

Research on Social Work Intervention in Bridging the "Usage Gap" in Basic Public Services for Farmers

Shuang Zhao, Qiuyue Yang

Dalian Maritime University, Dalian, Liaoning 116026 China

Abstract

The ongoing enhancement of network infrastructure and the rapid expansion of public service applications have significantly improved living standards. However, these advancements have also widened the gap in the level and quality of basic public services between urban and rural areas, regions, and different social groups. This study aimed to enhance clients' ability to identify and utilize public service opportunities, thereby improving their digital skills. Through a one-month exploratory intervention trial focused on public infrastructure usage education, the study confirmed that such education positively impacts farmers' ability to use public infrastructure. This provides valuable insights for interventions targeting the digital divide.

Keywords

Farmers; basic public services; usage gap.

1. Background and Significance

The Sixth Plenary Session of the 16th Central Committee of the Communist Party of China made the "Decision on Several Major Issues Concerning the Construction of a Socialist Harmonious Society," further emphasizing the need to gradually achieve equalization of basic public services. Resources have been continuously directed towards grassroots levels, rural areas, remote regions, and disadvantaged groups, significantly enhancing the service capacity in key areas [1]. The level of equalization in basic public services has been steadily improving. With the deepening of a new round of technological revolution, the supply of public services has shown a trend towards platformization and digitization. The deep integration of the internet with government public service systems has led to continuous innovation in public service delivery, accelerated integration of service resources, and in-depth optimization of service quality. Public service applications have rapidly expanded. However, disparities in the level and quality of basic public services between urban and rural areas, regions, and different groups still persist. As of December 2023, China's internet penetration rate reached 77.5%, with 1.092 billion internet users. However, under the phenomenon of "dual lag" in the diffusion of the internet [2], farmers, especially middle-aged and elderly farmers, lack effective ways to access relevant service rights, becoming the "new information poor" in public services [3]. The access and usage rates of public services are uneven.

Research on the digital divide has yielded significant results in terms of the consequences of the digital divide, digital inclusion, and the resulting social exclusion, but overall, it lags behind international research. In reality, social workers, as regular executors of public services, are an important part of the operational structure of public services. They can effectively meet farmers' demands for high-quality, convenient, and humanized public services, enhance public service capacity, and solidly promote common prosperity.

2. Literature Review

2.1. Research on the Digital Divide

Research on the differences in information access, possession, and usage among different groups and classes in the information society can be traced back to the 1960s. In response to societal demands for educational equality, the U.S. government launched supplementary education programs to improve the educational conditions of poor children through mass communication and other means. Based on a series of empirical studies, American scholars Tichenor and others proposed the "knowledge gap" hypothesis: "As higher socioeconomic status individuals usually acquire information faster than those with lower socioeconomic status, the more information the mass media transmits, the more the knowledge gap between these two groups tends to widen" [4]. In the 1990s, with the development of the internet and mobile communication technologies, this discussion expanded into society, giving rise to the concept of the "digital divide." The concept gained wider popularity with the release of the "Falling through the Net" series of reports by the U.S. National Telecommunications and Information Administration. Unlike the knowledge gap hypothesis, which focused on television and newspapers, the "digital divide" primarily explains and studies digital media, with more complex forms, including the use of different devices, usage ranges, and participation in various internet activities [5].

The digital divide is a dynamic and evolving concept, constantly updated with advancements in information technology. Overall, the connotation of the digital divide has evolved from the "access gap," "usage gap," to the "outcome gap." Early digital divide research focused on the gap between those who could access ICT (information and communication technology) and those who could not [6]. Some studies focused on analyzing demographic differences between digital technology users and non-users. Therefore, Xu Fang and Ma Li believe that early digital divide bridging could be achieved simply by providing ICT access [7].

After the saturation of physical internet access, differences in hardware access are no longer the main cause of the digital divide. The internet is multifunctional, and digital skills vary in levels, from tool use, information processing to strategic skills, with increasing difficulty. The differentiation of digital skills in a multifunctional network creates a usage gap [8]. Research on the digital divide has shifted towards exploring structural differences in the use of information skills. Consequently, scholars have conducted numerous empirical studies, mainly focusing on the abilities and skills of information subjects.

