# Research on Active Aging in Helping the Elderly Integrate into the Digital Age

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**Abstract:** With the rapid development of information technology, population aging has become a growing concern. The elderly are facing difficulties accessing the digital world that younger generations enjoy. This paper aims to explore the challenges older people encounter in adopting digital technology and the reasons behind their disengagement from the digital age. From the perspective of active aging, this study argues that society should create an inclusive and welcoming environment for seniors, promoting the use of various technologies and smart devices with the right attitude, while encouraging their subjective initiative and enthusiasm. All stakeholders, including governments, businesses, communities, families, and seniors themselves, should collaborate to support the elderly in entering the digital age and enhancing their digital well-being. By doing so, seniors can make valuable contributions to social development while enjoying a better quality of life in the digital era.

The fast development of the Internet makes people's lives increasingly convenient and happy. While young people are enjoying the happiness of the digital age brought by the Internet, the elderly are in various difficulties in the contact and use of smart technology, and cannot enjoy the beautiful life brought by the digital age.

## 1. The current situation of the elderly in the digital age

At present, our country is in a rapid development period of population aging. According to the seventh National census data of the National Bureau of Statistics, there are 267.36 million people aged 60 or above, accounting for 18.9 percent of the national population, among which the number of people aged 65 or above exceeds 200 million, accounting for 14.2 percent of the national population. According to the China Internet Development Statistics Report, as of June 2022, the number of Internet users in China had reached 1.051 billion, the Internet penetration rate reached 74.4 percent, and the number of elderly Internet users over the age of 60 was 119 million, accounting for 11.3 percent. The number of non-Internet users in China is 362 million, and groups of people older than 60 are the largest non-Internet user group, accounting for about 41.6% of the proportion of non-Internet users [1].

The COVID-19 outbreak from 2020 to 2022 has had a tremendous impact on people's production and lives and has compounded the dilemma for seniors facing the digital age. During the epidemic, people were quarantined in their homes, and the supply and demand for necessities and food ingredients became an issue. Elderly people with children can send information about daily necessities to their communities through their children, while those without children can only expect volunteers because they don't know how to use the WeChat mini-program or they don't have a smartphone.During the period of prevention and control of the outbreak, people who did not have smartphones or did not know how to "scan" and display the health code could not take the bus, enter supermarkets, stations ,and other public places, and had to be "shut out".

In many picturesque locations, tickets can not be purchased by Meituan, Ctrip, Douyin ,and other applications or small programs, leaving seniors who do not have a mobile phone or who cannot use them helpless. In many cities, hospital visits need to be booked on the internet, and test sheets

need to be printed from self-service printers, making it difficult for seniors to move away from their children. Increasing third-party payment makes it difficult for more and more young people to get out without money. These elderly people who live selling vegetables in rural markets and on the streets of the city have no source of income because of the lack of payment codes for Alipay and WeChat. The invention of WeChat, QQ ,and other software allows people to speak remotely, which shortens the distance between people but exacerbates the loneliness of older people. Most seniors don't make video calls, caller ID is not to answer, dare not answer, the same mobile phone, but there are two different worlds. [2] The invention and advancement of intelligent technology do not provide convenient services to older people, but disintegrate their familiar daily lives, causing them to gradually lose touch with this era. The intelligent way of life brought by the digital age, which is encouraged by young people, is not friendly for the elderly, which further deepens their sense of loneliness.

## 2. Reasons for the digital divide among the elderly

In the current digital age, mobile phones, computers, and smart homes have become ubiquitous items among the elder population. However, while these devices offer a plethora of benefits, seniors often face numerous challenges in using them effectively. These difficulties may lead to resistance towards intelligent devices and technologies, as well as accessibility issues. Moreover, the design and conception of smart technologies and equipment often cater to younger generations, failing to meet the unique needs of elderly individuals, thus exacerbating the problem. The main reasons for these difficulties can be attributed to the following factors:

### 2.1 Access willingness

As individuals age, their desire for access to new media technologies tends to decline. This trend is particularly prominent among the elderly population, where the older the individual, the less likely they are to accept and adopt new technologies. While younger seniors may be more interested in exploring new technologies and are more open to using smart devices, older seniors tend to have a more stable lifestyle and may be less interested in emerging technologies. Moreover, economic constraints often play a significant role in the decision-making process for seniors across all age groups, as individuals consider the investment-return ratio when deciding whether to invest in smart devices.

