
| RESEARCH ARTICLE

Promotion of China's Internet Application Adaptation to Aging Policy

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| ABSTRACT

In recent years, the number of elderly people in China has grown rapidly, but there are still many elderly people who do not have access to the Internet or use smartphones. It is difficult for them to fully enjoy the convenience brought by intelligent services and to integrate into the information society. The purpose of this paper is to assess the current status of Internet application aging in China and explore further development strategies. Based on the public policy analysis method, the paper starts from the current situation of promoting the aging of Internet application products in China, and conducts research from three aspects: the concept of Internet application aging, the current situation of promotion, and the recommendations, and explores the research on Internet application adaptation in China. Through research, it is found that although China's Internet aging policy has achieved many results in promotion, there are also some problems, such as the lack of the perspective of the elderly, the low enthusiasm of enterprises, and the lack of government supervision. Therefore, it is necessary to further strengthen technological innovation, strengthen multi-party cooperation, pay more attention to the needs of the elderly, and continuously improve the humanization and aging-appropriate level of Internet applications, so as to help the elderly better adapt to and use intelligent services. The research results can provide some suggestions for the promotion and improvement of the Internet application aging policy.

| KEYWORDS

Adaptation to Aging; Internet application; Suitable for aging

| ARTICLE INFORMATION

ACCEPTED: 01 October 2022

PUBLISHED: 07 October 2022

DOI: 10.32996/jhsss.2022.4.4.11

1. Introduction

In recent years, with the development of the social economy, the proportion of the elderly population in Chinese society has continued to increase, and the pressure on aging has continued to grow. As digital technology accelerates to cover all aspects of life, such as medical care, elderly care, and transportation. However, the elderly face some significant difficulties. Among them, the psychological gap and the technical gap have become the two major problems facing the elderly. The Internet Era has human-computer interaction characteristics, and Internet intelligence has also been characterized by digitalization. Vision, hearing, and touch are particularly important in accessing the Internet, and the multi-sensory aging of the elderly has laid the groundwork for their "difficulty in accessing the Internet". At present, smartphones are the main interface for accessing the Internet, and various mobile phone applications are scrambling to iterate and renovate. While young people are surfing with trendy functions, the elderly are rejected by complex and crowded icons and high-frequency switching interfaces outside the door.

The collision of intelligence and aging has created a new social governance problem - how to make Internet applications better adapt to and serve the elderly? For the elderly, it is necessary to provide convenient Internet applications for them to use, meet their basic living needs, and improve their quality of life. The elderly also have the needs and right to integrate into the Internet society. If the informatization needs of the elderly and the real "technological gap" always are ignored, it will inevitably bring about inequality in social development. How to make Internet technology better to meet the needs of the elderly and improve the efficiency of social services? So, this paper has paid attention to the current situation of China's Internet aging policies promotion and put forward some insights. Combining the current situation of the Chinese government's promotion of the Internet application

aging policy, the paper sorts out the research and suggestions on the effect of the Internet application aging policy and makes a brief comment on this basis to promote society's attention to Internet application aging.

2. Aging of Internet Applications and Related Policies

2.1. Aging and Aging

The state of old age is a stage of the natural development of individual physiological functions, which not only affects the elderly themselves and their families but also has a profound impact on the whole society. With the further growth of age, the physical condition and various functions of the elderly will inevitably decline, their dependence on the outside world will continue to increase, and they need more care and support from their families and the entire society.

Population aging is an objective law that does not depend on people's will and is an inevitable trend of human population reproduction. Population aging has two meanings. First, it refers to the process of the relative increase of the elderly population, and the proportion of the total population continues to rise. Population aging has a profound impact on the entire field of economic operation, all aspects of social construction, various social and cultural aspects, and even a country's comprehensive strength and international competitiveness. According to the definition method of social aging by the United Nations(1956), when the population aged 65 and above exceeds 7% of the total population, it is determined that a country or region has entered an aging society. According to the data of China's seventh census(2021), the number of elderly people aged 60 and above in China has reached 264.02 million, accounting for 18.7% of the national population, an increase of 5.44% compared with the data in 2010. It can be seen that the aging trend of Chinese society is further deepened, and the pressure on families and communities for the elderly will be further increased, which will also become the basic national condition of China for a period of time in the future.

