Combination of Strategies for Bridging the Digital Divide among the Elderly based on Willingness and Ability Classification

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Abstract. The issue of digital divide among older adults has emerged as a significant global concern. However, scant attention has been directed towards the digital differentiations present among older adults. Based on the grounded theory, this scholarly inquiry undertook offline semi-structured interviews involving 20 individuals aged 60 years and above. Using Speech-to-Text technology and NVivo, we employed multilevel coding to extract and elucidate a theoretical model. Drawing upon Fogg's behavioral model, the study delineated four distinct archetypes among older adults, predicated on their inclination and aptitude for learning: low willingness and low ability, low willingness and high ability, high willingness and low ability, and high willingness and high ability. Subsequently, tailored strategies for bridging the digital divide were proposed to accommodate the unique characteristics of each archetype. Rooted in the exploration of digital differentiation within the elderly cohort, this investigation aspires to offer novel insights and practical avenues for older individuals to surmount the digital divide.

Keywords: older adults; digital differentiation; digital divide; strategy; grounded theory

1 Introduction

In the context of the release of the United Nations Digital Strategy 2022-2025, the world is steadily transitioning into the digital age. However, the proliferation of smart technologies, such as mobile payment systems, online registrations, and virtual car rental services, has inadvertently exacerbated the digital disparity experienced by certain segments of the elderly populace. This situation is especially pronounced in China, where aging is more serious. According to statistics released by China National Office on Aging in its 2022 National Bulletin on the Development of the Aging Career, the elderly population aged 60 and above in China reached 28,040,000 by the close of 2022, constituting 19.8% of the total population[1]. Thus, we decided to use Chinese geriatric

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population as the research target to explore the solutions of digital dilemma among elderly population.

Due to various subjective and objective factors, the phenomenon of digital differentiation among the elderly is pronounced, leading to different levels of digital challenges within the group. Although there are numerous methods to address the digital divide among the elderly currently [2], most of them are focused on specific aspects or angles, lacking comprehensive considerations and a holistic approach. Moreover, there has been a lack of explicit classification of the elderly population accompanied by diverse strategy combinations in previous studies.

In light of this, this study relies on the Fogg Behavior Model to categorize the elderly population aged 60 and above based on their willingness and ability to learn. It aims to delineate digital differentiation profiles for different types of elderly individuals and propose personalized bridging strategies. Through the progressive interaction of combined strategies, this research aims to stimulate learning behaviors among different types of elderly individuals and endeavors to alter the entrenched image of passive acceptance of digital technology among the elderly. The hope is that this study will mitigate the digital divide among the elderly to some extent and contribute to enhancing their digital lives.

2 Literature Review

The term "digital divide," firstly introduced by the National Telecommunications and Information Administration (NTIA) of the United States in 1999, delineates the disparity between those with access to information and those without[3]. In recent discourse, scholars assert that the digital divide encompasses the widening gap in global digitization, accentuating disparities in information ownership, utilization and innovation across countries, regions, industries, enterprises, and communities, notably impacting the elderly [4]. Current research predominantly targets access, usage, and knowledge gaps among the elderly, spanning various contexts such as communities, enterprises, families, and individuals [5].

Efforts to mitigate the digital divide among the elderly prioritize addressing access and knowledge gaps through initiatives like developing age-friendly community services [6], beautifying community' surroundings[7], renovating old residential areas for aging [8], age-friendly product innovations by enterprises [9] and intergenerational digital support in family [10]. Intergenerational digital support within families emerges as a pivotal component of the "Chinese solution" to the digital divide[11], ensuring elderly access to digital technologies[12].

Undeniably, these studies have contributed to the effective resolution of the digital divide among the elderly. However, with the advancement of digitization and the increasing elderly population, the digital gap not only persists but also exhibits evident intra-group disparities among the elderly. This digital differentiation directly results in divergent digital usage patterns within the elderly population.