Taking smartphones as an example, seniors often face significant financial barriers when purchasing such devices, coupled with subsequent costs such as telephone fees. Moreover, learning the technology and usage can be a time-consuming and challenging process, particularly without adequate guidance or support. From the perspective of the elderly group, smartphones may represent only a small portion of their entertainment, information, and practical needs, leading to a perceived lack of return on their investment in mobile phone access. Consequently, many seniors may view the costs of accessing smartphones as outweighing the benefits, leading to low willingness to adopt such technologies. Moreover, many digital products are designed with younger populations in mind, often overlooking the unique characteristics and needs of the elderly group. This lack of consideration exacerbates the difficulties faced by the elderly in accessing digital technologies, further hindering their adoption of new media.

### 2.2 Physical status

Physical fitness is a critical prerequisite for elderly individuals to learn and use intelligent devices effectively. However, as individuals age, they may experience a range of physiological problems, such as weakened vision, memory loss, reduced flexibility, and diminished ability to learn and accept new technologies [3]. These declines in physical and mental strength create a threshold that can limit seniors' ability and desire to use smart devices, learn media technology, and improve their media literacy. This is further compounded by the brightness of the display, which does not adapt to varying environmental factors, making it challenging for seniors to view the small screens of smart applications on cell phones. Additionally, cumbersome software design procedures,

such as SMS verification, facial recognition, and true name authentication, can also pose significant challenges for elderly individuals with poor memory and learning abilities. Modern "digital preference" public services have also exacerbated the digital divide for older adults, as many service terminals are designed to be large and may be unappealing or inaccessible to individuals with limited mobility or wheelchair use. These physical challenges create a vicious cycle that can leave older adults feeling powerless and excluded from the digital world.

## 2.3 New media application skills are lacking

In a society where manual transactions are gradually replaced with data algorithms, the shadow of modern technology emerges in every aspect of life, such as government affairs, medical care, health, tourism, and public transportation. From building "smart cities" and "smart communities" to small group purchasing and self-service printers, digital technology is ubiquitous. For seniors who have no contact with smart devices or who are unfamiliar with the use of smart devices has undoubtedly made life more difficult. The lack of skills and knowledge in the use of new media is exacerbated by the willingness to access and the physical condition of the elderly, making it difficult for them to widely apply digital technology-enabled services such as "big data" and "cloud computing". Many offline manual service windows are gradually ignored or canceled, and some elderly with a low educational level do not know Hanyu Pinyin or even cannot read or write, this makes it difficult for them to function and use all sorts of apps on the Internet and mobile devices, and it is difficult for them to complete complicated operations. Secondly, children at home are not always with them, and older people lack the means to learn new media skills [4]. Some elderly people may take the initiative of acquiring new media skills, but they are discriminated against by young people in the process of learning, which reduces their curiosity and self-confidence to try Internet terminals to learn new media skills. The digital society has pressed the "shortcut" button for everyone's life without realizing that the popularity and development of new technologies marginalize the older population.

## 2.4 Concerned about information and privacy leakage

The physical limitations of older adults, combined with their lack of knowledge and awareness of the Internet, often result in low media literacy, making it challenging to distinguish truth from fiction in the online world. Unfortunately, many elderly individuals have fallen prey to online scams, such as theft of personal information, bank deposits, and even fraudulent marriages. These incidents have led to widespread fear among older adults regarding information and privacy security in the digital era. Consequently, many seniors operate carefully and cautiously on the Internet platform using fixed patterns, further widening the digital divide. Conservative thinking often prevents older adults from exploring new fields and technologies, exacerbating this divide. Even in the mobile payment environment, where virtual currency is widely accepted, many elderly individuals remain resistant to technologies such as WeChat or Alipay sweep code payments, fearing that their money may disappear with the slightest carelessness. Some seniors even prefer to wait in long bank lines to withdraw money, rather than using self-service ATMs, fearing that their cards may be swallowed, or their passwords compromised. Due to their lack of media literacy and cyber security awareness, many older adults remain reluctant to use smart devices and are resistant to connecting with the digital age [5].

## 3. Active Aging: A new perspective to solve the plight of the elderly in the Digital Age

Active aging is an idea. In 2002, the World Health Organization (WTO) formally proposed the concept of "active aging" at the Second World Conference on Aging, based on the continuous increase in life expectancy, the continuous growth of the older population and the continuous improvement of their physical functions and qualities."Active aging" basically means "improving the quality of life of the elderly and creating the best possibilities for health, participation and safety" [6]. "Health" means paying attention to the physical and mental health of elderly people so that they have access to medical care. "Participation" means that older people can participate in

social, economic, and cultural activities according to their leisure and interests, participate in community activities, and give full play to the enthusiasm and initiative of the elderly. "Security" includes not only economic security, but also the right to material assistance for survival and social development, the right to pension security, and the right to culture and education.