As research deepened, it was found that advancements in information and communication technologies do not necessarily lead to information equality but may exacerbate information inequality. Research has turned to the "outcome gap," exploring the consequences of internet use from the perspectives of social differentiation and digital exclusion. DiMaggio and Hargittai found that social and economic factors promote people's use of the internet for "capital-enhancing" activities, thus proposing the phenomenon of digital inequality [9]. Howard's research found differences in digital technology usage behaviors among people with different educational levels. Unlike highly educated individuals who mostly use the internet for work and information gathering, those with lower education levels primarily use it for entertainment [10]. Mossberger's systematic research showed gaps among different groups in using the internet to enhance their political discourse and influence [11]. Domestic scholars Wei Lu and Zhang Mingxin were the first to use data from the U.S. Pew Project to demonstrate the existence of a gap in political knowledge among internet users [12]. Qu Hui and Yu Guoming, based on the social impact of new media, expanded research on the "usage gap" from a practical perspective, echoing Van Dijk's "material access," "skills access," and "usage access" [13], proposing the concept of "new information poor." The "new information poor" refers to those

who already have internet access devices but are long-term in a state of information scarcity and poor-quality information. This information poverty can be both passive and active [14].

2.2. Research on the Digital Divide in the Field of Social Work

In China, research on the digital divide in the field of social work has mainly been published after 2015. In response to the aging trend and the particularities of the elderly population, social work has achieved significant results in bridging the digital divide for the elderly. The Beijing Sunset Again Social Work Service Center was one of the first to cultivate young volunteers to teach elderly people new digital skills through systematic courses. Zheng Jiafan's research on learning resources for elderly people in suburban Beijing found that learning resources significantly affect the level of smartphone usage among the elderly, with a lack of basic operational skills being a major obstacle [15]. In practice, Li Tong [16], Zhang Qian [17], Jiang Wencai [18], and Liu Fang [19] have used group work methods and various theories to explore the role of social work in the digital inclusion of the elderly.

Foreign research on the digital divide in the field of social work is more mature. In practice, recent years have mainly focused on exploring the applicability of related therapies or strategies in intervention practices. For example, Hardy, Amy used mixed digital psychological therapy to explore the "digital divide" and mobile app engagement in the SlowMo randomized controlled trial, finding that age- and race-related technological inequalities did not affect SlowMo's engagement, and the therapy design bridged the "digital divide" [20]. Some scholars have also used organizations as intervention subjects. Kamal, M. used a contextualized IT therapy approach to intervene in the use of information technology in a non-profit historical society in western New York [21].

While researching social work interventions in the digital divide for different groups and organizations, some scholars have also proposed strategic guidance for narrowing the digital divide. Sanders called for social workers to participate in policies and programs aimed at narrowing the digital divide and provided specific guidance and advocacy tools for community practitioners [22]. Allison Gibson proposed that social workers participate in advocacy to expand access to new telemedicine and social engagement technologies for the elderly, increasing access for those with limited electronic communication means through expanded access to care facilities or senior centers [23].

Overall, for intervention strategies, domestic research is mostly based on empowerment theory, social support theory, and social learning theory to study the digital divide. Some foreign scholars creatively adapt psychological therapy or IT therapy models for problem intervention. In terms of social work methods, both domestic and foreign scholars tend to use group work methods to study the digital divide. Regarding research subjects, although some scholars like Hardy, Amy and Li Xinming [24] have explored the digital divide among regions, races, and genders, most research, both domestic and foreign, focuses on the elderly population. Domestic research mainly focuses on the digital participation of the elderly, emphasizing the disembedding of the elderly from the times. Foreign research also includes medical scholars exploring health equity for the elderly through interventions. In terms of the scope of digital divide interventions, domestic research mainly focuses on smartphone usage, with less attention to other multimedia digital terminals.

3. Research Methods

3.1. Research Subjects

This study selected villagers from L Village in Enshi Prefecture as pre-test subjects. L Village has nine village groups. One village group was randomly selected, and its fully capable adults were chosen as the experimental group; another village group was randomly selected, and its

fully capable adults were chosen as the control group. The experimental group received the intervention. Then, 10 people were randomly selected from each group (as shown in Table 1), and a public infrastructure usage ability questionnaire was administered before and after the experiment to test the effectiveness of the intervention program. Considering the varying cognitive levels of the villagers, the questionnaire survey was mainly conducted in the form of interviews.