Reviewing existing literature on addressing the digital divide among the elderly, it is evident that there is a lack of studies focusing on bridging the gap from a perspective

of strategy combination, while studies based on digital differentiation, which categorize the elderly, and further investigate personalized strategies, are scarce. This provides an opportunity and space for our study. Building upon the foundation of digital differentiation among the elderly, our study aims to categorize the elderly based on willingness and ability, and subsequently explore strategies to bridge the digital gap among different types of elderly groups.

3 Theoretical Framework and Research Methodology

3.1 Theoretical Framework

The Fogg Behavioral Model was proposed in 2009 by B.J. Fogg, a professor at Stanford University. According to Fogg, the reason why people do certain behaviors is mainly influenced by Motivation (Motivation can also be understood as Willingness), Ability and Trigger Point (Prompt), i.e., B=MAP (as shown in Figure 1). The horizontal axis represents Ability, with difficulty decreasing from left to right, and the vertical axis represents Willingness, with Willingness increasing from bottom to top. The mutual matching of willingness and ability in the behavioral model is reflected in the coordinate space, which separates the whole coordinate space into two parts, and this line is the action threshold line. Above the action line, the behavior occurs as soon as a trigger point prompts it. Motivation and ability harmonize and complement each other [13].

This study contends that digital differentiation exists within the elderly population, advocating for a systematic classification of this group to tailor appropriate strategies for bridging the digital divide. Therefore, this study adopts the Fogg Behavior Model as its theoretical framework.

Utilizing the Fogg Behavioral Model, the study identifies key behavioral components among the elderly group: willingness, ability, and trigger point. Classification based on willingness and ability necessitates matching different trigger points (P), reflecting varying results of ability and willingness classification. Identifying the appropriate trigger point is crucial for elderly individuals to take action. Consequently, external bridging strategies serve as trigger points, tailored to different types of older adults, culminating in a combination of digital divide bridging strategies to alleviate their digital challenges.

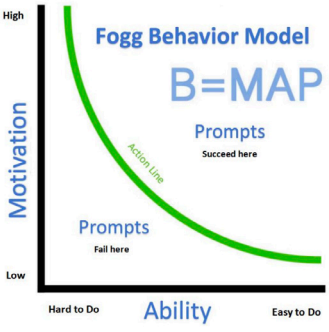

Fig. 1. Fogg Behavioral Model.

3.2 Research Ideas and Research Methods

Grounded Theory is a qualitative research method introduced by Glaser and Strauss in the 1960s. The core of this method is to induce theory from practice rather than starting from preconceived theories. The characteristics of Grounded Theory match well with the theme of researching pathways to resolve the digital divide among the elderly.

In this study, Grounded Theory is utilized to conduct unbiased progressive coding analysis of interviews with elderly individuals, extracting and exploring theoretical models. NVivo is then employed for multilevel coding, leading to the analysis of digital differentiation among the elderly based on willingness and ability, along with corresponding strategy combinations.

To obtain effective empirical materials, this study conducted semi-structured interviews offline with 20 individuals aged 60 and above from September 2023 to October 2023. Each interview lasted 15 to 20 minutes, and with participants' consent, we recorded them using mobile phones. Participants were selected to ensure diversity in gender, age, education level, physical condition, attitudes toward life, initial motivation for learning digital technology, and region, as shown in Table 1. Additionally, our interview outline covered various aspects such as personal basic information, willingness to use and learn digital technology, proficiency in using and learning digital technology, and methods of learning digital technology, which aided in advancing our research questions effectively.

