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Research on the development path of the elderly across the "digital divide" from the perspective of new media

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Abstract: In today's era of rapid development of new media, people are using more and more digital and intelligent technology, which brings a lot of convenient conditions to people. However, different groups have different degrees of acceptance of new technology, which leads to the problem of "digital divide" for the elderly. By analyzing the development status of the elderly crossing the "digital divide" from the perspective of new media, this paper further discusses the logical basis of the formation of the "digital divide" for the elderly and the effective path to cross the "digital divide". The relevant research content is expected to provide references for practical work.

Key words: new media; the digital divide; elderly group

1 Introduction

As the trend of population ageing becomes more pronounced, the proportion of the elderly in the social population is also gradually increasing. How to help the elderly adapt to the current social environment is worthy of in-depth consideration. Based on this, this paper mainly outlines the development path for the elderly to cross the "digital divide".

2 Development status of the elderly crossing the "digital divide" from the perspective of new media

2.1 Collection and related description of survey data

2.1.1 Sample size and sampling method

In order to understand the development status of the elderly across the "digital divide" under the current social background, elderly people over 60 years old in a first-tier city were selected as the objects of this questionnaire survey. Meanwhile, interviews and surveys were also conducted with some elderly people, community workers, family members of the elderly and grass-roots government service personnel, so as to ensure more comprehensive information acquisition. The survey time was in March 2023, the maximum allowable error parameter was set to 5%, the confidence value was 95%, and for the calculation of the required sample size, the proportion was set to 0.5, thus the formula could be obtained, and the calculation result of the required sample size was 385. In addition, the design effect of this survey was assumed to be 1.35. Therefore, the parameter of the lowest sample size was 520. In order to ensure the convenience of the survey and make the sample more representative, various sampling methods were used in this survey to achieve the organic combination of different methods, including equal sampling method, random sampling method, PPS unequal probability

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sampling method and convenient sampling method. The specific process of survey sampling was set according to these methods: Firstly, the population of the surveyed city was divided into different districts, and PPS unequal probability sampling was carried out. There are 10 districts in the city, and the number of districts selected in this survey was 5. Secondly, 2 streets were selected in each district by random sampling method, and then 2 communities were randomly selected in each street, the total number of communities was 20. Thirdly, 30 questionnaires were distributed to each selected community, which could be distributed in the form of property assistance or electronic form among the owners. The sample acquisition in this process was also called snowball method, and finally 600 questionnaires were distributed successfully, and the actual number of effective questionnaires recovered was 578. In the sample of old people in the questionnaire, the proportion of men and women was relatively equal, the former was about 50.3%, and the latter was about 49.7%. In terms of age, the elderly above 60 years old but below 70 years old accounted for the largest proportion, reaching 47.8%, and the elderly above 70 years old but below 80 years old accounted for a moderate proportion, about 36.9%. The proportion of the elderly aged 80 years and above was the lowest, only 15.3%, which was also in line with the age structure of the aging population. In addition, the educational distribution of the sample elderly is shown in Table 1, which covers all levels of educational attainment to ensure the objectivity of the study [1].

Table 1. Educational background distribution of the sample elderly

Educational background	Population proportion
Primary and below	41.3%
Junior high school	39.1%
High school and secondary school	13.0%
College and undergraduate	4.4%
Postgraduate and above	2.2%

2.1.2 Investigation items and specific contents

The survey was conducted by means of the AISAI model, with each item set up sub-items to ensure that the survey was conducted in a more organized manner. This model has been used in many investigations and has strong feasibility. The specific contents of this research are shown in Table 2, which consists of four modules. The first is the basic information module to understand the elderly's age, gender, health, education level, place and ways of living, as well as current or pre-retirement work information. The second is the status investigation module, which mainly understands the use of digital products in the new media era by the elderly, focusing on the interests, attention, actions, search and sharing. The third is the satisfaction survey module, which analyzes the elderly's satisfaction with the use of digital products. Finally, the demand survey module is designed to understand the practical needs of the elderly for improving the quality of digital life [2].