Table 1. Basic Information of Surveyed Villagers

Group	Member	Age	Gender	Education Status	Village Group
Experimental Group	Yang*Hua	16	Male	High School	7th Group
	Yang*Mei	48	Female	Primary School	7th Group
	Yang*Tao	66	Male	Primary School	7th Group
	Yang*Jiang	32	Male	Junior High School	7th Group
	Yang*Jun	28	Male	High School	7th Group
	Qu*Huan	36	Female	High School	7th Group
	Wen*Guo	47	Male	High School	7th Group
	Zhang*Ping	73	Female	No Formal Education	7th Group
	Yang*Meng	24	Female	College	7th Group
	Li*Kui	40	Male	Junior High School	7th Group
Control Group	Xu*Feng	21	Male	High School	5th Group
	Xiang*Ting	35	Female	High School	5th Group
	Xiang*Jun	52	Male	College	5th Group
	Xiang*Biao	25	Male	College	5th Group
	Liu*Mei	82	Female	No Formal Education	5th Group
	Xu*Fu	49	Male	Primary School	5th Group
	Xia*Wang	28	Male	Junior High School	5th Group
	Xiang*Xue	29	Female	High School	5th Group
	Xu*Yun	57	Female	Primary School	5th Group
	Xu*Jun	33	Female	High School	5th Group

3.2. Overall Intervention Plan

The intervention plan consists of seven themes, including compulsory education services, community services, entertainment and cultural affairs and services, healthcare services, social security services, transportation and communication services, and public security and social environment improvement [25]. These correspond to the seven aspects of basic public services. The intervention was carried out from three dimensions: cognition, knowledge, and skills. Each session covered module themes corresponding to resource distribution maps, citizens' legal rights, and service resource supply forms. Some themes, such as community services, entertainment and cultural affairs and services, and healthcare services, adopted practical training forms. See Table 2.

Table 2. Group Activity Summary Table

Name	Objectives	Main Content
"Education is the Foundation"	1. Master resource distribution and common access channels; 2. Proficiently acquire skills, memorize, and master access paths	1. Group member self-introduction and familiarization; 2. Ice-breaking game "Name Relay"; 3. Jointly set group goals and contracts; 4. Training; 5. Summary
"Health is the Capital of Revolution"	1. Master resource distribution and common access channels; 2. Proficiently acquire skills, memorize, and master access paths	1. Review compulsory education module content; 2. Healthcare service resource training; 3. Mobile registration and hospital smart terminal operation; 4. Summary
"Good Companions, Good Neighbors"	1. Master resource distribution and common access channels; 2. Proficiently acquire skills, memorize, and master access paths	1. Review healthcare service module content; 2. Community service theme training; 3. Community service resource usage practice; 4. Summary
Social Security Service Theme Training	1. Master resource distribution and common access channels; 2. Proficiently acquire skills, memorize, and master access paths	1. Review entertainment and cultural affairs service module content; 2. Social security service theme training; 3. Summary
"Dancing and Singing"	1. Master resource distribution and common access channels; 2. Proficiently acquire skills, memorize, and master access paths	1. Review community service module content; 2. Entertainment and cultural affairs service theme training; 3. Entertainment resource usage practice; 4. Summary
"To Get Rich, Build Roads First"	1. Master resource distribution and common access channels; 2. Proficiently acquire skills, memorize, and master access paths	1. Review social security service module content; 2. Game "Hug of Love"; 3. Training; 4. Summary
"Prosperous Village, Thriving Industries"	1. Master resource distribution and common access channels; 2. Proficiently acquire skills, memorize, and master access paths	1. Review transportation and communication service module content; 2. Training; 3. Display growth album; 4. Summary

3.3. Intervention Evaluation Methods

3.3.1. Evaluation Tools

This study combined quantitative and qualitative research. Process evaluation was conducted using participatory observation, recording specific behaviors and emotional changes of group members. Outcome evaluation used the "Basic Public Service Equalization Effectiveness Evaluation Questionnaire." Four months before the intervention and two months after, social workers conducted public service satisfaction tests on randomly selected subjects from the experimental and control groups. Data were compared to analyze the effectiveness of the group services.

3.3.2. Statistical Methods

SPSS was used to analyze the quantitative data collected in this study. Independent sample t-tests were used to analyze the overall scores of the experimental and control groups before and after the intervention. For the analysis of the six dimensions under the scale—information awareness, information knowledge, information demand determination, information search and acquisition, information evaluation and communication, and information storage and processing—non-parametric Mann-Whitney U tests were used for evaluation.