There are two main reasons for the formation and rapid development of China's population aging. First, with the continuous development of the social economy, people's living standards have gradually improved. In particular, the continuous improvement of medical conditions, coupled with the growing awareness of self-care among the elderly, has contributed to the increasing average life expectancy of the population. Second, from the mid-1970s to the early 1990s, under the combined effect of rapid economic and social development and China's family planning policy (Only one birth), China's fertility rate continued to decline, accelerating the process of population aging.

Population aging has become an inevitable social trend in China, and it has also brought great challenges to China's social governance and the provision of government public services. In order to help the elderly to better adapt to modern social life and enjoy convenient services, many scholars put forward the concept of "adaptation to aging."

The concept of "adaptation to aging" first appeared in the field of housing design and renovation, which refers to the timely and adaptation renovation of the original housing to facilitate the living of the elderly. In China, the scholar Bao Zonghua (2003) first proposed the concept of "suitable for the elderly". That is, the elderly should live comfortably and be combined with social and community services. When Pan Mingshui and Hu Yan (2009) studied the psychological and physical needs of college teachers in Beijing, they proposed that college housing should be an "adaptation for aging". After nearly two decades of development, "adaptation to aging" has attracted widespread attention from the public and scholars. Different scholars have different research horizons and have produced fruitful research results. At present, the traditional connotation of suitable aging has already been extended from housing renovation to a wider field. Designing or producing products, services, and technologies that can meet the needs of the elderly, which can help the elderly to better socialize their lives and improve their elderly quality of life.

Macroscopic age-adaptation research integrates multidisciplinary research methods, such as demography, gerontology, management, sociology, etc., to study the development of current social aging. For example, Bai Xuefeng, Zheng Jie, etc.(2021), with the help of bibliometric methods, reviewed the research process of aging in China from a macro perspective, sorted out the hot topics and directions of aging research, and proposed that cross-disciplinary cooperation in aging research should be strengthened. Lu Jiehua and Liu Qin (2006) suggested that China should focus on the concept of aging, face the problem of aging in life and work, and turn challenges into opportunities. The micro-perspective of age-adaptation research starts from specific disciplines, mainly in the field of building renovation (Hu & Chang, 2016; Liu, Yang & Tian, 2021), but also extends to other fields. For example, elderly care services are suitable for aging (Shi, etc., 2016), public facilities are suitable for aging (Wang & Liu, 2022), and industrial product design (Wang & Wang, 2022).

2.2. Proposal of Internet Application Aging Suitability

In the process of in-depth development of information technology, it promotes new changes in people's production and lifestyle by constructing digital and intelligent methods. However, due to reasons such as age, technology, culture, and their own physiological conditions, it is difficult for the elderly to adapt to the rapid development of the Internet and the upgrading of information technology. They are actively or passively disconnected from the digital age.

At present, China's Internet penetration rate has reached 73%, and the number of Internet users has exceeded 1 billion. The number of elderly Internet users aged 60 and above is 119 million, accounting for 11.5% of the total Internet users in China. However, at the same time, the elderly group aged 60 and above has also become a non-netized entity in China, and they also face many obstacles in the process of integrating into the Internet (CNNIC,2022). Although the elderly group can enjoy the benefits brought by the Internet and digitalization, they often face huge challenges and are also affected by factors such as age, lack of skills, lack of equipment, and low culture. How to solve the problems of using intelligent applications and technologies for the elderly and build an intelligent society that "the elderly can enjoy", so that the elderly can enjoy more convenient and considerate services and social governance achievements? That has become a hot issue that the government pays more and more attention to.