Active aging is a strategy. The State adopts economic, legal, and administrative measures to address the different challenges related to aging,to create an atmosphere of respect and love for the elderly throughout society, and to promote the development of an aging society. Positive aging takes a positive view of the aging process of the population and proposes to improve the social, economic, and cultural participation of the elderly and to ensure the right of older persons to survive and develop."Active" demands that government, business, and society take steps to keep elderly people healthy and active, and to give full weight to their enthusiasm and initiative, so that they can better access the digital age and enjoy a better life [7].Active aging is a type of self-consciousness. The elderly are the main body of an aging society, and "active" forces them to change their attitude towards the numerical age, put themselves in the digital life with an optimistic attitude, embrace the digital age with a positive and active mentality, make their initiative meaningful, actively participate in the activities of the community, consciously assume their responsibilities as citizens, reflect their own values, and make sure that elderly have the confidence and the capacity to better integrate into this era and enjoy the good life brought by this era.[8]

Led by the theory of positive aging, to help seniors integrate more rapidly into the digital age and bridge the digital divide, we should see the elderly as the center and truly consider their inner needs while paying attention to their psychological and physical health. Through the multistakeholder governance model between government, business, communities, families, and the elderly, we can help elderly people improve their physical conditions, improve their new media application skills and media literacy, strengthen their sense of belonging, give full meaning to the subjective initiative of older people and engage them in the process of technological empowerment of public services. According to their own needs, the elderly are guided to express their views on the design of digital devices and contribute to the development of society through their strength. That the elderly are no longer the marginalized in the digital age, but are gradually becoming the participants and designers of digital life, so they can have fun and actively integrate into the digital world. At the same time, we will strengthen communication between the elderly and persons of all kinds, we will reduce the solitude of the elderly, reduce the disconnect between the elderly and this era, and make the elderly feel a greater sense of belonging and value.

## 4. Strategies to help the elderly in the perspective of active aging

In the digital age, if we want seniors to have a better digital life through smart applications and not be left behind by the smart age, we must give full play to the role of multiple parties and make good use of the power of the government, enterprises, communities, families and the elderly themselves to help the elderly overcome the difficulties of digital life, so they can play an active role in the digital age and enjoy a better digital life.

### 4.1 Governmental level: coordination, support, direction and regulation

The government should strengthen the work of the information technology management service, conduct in-depth research, and seek the advice of expert panels, and develop a policy system that truly meets the wishes of the elderly. Fully mobilize the power of businesses and community organizations to create an elder-friendly environment in an integrated manner. Crackdown on telecom fraud, the dissemination of vulgar information, and false advertising to protect the online environment. At the same time, the government should also strengthen the guidance of businesses and community organizations to help them improve the digital quality education system for the elderly, and develop refined educational content according to their individual needs. Encourage companies to develop senior e-commerce, implement smart senior service platforms and design more age-appropriate products; guide community organizations to actively promote government policies, establish mutually supportive groups, increase opportunities for digital education for

seniors, and improve the driving force of learning for seniors to take an active part in community activities [9].

The government should also step up supervision of various products adapted to aging, design standards for specific service items, and immediately adjust deviations in the design direction of enterprises. Furthermore, ministries of government and civil affairs for the elderly should reserve manual windows for the elderly in places such as medical care, resorts, supermarkets, and banks, and offer "non-digital" options for seniors so that their basic needs can be met. In addition, the government and the Ministry of Civil Affairs for the Elderly should reserve manual windows for the elderly in medical care, railway stations, supermarkets, banks, etc, and offer "non-numerical" options for seniors with disabilities to meet their basic needs. At the same time, media such as television, radio, and newspapers should be used to promote intelligent senior care services in the digital age, so that the elderly can be fully informed of relevant information and policies and can participate in the national care design project for the elderly [10].

## 4.2 Enterprise level: develop age-appropriate products to truly meet the needs of the elderly

Businesses should implement policies issued by the government, conduct market research, adhere to the concept of "people-oriented", really discover the problems faced by older people in the digital age, and develop more age-appropriate products based on the characteristics and needs of seniors.In particular, businesses are expected to strengthen the user-friendly design of service platforms, smart devices, and new media products.