4. Research Results

This group activity had four goals. First, service subjects learned the knowledge and channels for accessing and using basic public services, mastering the types of basic public service supply and the distribution of related service resources. Second, service subjects mastered the skills to access services from mobile terminals and self-service terminals. Third, the self-efficacy of service subjects was enhanced, boosting their confidence in actively and independently using public services. Fourth, the frequency of service subjects' use of basic public services increased. After the group activities, a post-test evaluation of basic public service information usage literacy was conducted. SPSS was used to analyze the quantitative data collected in the study. The scores of the intervention and control groups before and after the intervention were analyzed separately. The results are shown in Table 3. The post-test scores of the control group were slightly higher than the pre-test scores, but there was no significant difference. An independent sample t-test showed no statistical difference between the pre- and post-tests of the control group. The basic public service information usage literacy evaluation scores of the intervention group were higher than the pre-intervention scores and higher than the post-test scores of the control group. An independent sample t-test showed a statistical difference between the pre- and post-intervention scores of the intervention group, indicating that the group activities improved the members' usage ability, preliminarily proving that the intervention has a certain effect on improving farmers' basic public service usage levels.

Table 3. Pre- and Post-Test Evaluation of Intervention and Control Groups

	Pre-Test	Post-Test	t	p
Intervention Group Score	62.900±14.012	79.700±6.993	-3.393	0.003
Control Group Score	68.800±8.929	69.300±9.093	-0.124	0.903

Note: $p < 0.05$

The "Basic Public Service Information Usage Literacy Evaluation Scale" includes six dimensions. A non-parametric Mann-Whitney U test was conducted on the evaluation results of the group members (as shown in Table 4), showing statistical significance, indicating a statistical difference.

Table 4. Pre- and Post-Test Evaluation of Six Dimensions

	Pre-Test	Post-Test	Z	P
Information Awareness Total Score	11.5 (9.8,13.0)	14.0 (14.0,15.0)	-3.246	0.001
Information Knowledge	8.0 (4.0,11.3)	12.0 (9.0,14.0)	-2.022	0.043
Information Demand Determination	11.5 (10.0,13.5)	15.0 (13.8,15.0)	-2.583	0.010
Information Search and Acquisition	10.5 (8.3,13.0)	14.0 (12.0,15.0)	-2.217	0.027
Information Evaluation and Communication	11.0 (9.5,14.3)	15.0 (13.0,15.0)	-2.436	0.015
Information Storage and Processing	10.0 (8.5,10.8)	12.0 (10.8,13.3)	-2.169	0.030

Note: $p < 0.05$

Overall, the goals of this group intervention were basically achieved. Group members basically mastered the knowledge and access channels related to public services. In terms of skills, the ability to access services from mobile terminals and self-service terminals gradually became proficient. With a comprehensive understanding and mastery of basic public service knowledge and skills, service subjects significantly boosted their confidence in independently using public services and correspondingly increased their frequency of using basic public services.

In summary, the goals of this group activity were basically achieved. The comprehensive ability of group members to use basic public services improved, and their satisfaction with basic public services increased.

5. Conclusion

Under the guidance of social learning theory, this study adopted group work methods, targeting fully capable farmers as research subjects, and conducted seven intervention activities aimed at improving basic public service usage ability. The final evaluation showed that the intervention on the "usage gap" has a positive effect on improving basic public service usage ability. Overall, the study found that: (1) Before the intervention, service subjects generally had poor ability to access basic public service resource ports and channels; (2) The ability of service subjects to learn, memorize, use, and reason with smart terminals decreased with age; (3) Service subjects had unmet demands for basic public services, and their lack of knowledge about the content, channels, and scope of basic public service supply led to a general lack of active and independent use of basic public services; (4) After participating in group activities, the basic public service usage ability of service subjects was significantly higher than before the intervention, indicating a clear intervention effect.

This study preliminarily confirmed that interventions on the "usage gap" have a positive effect on improving basic public service usage ability, but there are still some shortcomings: (1) The intervention duration was short, lacking follow-up evaluation; (2) The intervention sample was small, and the conclusions may not be universally applicable; (3) The overlapping roles of intervention implementers and researchers; (4) The intervention results may be influenced by the subjective attitudes of service subjects.

Intervention activities have a positive effect on bridging the "usage gap," improving the utilization rate of basic public services, and promoting the equalization of public services. This is embedded in the macro logic of policy design and reflected in the implementation and practical activities of policies. However, achieving a higher level of equalization in basic public services requires social work to continue strengthening cooperation with various fields while deepening its own professionalism.

Acknowledgments

Project: 2024 University Basic Scientific Research Project of Liaoning Provincial Department of Education: "Volunteer Maintenance" research of volunteer service organizations from the perspective of structure-process-mobility (LJ112410151034); 2024 Educational Reform Project of Dalian Maritime University: Research on the internship system of "learning and doing extrapolation integration" in social work oriented by professional ability requirements.