Table 2. Investigation items and specific contents of this research

Survey item name	Main content	
Basic information	age, sex, health, place of residence, ways of living, education level, current or pre-retirement employment.	
Investigation of current situation based on AISAS model	Interest	What kind of digital products do you like to use?
	Attention	Learn about current national initiatives to help the elderly adapt to the new media era.
	Action	Further use of digital products

	Search	What digital products have you used? Solve the difficulties encountered when using digital products.
	Share	Willing to help other elderly people use digital products.
Satisfaction survey	Travel, payment, entertainment communication, usefulness, ease of use, attitude, behavior intention, external support, etc.	
Demand survey	one-click service, network security, voice operation; centralized training, family or volunteer guidance.	

2.1.3 Description of the use of digital products by the elderly

The frequency and difficulties of the elderly respondents using digital products are shown in Table 3. According to the data analysis, 44% of the elderly people in the survey use digital products, of which only about 9% use them relatively more frequently, about 24% use them relatively moderately, and about 11% use them less frequently. Many elderly people have not used digital products, even if they have used them, the frequency is not very high. It shows that the "digital divide" of the elderly in the perspective of new media is quite serious. According to the survey of the difficulties of the elderly in using digital products, only 15% of the elderly feel that they have no difficulties, while the proportion of the elderly who think that they have difficulties or have some difficulties is about 85%. It can be found that most of the elderly have obstacles in using digital products. This also indicates that the supply of digital product guidance services is significantly insufficient at this stage, which should be further improved by understanding the different needs of the elderly [3].

Table 3. Frequency and difficulty of using digital products

Frequency of use	Service frequency			Non-use
Difficulty in use	high	moderation	low	56%
	9%	24%	11%	
	Have no trouble 6.6%	Have some difficulties 23.8%	Hard 13.6%	

In addition, several phenomena can be found through the index analysis of AISAS model. First, many elderly people do not know much about the measures proposed by the state to help the elderly solve the "digital divide" problem, of which 72% do not know or do not know much about it, while only 28% know or know very much about it. Second, most of the digital products used by the elderly are smart phones, accounting for 94%, while the proportion of computers, Internet TV, tablets and smart bracelets is smaller than that of smart phones, which also shows that the most important digital products serving the life of the elderly are smart phones. They can bring certain digital dividends to the elderly. Third, in terms of functional use of digital products, the elderly respondents used the social functions most frequently, followed by the scanning code payment function, and the functional frequency of entertainment and information acquisition is low. The degree of functional development of digital products will directly affect the elderly's willingness to use them. Fourth, more than 80% of the elderly have asked their family members or friends of the same age to solve the difficult problem of using digital products, and there are relatively few other ways to solve the problem, among which there are fewer forms of volunteer help or community training, indicating that most of the elderly are willing to try to use digital products and have the subjective awareness to cross the "digital divide". However, in terms of guidance, the service system needs to be optimized. In addition, most elderly people are willing to help other elderly people solve the difficulties of using digital

products, accounting for about 85%, which also shows that most elderly people have great enthusiasm for using digital products and sharing experience [4].

3 The development path of the elderly across the "digital divide" from the perspective of new media

3.1 Provide personalized services to the elderly

In the context of the rapid development of new media, the problem of "digital divide" among the elderly may lead to their inability to adapt to the social environment. Therefore, appropriate means should be adopted to cross the "digital divide" and promote the elderly to enjoy digital dividends and better embrace social life. The main countermeasures adopted are to provide suitable digital services for the elderly based on the people-oriented principle, improve the digital technology environment, and break the barriers between the elderly and digital products. Combined with the current national conditions of the aging population, a digital integration atmosphere suitable for the elderly population should be created. Whether it is government departments or industrial enterprises producing digital products, they should pay attention to the daily life of the elderly population, especially pay attention to the scenarios in which the elderly use digital products and services frequently. On this basis, various versions of digital service hardware and software can be developed for the elderly, so as to simplify the relevant operation steps. The voice prompt function can be designed to clearly guide the elderly to use the product and improve the convenience level. In the 14th Five-Year Plan, intelligent and digital technology education centering on the education of the elderly is also proposed. In this regard, a relatively perfect training and education system can be built to give full play to the effectiveness of digital technology in serving the elderly, and a variety of learning micro-lessons can be customized for the elderly, covering a variety of digital product use scenarios. For example, the functions like shopping, online medical treatment, taxi hailing and travel navigation, etc., can stimulate the initiative of the elderly to use technology and products, and also cultivate the ability of the elderly to use them. Fully leveraging the main role of all levels of society in caring for the lives of the elderly, and making joint plans with the families of the elderly can accurately help the vulnerable groups using digital technology to cross the "digital divide".