In order to promote the resolution of the practical difficulties faced by the elderly in China in using Internet applications, the General Office of the State Council issued the "Implementation Plan on Effectively Solving the Difficulties of the Elderly in Using Intelligent Technology", which provides guidance on the promotion of intelligent services for the elderly, work was deployed(2020). The Ministry of Industry and Information Technology of China actively responded to the call of the State Council and issued the "Special Action Plan for Internet Application Aging and Barrier-Free Reconstruction" in combination with the concept of "adapting aging" and proposed the "suitable aging of Internet applications" (2022). The plan announced the first batch of renovation lists, which cover key enterprises and institutions in various fields of social life, such as social communication, shopping, social communication, and government services.

2.3. Review of China's Internet Application Adapt-aging Policies

Population aging and unequal Internet development are long-term, overall, and sustainable development issues that many countries may face now or in the future. According to the social status quo of China's large population base, large elderly population, and aging trend, the Chinese government has issued a series of policies to encourage relevant enterprises to transform or develop Internet aging-friendly products to help the elderly better adapt to the development of Internet applications. Bridging the "digital divide" and thereby promoting social development.

In the adaptation-aging policies action of China's Internet applications, the Ministry of Industry and Information Technology mainly takes the lead in promoting relevant websites and mobile applications to carry out aging-friendly and barrier-free renovations, and build a new ecology of information infrastructure. The Ministry of Industry and Information Technology started from the level of software technology, mobilized enterprises and institutions to develop "care mode" and "elderly mode", and provided convenient services for the elderly in terms of font size, voice prompts, and reading experience as much as possible. For example, the "Notice on Effectively Solving the Difficulties of the Elderly Using Intelligent Technology and Facilitating the Use of Intelligent Products and Services for the Elderly", "Notice on Further Doing a Good Job in the Implementation of the Special Action for Internet Application Aging and Barrier-Free Transformation" and so on. The Ministry of Industry and Information Technology has carried out a one-year special campaign to urge all units to carry out information aging and barrier-free transformation for the elderly, thereby promoting the improvement of the aging-friendly level of the entire Internet industry.

Correspondingly, other ministries and commissions have also issued detailed policies in different fields, continuously optimizing services, starting from the needs of the elderly, building a "smart" and good governance mechanism, and focusing on solving the digital problems faced by the elderly. For example, the Ministry of Communications, the Ministry of Human Resources and Social Security, the Health and Health Commission, and other departments jointly issued the "Notice on Effectively Solving the Difficulties of the Elderly Using Intelligent Technology to Facilitate the Daily Transportation of the Elderly". Notification of Difficulty Using Intelligent Technology", etc.

At the same time, local governments have also actively responded to the call of the central government to promote the ageing policy of Internet applications according to the actual situation of the region. There are two main forms of promotion at the policy level by local governments in China. One is to directly forward the original policy of the Ministry of Industry and Information Technology to the municipal and district governments in their jurisdictions to urge lower-level governments to carry out relevant actions; Relevant actions, such as "Qinghai Province Action Plan to Effectively Solve the Difficulties of the Elderly in Using Intelligent Technology (2021-2022)", "Sichuan Province's 10 Actions and Task List for Aging Improvement and Improvement of Public Services in 2020", etc.

3. The promotion effect of Internet application aging policy

3.1 The driving mechanism of the promotion of Internet application aging policy

Population aging is a global issue, an important trend in China's social development, and an important long-term national condition. This is a challenge, because the aging problem is long-term, flat, and relatively invisible, and insufficient attention is paid to the problem of population aging. This is also an opportunity, because, under the support of the national strategy, the

government needs to make full use of relevant policies, research and formulate a development plan for the aging of the Internet from a macro and strategic perspective, and blaze a path that is in line with China's "digital divide for the elderly".

Due to the problem of the digital divide, the elderly are less practical for modern information technology and face the potential crisis of becoming a "digitally disadvantaged group". The further development of society requires further care, and should "build a community of social governance in which everyone is responsible, responsible, and enjoyed by everyone". Promoting the aging of Internet applications is in line with the governance goals of the Communist Party of China and the government of "results sharing", the "people-centered" governance concept, and the "digital inclusion" governance strategy. "Intelligence" and rationality can promote the development and progress of Chinese society.