Table 1. Respondent Information Sheet.

serial number	gender	age	educational level	Occupation（before retirement）	condition
A	male	65	junior high school	plumber	presbyopia
B	male	60	high school	Video Creators	favorable
C	male	74	high school	Workers of an enterprise	favorable
D	male	72	junior high school	individually	favorable
E	women	69	college	cadres of organization	favorable
F	male	77	college	principals	favorable
G	male	60	junior high school	individually	favorable
H	women	79	secondary schools	peasants	favorable
I	women	73	secondary schools	peasants	favorable
J	male	90	junior high school	workers of an enterprise	favorable
K	male	66	bachelor's degree	principals	favorable
L	women	73	secondary schools	profession	favorable
M	women	95	secondary schools	profession	unable walk
N	women	62	college	workers of an enterprise	favorable
O	women	70	college	cadres of organization	favorable
P	women	63	Junior high school	sanitation worker	favorable

Q	male	81	secondary schools	profession	hard of hearing
R	male	71	high school	workers of an enterprise	favorable
S	women	68	high school	workers of an enterprise	favorable
T	women	66	high school	workers of an enterprise	favorable

After each interview, we utilize WPS speech-to-text and similar tools to transcribe and organize the interview data. Building upon clear and structured transcripts, we conduct category refinement and comparative validation. Through sample coding analysis, we observe no new relevant information, indicating that data saturation has been reached, and the interviews are concluded.

4 Data Analysis

4.1 Coding Analysis

The application of grounded theory involved three main stages: open coding, axial coding, and selective coding. To ensure methodological rigor, the iterative process of "collect data - formulate theory - collect data again - refine theory" was systematically executed.

During formal interviews, we interviewed diverse groups of individuals aged 60 and above from different family and occupational backgrounds, promptly organizing and analyzing interview content. As we continually condensed and analyzed interview data, we refined interview content. We categorized strategies from interview content into four main categories: intergenerational digital support within families, community influence, community support, and self-learning, ensuring the diversity and integrity of strategies for bridging the digital divide among the elderly. Finally, we conducted saturation tests to ensure data saturation and confirm the adequacy of our sample size. During this process, we assessed whether new information and insights were still emerging from interviews or if we had reached a point of redundancy, where additional interviews were unlikely to yield significantly different findings. This rigorous approach aimed to enhance the robustness and reliability of our study by ensuring comprehensive coverage of the diverse perspectives within the targeted demographic. A total of 46 individuals were interviewed, including 21 in preliminary interviews, 20 in the analysis sample, and an additional 5 for saturation testing.

Upon collection, audio materials were transcribed into approximately 16,000 words of textual data, marking the commencement of the coding phase. Coding, the foundational stage of grounded theory, involves summarizing interview data based on multiple classification criteria. It entails analyzing and summarizing natural paragraphs and sentences, gradually refining concepts. Initially, using NVivo14 software, we imported 20 interview transcripts, analyzing them word by word and sentence by sentence, establishing node frameworks based on interview outlines. We constructed an open coding table with 36 general categories, an axial coding table with 18 main categories, and structures representing relationships between main categories and core categories.

Through iterative open, axial, and selective coding, we established a model of "Combination of Strategies for Bridging the Digital Divide among the Elderly Based on Willingness and Ability Classification."

Open Coding

During the open coding stage, data underwent a meticulous fragment-by-fragment analysis, employing NVivo to assign conceptual codes to each speech fragment. These codes were then further organized into categories based on the relationships of causality, similarity, and type among the concepts. For instance, concepts like "financial difficulties" were grouped under policy and economy, while "difficulty of the technology itself" fell under ease of use, and "lack of community help" was categorized under good/bad community support. Initial concepts with fewer than three repetitions were excluded during the category mining process, resulting in the identification of 36 general categories as illustrated in Table 2.

Table 2. Open Coding table (selected example).

General category	Scope	conceptual	source material
policy and economics	Institutional changes in society lead to differentiated life trajectories	economic difficulty	"I can't afford a smartphone, it's too expensive (Q) "
peer group	Social Networks Influence Older Adults' Willingness and Ability to Engage with Digital Technology	No friends, low numbers.	"How can I have any friends at my age, they are all on my level, everyone knows what I know and everyone doesn't know what I don't know (A)"
usefulness	Usefulness of digital technologies makes a difference in digital literacy, willingness of older adults	Convenient Life	"Mainly to be able to keep in touch with my family more easily, especially since they're all far away, and also because I've heard that you can find some fun stuff online (M)"
usability	Difficulty of digital technology makes a difference in digital literacy, willingness of older adults	The technology itself is difficult	"Tablet I guess, some of them he just doesn't work very well, it's more difficult, sometimes I can't figure out how to use them and I'm afraid that if I press the wrong one something will go wrong. (M)"
low willingness	male and female	gender difference	"Yes, yes, yes, yes, the one just sitting there is my old partner, that day hand cell phone never leave her hand, she plays all day until she goes to bed at night (R) "
high willingness	Literacy level, e.g. university, primary and secondary school	Junior high school level	"I don't have much education, only up to middle school (J)"
low ability	Fearful, afraid, resistant, rejecting	Low willingness to	"I'm relatively capable, but I just don't want to learn, I don't want to