3.2 Encourage industrial enterprises to individually design digital products for the elderly population

In order to ensure the smooth popularization of digital applications among the elderly population, the elderly are encouraged to cross the "digital divide". Industrial enterprises should also be encouraged to design personalized digital products for the elderly, taking into account their characteristics. In this regard, China's Ministry of Industry and Information Technology has also put forward a variety of digital, intelligent products to carry out aging development and design requirements, for example, in the development of the elderly version of the APP, there should be no plug-in to induce download or payment, and advertising should be strictly prohibited to create a safe environment for the use of the elderly. When developing various functions of digital products, it is also necessary to deeply understand the psychological and physiological needs of the elderly, and the operation should be in line with their cognitive level, so that the elderly can feel the benefits brought by science and technology, and accept digital products and technologies. For example, most older people have difficulty seeing what's on their smartphone screens due to their advanced age, so voice control functions can be designed to adjust the font size, brightness and color contrast, so that the elderly can better use the product. For some more complex functions, it is necessary to simplify the process as much as possible, make the keys of the interactive interface more intuitive, and also support language control to make the operation easier for the elderly.

3.3 Innovate the mechanism of digital skills training and education for the elderly

In the era of new media, there are more diverse types of digital products and more and more digital services available to the elderly. However, due to the existence of "digital divide", many services cannot be truly implemented for the elderly.

In this regard, the mechanism of digital skills training and education for the elderly should be actively innovated. For example, with the goal of stimulating the learning initiative of the elderly, a novel and easy-to-understand teaching course on the use of digital products and skills operation can be designed in the university for the elderly, so as to meet the current needs of the elderly. The content of the course includes the use of various digital products. For example, the use of smart phone travel software, navigation software, shooting software, Internet software and social software can be taught to the elderly, so that they can not only feel the trend of the times change, but also avoid psychological burden. It can also arrange the elderly to participate in competitions such as using smartphones, tablets, and computers, so as to promote their learning initiatives and attract more seniors to learn digital skills, paving the way for the use of more rich digital product features. At the same time, the learning medium should also be innovative and change traditional forms of learning. In the course of teaching, the elderly can form different teams, communicate with each other within the team, share the experience of using digital products, and make more attempts.

3.4 Adopt various means to expand the digital social communication among the elderly

In order to help the elderly group to cross the "digital divide", it is also necessary to use a variety of means to expand the digital social communication of the elderly. With the support of advanced technology, a social platform suitable for aging can be built to help the elderly enrich their social channels and meet their communication needs, which is very helpful for the life of elderly people living alone. Under the guidance of government departments, all social entities can be encouraged to play a helping role, and families are required to actively cooperate to create a barrier-free and intelligent public social environment for the elderly. At present, some enterprises have developed and designed software products targeting social networks for seniors based on the actual living conditions of the elderly, which can enable the elderly to learn online, discuss topics with others and share life, etc. They are more convenient in operation and reflect the power of social organizations. The children or the younger generation in the family can buy digital equipment for the elderly, help them install various applications needed, and also give appropriate guidance in functional operation. The family should not only teach the elderly various knowledge and skills in the new media era, but also encourage the elderly to try to use social media software in daily life [5].

4 Conclusion

In summary, under the background of new media, it is necessary to actively solve the problem of "digital divide" among the elderly, combine the actual situation of the elderly, coordinate the forces of various social subjects, and adopt various ways to help them cross the "gap", so that the elderly can better adapt to the new society. According to the analysis of this paper, the development paths for the elderly to cross the "digital divide" from the perspective of new media include: providing humanized services for the elderly, innovating the mechanism of digital skills training and education for the elderly, and adopting various means to expand the digital social communication of the elderly.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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