Promoting Internet applications for aging and solving various difficulties encountered by the elderly when using Internet applications can not only promote the development of science and technology but also show the warmth of humanity so that the elderly and people with disabilities can also embrace digital life. For example, based on the physical and mental characteristics of the elderly, combined with multiple intelligent technologies, the Internet-based elderly education can be adapted for aging, which can continuously adapt to the personalized learning needs of the elderly group and improve the learning experience and satisfaction of elderly education (Lv,2021).

There are some reasons about enterprises actively participate in the government's Internet application for aging promotion. On the one hand, it is driven by social responsibility and responding to the government's call, and aging-friendly transformation can help the elderly "cross the digital divide. On the other hand, it is also for the purpose of Mining the elderly market, expanding the scale of users, and increasing economic benefits, because "silver-haired people" have stronger consumption potential and ability.

3.2 The Achievement of Internet Application Adaptation to Aging Promotion

In general, from the central government to all local governments, they have connected policy subjects and objects, integrated various resources and forces, carried out various forms of intelligent technology application popularization actions, actively served the elderly, and improved their digital application capabilities. Help the elderly to cross the "digital divide" and further promote the sustainable development of the regional economy and society.

The websites and mobile applications in the Ministry of Industry and Information Technology's transformation list have completed the aging-friendly transformation, such as re-launching a separate aging-friendly version or updating and embedding aging-friendly services. At the same time, some institutions or enterprises that are not on the list have also followed up on the aging transformation of Internet applications. Three major signs of progress have been made in the promotion of Internet applications for aging at present: the direct and convenient one-click call for the elderly, the service provision of "love channel", and the extensive setting of mobile phone "elderly mode" (Fan,2021). Set up a "family account" to assist parents in operations, a request for help, large-character and large-picture pages, voice recognition operations, etc., so that the elderly can also embrace digital life(Shi,2021).

3.3. The promotion of the Internet application aging policy

Although China has made many achievements in the process of adapting to the aging of Internet applications, there are still many problems to be solved.

On the one hand, there is a lack of an aging perspective, and the aging-adaptation quality of products and services needs to be improved. Due to social prejudice, uneven distribution of information resources, weak technology, and other factors, there is still a lot of room for improvement in the level of social "intelligence" in rational aging (Tang Zilan, 2021). The current Internet application transformation is still at the level of functional simplification, ignoring the psychological needs of the elderly, and there is not much high-quality content that can be provided, and there is a lack of targeted services (Li,2021). The financial services and health care industries are in better shape, and other industries need further efforts. Li Tongtong and Wang Ran analyzed the current development status of the Internet suitable for aging from the perspective of intelligent media: the elderly still face a large digital divide, and the efficiency of family digital feedback is not high, so it requires extensive attention and joint efforts from all walks of life(Li, & Wang, 2021).

On the other hand, some enterprises have a low willingness to participate in the aging of Internet applications, and the government's supervision is not enough. The current platform is aging and rumor governance is still very inadequate. Although the policy requires "prohibition of inductive buttons and advertising plug-ins", in the actual process of promoting Internet aging, because advertising is an important income for Internet companies, the attitude of enterprises in this aspect is relatively negative. At the same time, the government does not consider the security of the Internet enough and lacks regulations to control Internet rumors (Li & Wie, 2021). The slow development of technological innovation of age-adaptation smart products is one of the reasons

for the deviation of the friendly ability of digital technology. At present, there are still problems such as insufficient government digital supply capacity, lack of smart pension policies, and insufficient supply of basic information equipment, and the protection of Internet rights that the elderly deserve has not been implemented. Some scholars have pointed out that some APPs have been reformed for aging in name, but in fact, the reform is not complete. "Reform for the sake of reform", advertising placement is different, and plug-ins are hidden (Sun, 2022).

4. Promoting the adaptation to aging of Internet applications

4.1. Strengthen technological innovation and improve service quality

Aging is a long-term social problem that requires the joint efforts and participation of all parties in society. In the process of age-adaptation promotion of Internet applications, it is not only necessary to overcome technical difficulties, but also to carry out the age-adaptation transformation of content, so that the Internet can truly serve and facilitate the life of the elderly, and promote the digital transformation of society. It should continue to export its scientific and technological capabilities and innovation capabilities in terms of helping the elderly and elderly care by using Internet applications, so as to help the elderly group achieve common prosperity. There is a strong technological innovation in the aging process of Internet applications, and it is necessary to provide more intelligent products and services suitable for aging so that the elderly can use, know how to use, dare to use, and want to use intelligent products. Let the elderly have more sense of happiness and security in the development of information technology.