		learn digital technologies	learn, I'm not very interested, and not many of my peers use (R)."
high ability	Concerned, Interested, Liked, Active Participation, Addicted	Willingness to learn to keep up with the times	"Of course I'm willing to learn, I'm always interested in new technology and want to keep up with it (K) "
Family intergenerational digital feedback works well/poorly	Can't see, can't remember, slow to accept, difficult, only use simple functions, communication	Concepts are not understood.	"Let's just say that some concepts like apps and ids I don't really understand. At my age, it just goes in the left ear and out the right (A) "
Good/poor community impact	Have the ability to search for information, communicate, shop online, work, recognize authentic information, and perceive risk.	Self-learning ability	"I'm just a person who is more self-educated, I'm just a little bit weak in foreign languages, as long as the instructions are clear and concise, I can use it very well, and it's not a problem to use any of the functions of the phone (B)"

Axial Coding

Axial coding involves connecting categories derived from open coding using a structured model: causal condition → phenomenon → chakra → mediating condition → action/interaction strategy → outcome. Through meticulous analysis and continuous comparison, the 36 previously identified categories were organized based on their relationships and logical sequences. For instance, factors like initial motivation to learn digital technology, attitude towards growth, physical condition, age, gender, and educational attainment were grouped under personal factors. This process resulted in the identification of 18 main categories, as detailed in Table 3.

Table 3. Axial coding table.

Core scope	Main areas	General category	Scope
Factors	Social change	Policy, economics, etc.	Institutional changes in society lead to differentiated life trajectories
	Social network	Family structure, peer group, community, etc.	Social Networks Influence Older Adults' Willingness and Ability to Engage with Digital Technology
	Digital technology	usefulness	Difficulty and usefulness of digital technology is what creates differences in digital literacy, willingness among older adults
		usability	
	Personal factor	Initial motivation for learning digital technology	Life: facilitate communication with family members, shopping, taking photos, etc.; Work: collecting paychecks, passing information, and video conference, etc.; Entertainment:

			brush video, listen to music; Access to information: news resources
		Attitude toward life	Positive, negative
		Physical condition	Health status
			Energetic
			Speed of thought
		Age	60-74
			75-89
			90 or more
		Distinguishing between the sexes	male and female
		Educational attainment	Literacy level, e.g. university, primary and secondary school
Digital Divide	Digital Willingness to Diverge	Low willingness	Fearful, afraid, resistant, rejecting
		High willingness	Concerned, Interested, Liked, Active Participation, Addicted
	Digital Capabilities Divide	Low ability	Can't see, can't remember, slow to accept, difficult, only use simple functions, communication
		High ability	Having the ability to search for information, communicate, shop online, work and ability to recognize authentic information, ability to perceive risk.
Portfolio of Strategies for Bridging the Digital Divide	Family intergenerational digital feedback	Family intergenerational digital feedback works well/poorly	Strategies for Bridging the Digital Divide for Older Adults
	Social influence	Good/poor community impact	Strategies for Bridging the Digital Divide for Older Adults
	Community Support	Community support works well/poorly	Strategies for Bridging the Digital Divide for Older Adults
	Self-directed learning	Good/poor self-study	Strategies for Bridging the Digital Divide for Older Adults
Acts of commission	Level of implementation	Access	Access to electronic equipment and digital technology
		Technical ability	Ability to use digital technology
		Attainment	Acceptance and development of information internalization
	Content of implementation	Lives	Convenient for communicating with family, shopping, taking photos, etc.
		(of a machine) Operate	Collecting paychecks, transferring information, video conferencing, etc.
		Diversion	Swipe videos, listen to music, etc.