References

- [1] National Development and Reform Commission, Propaganda Department of the CPC Central Committee, Ministry of Education, etc. The 14th Five-Year Plan for Public Service Plan [R]. Beijing: (jointly issued by all participating departments), 2021.

- [2] Cui Kai. Post-metaphor culture and double lag: The Ten-year diffusion process of the Internet in China (2005-2015) —— APC model analysis based on four sets of CGSS data [J]. Modern Communication (Journal of Communication University of China), 2019,41 (02): 159-166.
- [3] Qu Hui, Yu Guoming. Information "new poor" and the public crisis of media industry structure —— Based on the perspective of Amatiassen's "rights theory" [J]. Dongyue Theory Cong, 2019,40 (08): 150-157.
- [4] Tichenor, P.J., Donohue, G., Olien, C. Mass Communication and Differential Growth in Knowledge[J]. Public Opinion Quarterly, Summer, 1970:158-170.
- [5] Pearce, K.E., Rice, R.E. Digital divides from access to activities: Comparing mobile and personal computer Internet users[J]. Journal of Communication, 2013, 63(4): 721-744.
- [6] Van Dijk, J. Digital divide research, achievements and shortcomings[J]. Poetics, 2006, 34(4-5): 221-235.
- [7] Xu Fang, Ma Li. Review of digital divide research abroad [J]. Journal of Intelligence, 2020,39 (11): 1232-1244.
- [8] Van Dijk, J. The digital divide as a complex and dynamic phenomenon[J]. The Information Society, 2003,19:315-326.
- [9] DiMaggio, P., Hargittai, E., Neuman, W.R. et al. Social implications of the Internet[J]. Annual Review of Sociology, 2001, 27: 307-336.
- [10] Howard, P. E. N., Raine, L., Jones, S. Days and Nights on the Internet: The Impact of a Diffusing Technology[J]. American Behavioral Scientist, 2001,45(3):383-404.
- [11] Mossberger, K., Tolbert, C.J., McNeal, R.S. Digital Citizenship: The Internet, Society, and Participation[M]. Cambridge, MA: MIT, 2008.
- [12] Wei Lu, Zhang Mingxin. The third digital divide: the knowledge gap on the Internet [J]. Journalism and Communication Research, 2006, (04): 43-53 + 95.
- [13] Van Dijk, J. A framework for digital divide research[OL]. Electronic Journal of Communication, 2002. <http://shadow.cios.org:7979/journals/EJC/012/1/01211.html>.
- [14] Qu Hui, Yu Guoming. Information "new poor" and the public crisis of media industry structure —— Based on the perspective of Amatiassen's "rights theory" [J]. Dongyue Theory Cong, 2019,40 (08): 150-157.
- [15] Zheng Jia-fan. Research on the impact of smartphones on the life of the elderly in rural areas from the perspective of digital divide [D]. Beijing University of Civil Engineering and Architecture, 2021.
- [16] Li Tong. Group work interventional study on the digital divide of the elderly [D]. South-Central South University for Nationalities, 2019.
- [17] Jess Zhang. Group work interventional study of elderly people with digital integration [D]. Lanzhou University, 2023.
- [18] Jiang Wencai. Social adaptation intervention study for older people in urban communities in a digital context [D]. Jilin University, 2022.
- [19] Liu Fang. Group work involved in the plight of the adults [D]. Southwest University, 2022.
- [20] Hardy, A., Ward, T., Emsley, R. et al. Bridging the Digital Divide in Psychological Therapies: Observational Study of Engagement With the SlowMo Mobile App for Paranoia in Psychosis[J]. Journal information, 2022.

- [21] Kamal, M. Achieving Development Outcomes through Technology Interventions in a Nonprofit Organization[C]. 2014 47th Hawaii International Conference on System Sciences (HICSS). Waikoloa, HI. 2014: 4245-4253.
- [22] Sanders, C.K., Scanlon, E. The Digital Divide Is a Human Rights Issue: Advancing Social Inclusion Through Social Work Advocacy[J] Journal of Human Rights and Social Ror. 10.1007: 130-143.
- [23] Gibson, A., Bardach, S., Pope, N. COVID-19 and the Digital Divide: Will Social Workers Help Bridge the Gap?[J]. J Gerontol Soc Work. 2020 Aug-Oct; 63(6-7): 671–673.
- [24] Li Xinming. Research on social work intervention in rural women's ability to use new media [D]. Lanzhou University, 2018.
- [25] Yan Yan. Public service satisfaction evaluation study and empirical analysis [D]. Capital University of Economics and Business, 2010.