4.2. Strengthen multi-party cooperation and build brand effect

The transformation of the Internet for aging cannot be achieved overnight. It requires the attention and cooperation of the whole society, and efforts are made in national policies, public services, technology enterprises, families, society, and security so that the "involvement" of the elderly group can be transformed into "integration." ". Government-enterprise cooperation should be strengthened when implementing the Internet application aging policy. The government should set up special funds or projects to guide the market to develop and sell Internet application aging products to serve the elderly and actively build aging-friendly brands. When promoting the Internet for aging, not only enterprises should be able to produce Internet products that are convenient for the elderly, but public service departments should also be able to launch aging-friendly public service products and apply Internet-friendly aging to government services. It is necessary to promote the construction of aging-friendly online and offline at the same time and combine innovative Internet application aging-friendly technologies with convenient offline public services. While improving digital access and use, traditional service methods should also be retained to ensure the warmth and inclusiveness of public services. At the same time, China needs to fully learn from the experience and lessons of developed countries and related regions, and avoid detours.

4.3. Pay attention to psychological needs and improve user experience

The design and promotion of Internet products suitable for the elderly user group can improve the visual, interactive, and emotional experience of Internet applications. The government should start by strengthening prejudice governance, eliminating information bias, establishing a good governance mechanism, and developing aging technology, so as to comprehensively improve the age-adaptation development of Chinese social "intelligence". Tang Jialian proposed based on user experience that five levels should be paid attention to when an APP is suitable for aging transformation and should be designed and transformed from the perspective of users: presentation layer, framework layer, structure layer, scope layer, and strategy layer. In the process of government policy formulation and promotion, it is necessary to take into account the incompatibility of the elderly in the rapid development of society, and formulate adaptation to aging service policies on this basis, providing psychological empowerment for the elderly to eliminate the adverse effects of the digital divide. For example, when designing the age-adaptation experience of Internet housekeeping services, the platform's age-adaptation experience can be improved from the aspects of basic level, functional content, framework factors, interface performance, etc., and the model can be designed according to the needs of elderly users.

5. Main conclusions and future directions

Internet suitable for aging is closely related to the reality of social aging. It is necessary to further pay attention to the "digital divide" problem faced by the elderly, let the elderly better share the achievements of informatization development, and aim to enable the elderly to enjoy a more comfortable and convenient life. Therefore, this paper uses public policy analysis methods to study China's Internet aging policy. The results show that the research on the promotion effect of China's Internet aging policy mainly focuses on the driving mechanism, results, and problems. The demand for aging, government promotion, and corporate response have become important reasons for the advancement of China's Internet aging policy. Although China's Internet application aging action has achieved many achievements, there are also obstacles such as product design, weak willingness to cooperate with enterprises, inadequate government supervision, and the level of Internet application aging needs further improvement. What's more, in terms of policy recommendations to promote the aging of Internet applications, this paper proposes three different aspects of technological innovation, multi-party cooperation, and the needs of the elderly, which will help to improve and enhance related policies. Whether it is the supply of products and services suitable for the elderly, or the presentation

of content and functional design suitable for the elderly, while enhancing the sense of the use of technology, we must focus on meeting the real needs of the elderly and improve the sense of acquisition for the elderly. From the perspective of digital social governance, Internet applications should be suitable for the elderly, and network information technology should be able to adapt to actively serve the elderly. That continuously meets the needs of the elderly and solves the pain points of the elderly, rather than superficial under policy pressure. The aging transformation of Internet applications needs to be problem-oriented and continuously optimized rather than pretending to go through the motions.

There are still some limitations in this study. For example, only China is used as a case study. Future research can conduct further research and discussion from a comparative perspective, increase the sample size or carry out quantitative research.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

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