		Access to information	News resources, etc.
	Channels of implementation	Online	Video, Voice, Message
		Face to face	Offline, hand to hand
	Forms of implementation	Pick at	Point-based
		Coaching from start to finish	Participation in the whole process of guidance
		Delegate Learning	Completing digital technology operations in place of the elderly
	Frequency of implementation	Always	The frequency is high.
		Non-recurrent	High frequency
		Infrequent	General
		Never	Never
	Type of implementation	Self-learning, family intergenerational digital feedback, community influence, community support	Adopt a targeted strategy or combination of strategies based on differentiation
Results of implementation	Valid	Addressing digital barriers	Bridging the Digital Divide and Enhancing Family and Friendships
	Invalid	Repeated help, waivers or substitutions	Failure to effectively address digital barriers for older people

Selective Coding

At the stage of selective coding, it is necessary to further explore the "core categories", analyze the links between categories, and map the overall logic in the form of a "story line", i.e., the typical structure of relationships between categories. The "portfolio of strategies to bridge the digital divide" is a series of measures to reduce or eliminate the inequality brought about by digitization, which is the focus of this study, so "portfolio of strategies to bridge the digital divide" is chosen as the core category. The structure of the relationship between each main category and the core category is shown in Table 4.

Table 4. Typical relational structure of the main category.

Typical relationship structure	Connotation of the structure of the relationship	Representative statements of respondents
Impact Factors -> Digital Divide	Based on social change, digital technology, personal factors, and social networks, the	Of course, I'm willing to learn, I'm always interested in new technology and want to keep up with what's going on.

	digital differentiation of the older population presents different types of	The biggest reason for this is to be able to understand and use modern technology better and to be able to adapt to digital life more easily.
Digital Divide -> Combination of Strategies to Bridge the Digital Divide	Combination of strategies for analyzing the results of the four different types of elderly groups	This is one that my sister told me once, finished and I knew it, then learned it one by one.
		Not completely, sometimes the eyes can not see, wear glasses like we have social security spending, year after year are nodding like in the top of the word, finished point let you blink. To recognize portraits and so on, sometimes you can't see well, not, after letting the child rest on the side to point out.
Combination of Strategies -> Implementation Behavior	Different implementation behaviors are presented in terms of level of implementation, content, scenarios, form, frequency, and type, respectively	Didn't I just say that I would take the initiative to ask them questions, and they would sometimes take the initiative to teach me, for example, on Chinese New Year, you can draw lucky charms, the kind of electronic lucky charms on the Internet, and they would sometimes teach me to draw that, but it was all relatively new features that they found very interesting, or things that he felt were more essential for me to have inside my home, for example, they would one time teach me how to online grocery shopping and stuff, but I didn't feel like I needed that.
		My children helped me to arrange everything, and when I opened it, I could use it, but if there was a problem, I couldn't handle it, and if I asked them, I had to call them, which was particularly inconvenient.
Implementation behavior -> implementation results	Different implementation behaviors show different results; effective ones can resolve digital barriers, bridge the digital divide, and enhance family and friendships; conversely, repeated, repetitive, and even abandonment situations occur	The vast majority of them do not come and go, do not come and go on the pull down, that that that special relationship good that leave a phone, something on to you on the end of the matter, direct call most of them are that then forget it, pulling that what, ah there is no need to also trouble, you give people to give people what trouble it is after 18 years of retirement, it was a small love overwhelmingly more or less
		People would teach, especially those friends who knew more, they would share their experiences and stuff, and after that I was good.

4.2 Model Analysis

After the refinement of open coding, principal axis coding, and selective coding, the typical relationship structure of the core category and main category was constructed, and finally the "research model of the combination of strategies for bridging the digital divide among the elderly group based on the classification of willingness and ability" was established (shown in Fig. 2).

