficulty, emotional difficulty, persistence difficulty); Moderating Variable: Age-friendly platform design. As shown in Figure 1, insufficient digital literacy, lack of social support, trust crisis and physiological decline affect learning self-efficacy, which further influences learning difficulties among older adults. The theoretical model is presented in Figure 1.

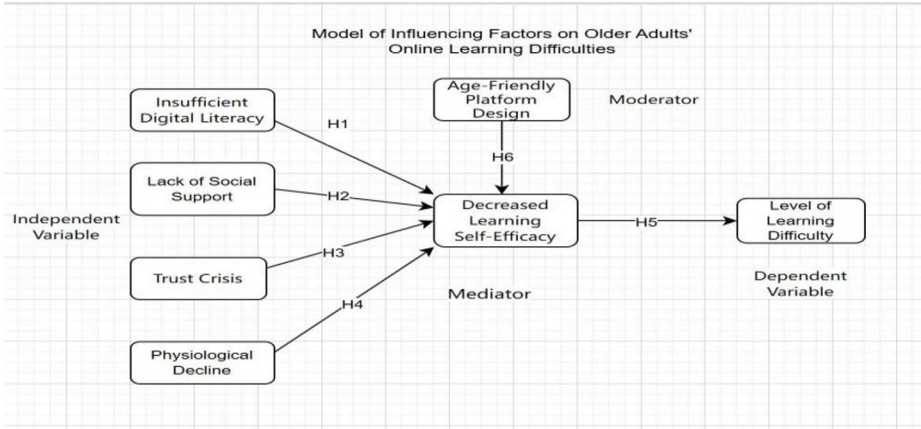


Fig. 1. Variable Relationship Diagram for Learning Difficulties.

2.2 Research Hypotheses

Based on the investigation report and project application findings, this study proposes a total of five hypotheses. H1: The more operational difficulties elderly individuals self-report, the stronger their demand for age-friendly features such as voice interaction, dialect recognition, and AI assistants. (Based on TAM and Compensatory Technology Acceptance Model). H2: Elderly payment acceptance is significantly positively correlated with interest in "life skill courses" (mobile payment, fraud prevention), while correlation with "purely recreational courses" is weaker. (Based on adult learning motivation theory). H3: Elderly individuals experiencing loneliness are more inclined to choose courses with community interaction, work displays, and offline activities, showing longer weekly active duration. (Based on Social Support Theory). H4: Urban elderly prefer purely online live/recorded courses, while rural elderly prefer blended "online + offline" formats with volunteer assistance. (Based on Social Ecosystem Theory). H5: Preference for course duration is negatively correlated with age: those over 70 prefer 3-5 minute videos; the "new elderly" aged 60-69 prefer 8-15 minute videos and live replays.

3 Data and Analysis

3.1 Data Source and Sample Composition

From September to October 2025, a survey was conducted across 6 urban and rural pilot areas in Sichuan, Guangxi, and Henan provinces. A total of 650 questionnaires were distributed, and 612 valid questionnaires were recovered, yielding an effective rate of 94.2%. The sample structure is as follows in Table 1.

Table 1. Sample Composition.

Dimension	Category	Number of Samples	Proportion
Gender	Male	335	54.70%
	Female	277	45.30%
Age	55-75 years old	510	83.40%
	Over 76 years old	56	9.10%
	Under 55 years old	46	7.50%
	Urban Community	354	57.80%
Residence	Rural Community	235	38.40%
	Nursing Home	23	3.80%
	Independent Use	467	76.30%
Smart Device Usage Ability	Need Assistance	113	18.40%
	Completely Unable to Use	32	5.30%

3.2 CITC Value Analysis of Each Dimension

Based on the specialized survey data (Cronbach's α coefficient ≥ 0.79 for all), the Corrected Item-Total Correlation (CITC) values for each dimension indicate is shown in Table 2.

Table 2. CITV Values of Each Dimenison.

Dimension	Dimension	CIT C
Interest in Learning Content	Health and Wellness Knowledge	0.85
	Smartphone and Internet Applications	0.81
	Life Skills	0.82
Preference for Learning For- mat	Online Video Courses (with Playback)	0.80
	Offline Community-based Classroom Teaching	0.79
	Online Live Courses (Interactive)	0.76
Learning Difficulties	Inability to Operate Smartphones/Computers	0.80
	Distant Learning Locations & Inconvenient Travel	0.77

The data shows that within "Interest in Learning Content," "Health and Wellness Knowledge" (0.85), "Life Skills" (0.82), and "Smartphone and Internet Applications" (0.81) scored highest. For "Preference for Learning Format," "Online Video Courses (with Playback)" (0.80) and "Offline Community-based Classroom Teaching" (0.79) ranked joint first. Regarding "Learning Difficulties," "Inability to Operate Smartphones/Computers" (0.80) was the most prominent.

3.3 Descriptive Statistics and Charts

Payment acceptance results are presented in Figure 2. As shown in Figure 3, 52% of the elderly found a monthly fee of 1–20 yuan acceptable, 28% accepted 21–50 yuan, and only 15% were completely unwilling to pay.

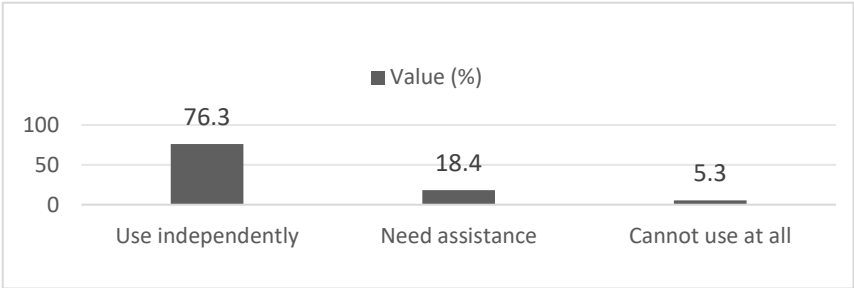


Fig. 2. Payment Acceptance Pie Chart.