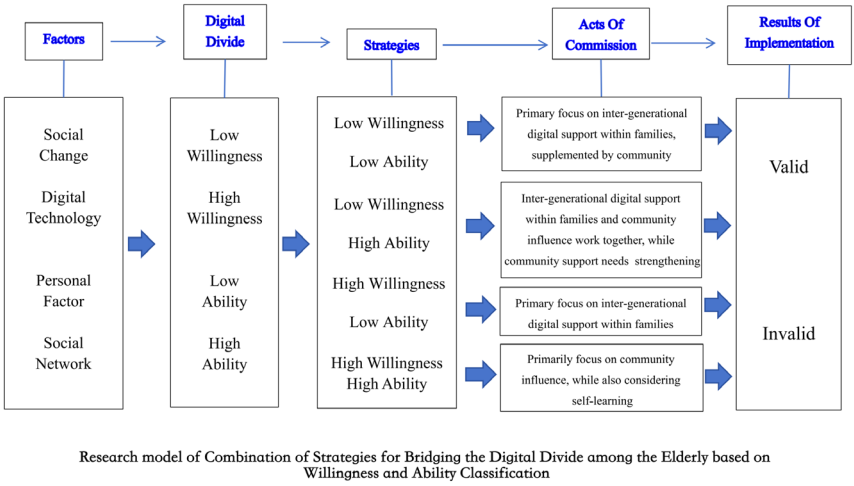

Fig. 2. Research model of Combining strategies for bridging the digital divide among the elderly based on willingness and ability classification

4.3 Theoretical Saturation Test

After the coding analysis and modeling was completed, a theoretical saturation test was conducted. After analyzing and comparing one-fourth of the interview sample, i.e., five interview transcripts, no new relevant concepts were found, which led to the conclusion that the model reached theoretical saturation.

5 Research Findings

The Grounded Theory model in this study indicates that factors such as social changes, digital technology, individual characteristics, and social networks contribute to digital differentiation among the elderly in basic digital operational skills such as information search, communication, online transactions, and content creation. The strategies identified to bridge the digital divide among the elderly in this research include intergenerational digital support within families, community support, social influence within communities, and self-learning.

5.1 Profiling Older Adults: Categorization Based on Willingness and Learning Ability

Based on coding categories and logical relationships, older adults are categorized into four distinct groups based on their willingness and ability to learn digital technology: low willingness and low ability, low willingness and high ability, high willingness and low ability, and high willingness and high ability. The first group lacks both the inclination and capacity to learn digital technology, while the second group possesses the ability but lacks interest or motivation. The third group shows a strong desire to integrate into digital life despite limited learning capabilities, while the fourth group exhibits high enthusiasm, positive attitudes, and effective learning abilities towards digital technology.

5.2 Low Willingness and Low Ability: Primary Focus on Intergenerational Digital Support Within Families, Supplemented by Community Influence

This type of elderly group, as reflected in interview texts, involves issues such as delegated teaching, fear of difficulty, and declining cognitive abilities due to aging. They often exhibit withdrawal behaviors, expressing sentiments like "In reality, at our age, inertia is strong, and we are unwilling to learn; learning doesn't stick (F)." Some may display a resigned attitude, as seen in statements like "I don't know how to do it now, so I just won't do it (A)." A small percentage acknowledges the significant influence of community on their digital behavior, with friends using digital devices prompting a subtle "follow-the-trend" mentality, as expressed in "If many friends around me are using it, I might give it a try too (H)."

Regarding intergenerational family support, teaching by children is generally more feasible than the other three strategies. However, it is crucial to avoid delegated teaching to prevent excessive dependence, as illustrated by statements like "When the children come back, they just help you do it without telling you how to do it (A)" and "When facing problems (digital problems), I ask my children for help (H)." In terms of strategy implementation, children's primary task in intergenerational family support is to stimulate the elderly's interest in learning and alleviate their fear of difficulty. Subsequently, they can enhance the elderly's digital proficiency through hands-on teaching. Community influence serves as a supplementary factor to stimulate the digital usage intention of this group. Therefore, the most effective strategy combination for this category is: primary focus on intergenerational family support, supplemented by community influence.

5.3 Low Willingness but High Ability: Intergenerational Digital Support Within Families and Community Influence Work Together

For the low-willingness-high-ability elderly group, although they have the ability to learn digital technology, they are not sensitive to digital technology and lack the willingness to learn. When it comes to self-learning, this group of older adults usually shows the attitudes of "it's not useful to learn" and "I'm not interested", for example, "I'm relatively capable, but I don't want to learn, I don't want to learn and I don't have much interest in it, and people (my peers) aren't using it. I am relatively capable, but I just don't want to learn, I don't want to learn, I don't have much interest, and no one else (my peers) is using it (R)". In the community, most of the elderly in this group do not receive much help from the community, for example, "The community is not very helpful, and there are no volunteers in the property side, only some older women in the neighborhood help each other, but it is only limited help (N)". Community influence has a driving effect on this type of older group and can help. When friends or loved ones around them start using digital devices, they may develop curiosity and a desire to explore, which can increase their willingness to learn. In the family, children can likewise be motivated to learn and use digital technology more actively by sharing their own experiences of digital use. Therefore, the strategy for bridging the digital divide for this population is Intergenerational digital support within families and community influence work together, while community support needs strengthening.

5.4 High Willingness But Low Ability: Primary Focus on Intergenerational Digital Support Within Families

For elderly individuals with high willingness but low ability, limitations such as age, education level, or other factors may restrict their learning ability, yet they possess a strong desire to learn and integrate into the digital world. Children are typically their first choice for seeking assistance. For instance, they say "Because you can just make a phone call or a video call, or when they (children) are at home, you can ask them directly; it's very convenient, and there's nothing taboo about it (O)." Children can provide them with a sense of security and confidence, promoting their digital usage behavior. For example，"I'll try (using digital devices), but I'm not very proficient. I can use WeChat, but for other social apps, I need help from family or friends (J)." Therefore, the primary strategy for bridging the digital divide among this group is intergenerational digital support within families.

5.5 High Willingness and High Ability: Primarily Focus on Community Influence, While Also Considering Self-learning

For high willingness and high ability older people, they have a high level of enthusiasm and positive attitude towards digital technology, as well as the ability to overcome difficulties in the learning process. Community influence plays a significant role in this group of older adults, and can broaden the knowledge of digital technology of this group

of older adults. This type of older adults often has technical exchanges and experience sharing within the community to enhance digital usage behaviors, e.g., "This (Taobao) was told to me once by my sister, and then I knew it, and then I knew it all (P)." In terms of self-learning, this group of older adults indicated that they could almost completely improve their digital use ability through self-learning, for example, "I am a person with strong self-learning ability, as long as the instructions are clear and concise, I can use it very well (B)". Therefore, the combination of strategies for bridging the digital divide for this group is: Primarily focus on community influence, while also considering self-learning.

6 Conclusions

With the advent of the digital age, the phenomenon of digital differentiation among the elderly has become increasingly pronounced. Building upon the Fogg Behavior Model and multiple coding analyses grounded in in-depth interviews, this study categorizes the elderly population. Based on their abilities and willingness, the elderly are divided into four categories, each with distinct strategies for bridging the digital divide: For low willingness and low ability group, the strategy is primary focus on intergenerational digital support within families, supplemented by community influence. For low willingness but high ability group, the strategy is combined emphasis on intergenerational digital support within families and community influence, with enhanced community support. High willingness but low ability group needs primary focus on intergenerational digital support within families. For high willingness and high ability group, the strategy is community influence takes precedence, while self-learning is also considered. Bridging the digital divide among the elderly is a complex endeavor that hinges on respecting their autonomy. It requires concerted efforts from society as a whole to explore pathways for tailored guidance and assistance.

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