Data Source: Urban and Rural Elderly Learning and Service Needs Survey (612 valid samples, Cronbach's $\alpha \geq 0.79$)

The distribution of learning difficulty dimensions is shown in Figure 3. As shown in Figure 2, most respondents were able to use smart devices independently (76.3%), while 18.4% required assistance and 5.3% were completely unable to use them.

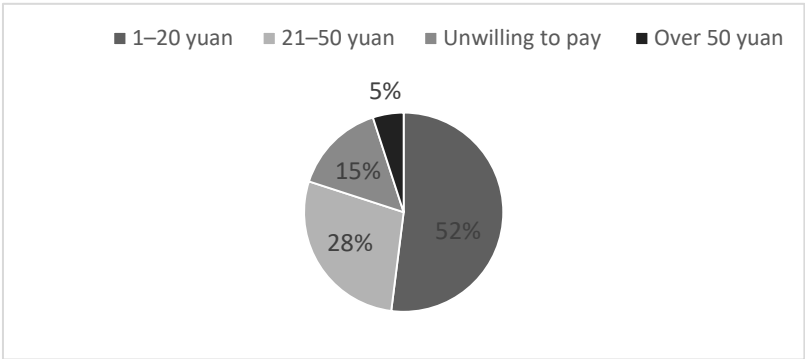


Fig. 3. Distribution of Learning Difficulty Dimensions.

Data Source: Urban and Rural Elderly Learning and Service Needs Survey (612 valid samples, Cronbach's $\alpha \geq 0.79$)

4 Conclusions

Based on 612 survey responses and the "Sangyu Xinchuan" project implementation, three main conclusions can be drawn from this study.

First, urban-rural skill exchange effectively activates elderly social participation. Urban elders demonstrate strong demand for smartphone and life skill courses (CITC 0.81–0.82), while rural elders possess traditional crafts and agricultural knowledge—their skills are naturally complementary. Over 70% of respondents prefer online recorded videos combined with offline classroom teaching. Through bidirectional teaching channels, older adults regain a sense of value by role-swapping between teacher and learner, confirming that they are not merely service recipients but also active knowledge providers.

Second, age-friendly design and the "Zhizhi Yang" intelligent assistant play a key role in eliminating participation barriers and enhancing learning self-efficacy. Four major barriers—digital illiteracy, lack of social support, trust crisis, and physiological decline—reduce self-efficacy, which indirectly leads to learning difficulties. The platform addresses these pain points through voice interaction, dialect recognition, one-click customer service, and large fonts. "Zhizhi Yang" supports natural language commands, recognises user intent, recommends the shortest operational paths, and synchronises learning progress to family members, thereby creating an "elderly use + children pay" sustainable model.

Third, the "low-cost universal access + social incentive" model aligns well with elderly payment willingness and supports long-term participation. Specifically, 52% of elderly respondents find 1-20 yuan/month acceptable, while 28% accept 21-50 yuan/month. The platform adopts a three-tier pricing strategy (free trial, 6.9-9.9 yuan per course, and 9.9 yuan monthly card), and strengthens user motivation through point redemption for physical goods, medal systems, and community showcases. Social features extend learning from individual knowledge acquisition to group value co-creation, thereby supporting financial self-sustainability while balancing social and economic value.

In summary, the "Sangyu Xinchuan" platform validates the feasibility of transitioning older adults from care recipients to social participation resources through role-swapping, age-friendly technology, and a low-cost plus social operational strategy. Future research should expand sample sizes, track long-term psychological impacts on the elderly, and explore supporting measures such as qualification certification and copyright protection for silver-aged instructors.

Acknowledgment

Funding: This research was funded by the 2026 Chengdu University of Information Technology College Students' Innovation and Entrepreneurship Training Program, under Grant No. X202610621073.

References

1. Jun, M., Kim, M., & Han, J. (2025). Examining the digital technology usage of older adults as determinants of life satisfaction in the digital divide. *Journal of Applied Gerontology*, 44(8), 1349–1357. <https://doi.org/10.1177/07334648241302674>
2. Yang, L., & Zhang, X. (2024). Research on the urban-rural differences and influencing factors of life satisfaction among elderly people in China. *Journal of Health, Population and Nutrition*, 43(1), 8. <https://doi.org/10.1186/s41043-024-00676-3>
3. Li, R., Shao, J., & Gao, D. (2025). The impact of digital literacy on the health behavior of rural older adults: evidence from China. *BMC Public Health*, 25, 919. <https://doi.org/10.1186/s12889-025-21964-5>
4. Tang, Y. C., Li, Q., & Wu, Y. (2024). The impact of the digital divide on rural older people's mental quality of life: A conditional process analysis. *Heliyon*, 10, e37109. <https://doi.org/10.1016/j.heliyon.2024.e37109>
5. Amouzadeh, E., et al. (2025). Optimizing mobile app design for older adults: systematic review of age-friendly design. *Aging Clinical and Experimental Research*, 37, 248. <https://doi.org/10.1016/j.heliyon.2024.e37109>
6. Hao, Y., Koh, L. T., Peh, C. H., Teo, D. C. Y. J., Thangaraja, K., Fong, N. P., & Chen, C. (2025). Older adults' attitudes towards using technologies for communication, entertainment, health and productivity: a cross-sectional study. *BMC Public Health*, 25, 248. <https://doi.org/10.1186/s12889-025-24847-x>

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 3.0 International License (<http://creativecommons.org/licenses/by-nc/3.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