At this stage, the elderly have a great demand for medical care, communication, and travel, so companies should invest more energy in this area and design a variety of equipment exclusive to the elderly. For example, setting up medical channels and special medical facilities for older people in hospitals, designing bank operation offices for older people, mobile phones a touch calls, etc [11].In the design process of the mobile APP terminal, we should design "care mode": simplify the steps, design voice service assistant, and guide the elderly to use it by voice; design larger icons, larger fonts, and highlight important information, so that the elderly can easily identify and use it. At the same time, because the elderly are less aware of network security, in the application design process, strengthen the firewall parameters to prevent all kinds of false and fraudulent information, and enhance surveillance and information protection for seniors to prevent information leaks.

## 4.3 Community level: increase publicity and improve the education system for the elderly

As the community is an important unit of social governance, the community should take full responsibility for providing courses at different levels and systematic education to improve IT literacy for the elderly according to their different levels of education and needs. Specifically, to address the problem that the elderly do not know how to use smartphones, we can invite volunteers from the community to give detailed lectures to seniors and teach them how to use the most elementary communication, photography, and entertainment software.

In addition, peer-to-peer learning can be improved to eliminate barriers to intergenerational learning. Meanwhile, the community can carry out corresponding Internet knowledge competitions and set up relevant awards to motivate seniors to take the initiative to learn about Internet skills and improve their skills in to use of smart devices [12] .Communities should make good use of the strength of university student volunteer teams and arrange regular home visits by university volunteers, especially for the elderly whose family children are always absent, asking them more about their recent life and studies, helping them to solve the difficulties they encounter in the learning process, so that they can feel the warmth of the community and also actively participate in the study.

## 4.4 Family level: strengthen children's "digital feedback" to the elderly

The younger children in the family teach the elderly to use the Internet and smart devices in their free time, which is called "digital feeding". Today, most seniors in China live in families, and most of them are looked after by their children. "Digital feeding" plays an important role in the process of accessing the Internet and smart and digital devices for the elderly [13]. Broaden the learning paths

of the elderly, children should take more time to go home with their parents on their own time and teach them how to access smartphones, software, and various smart devices. Provide parents with emotional and technical support during the teaching process, guiding them towards learning smart technology with a positive mindset, help them patiently resolve the difficulties they face in the learning process, alleviate their anxiety and overcome their fears. At the same time, we should increase their knowledge of Internet security and strengthen the shaping of information culture and digital thinking, so that they can protect themselves while enjoying the joy brought back by the Internet. Further encourage parents and cultivate their confidence and interest in being more willing to learn and access the Internet. Nowadays, many elderly people are happier than young people on the Internet, and this cannot be achieved without the "digital feeding" from their children at home. It is with the help of their children that the elderly can enjoy a different life in the digital age.

## 4.5 Older people's level: play their main role and actively integrate into digital life

Seniors themselves should change their negative attitude and fear of the Internet and intelligent devices, have the courage and confidence to learn new things, dare to learn and appreciate learning digital skills. Elderly in the digital age should realize that learning smart devices is a "mandatory course" and actively participate in training courses organized by the community to learn Hanyu Pinyin, answer the telephone, access information, browse the news, and seriously learn basic software and skills like WeChat, photography, video technology, on-line payment technology, etc. from the basics. Older people should increase their initiative and motivation to learn, learn more times if they can't learn, and review more if they forget, and practice makes perfect for any age group [14]. For their children's "digital feeding", the elderly should patiently accept their children's teaching, communicate with them promptly if they encounter problems in the learning process, and ask questions if they do not understand. At the same time, the elderly should learn about network security, constantly improve digital literacy, strengthen their awareness of protecting their information privacy, improve their ability to identify false information, and be careful not to be deceived by the Internet. Older adults should uphold the concept of living and learning, actively learn new media skills, and actively integrate into this era.

## 5. Conclusions and Recommendations

The age of intelligence and big data is developing at a rapid pace. The government should make reasonable use of the power of multiple parties to jointly create a network security environment that meets the development of the elderly. The government should improve the top-level design at the level of the elderly, combine online and offline research and study, listen to the voices of the elderly groups practically, combine the Internet, digital technology and elderly services, medical care, and other resources to achieve integrated, informative and intelligent services for the elderly groups and meet the real needs of the elderly. Enterprises should follow the footsteps of the national government, implement relevant policies, strengthen research on the needs of the elderly in product design, develop and design age-appropriate Internet products for the elderly groups, and make full use of and develop business opportunities for the elderly groups [15]. The implementation of a multi-body collaborative model among the government, enterprises, communities, families, and the elderly themselves can effectively help the elderly groups better integrate into the digital era and bridge the digital divide; it is of great significance to establish an age-friendly social atmosphere. The wave of digital development is unstoppable, and we should uphold the concept of positive aging and look at the aging process positively. As the shortcomings of the digital age, the elderly groups should receive more warmth and goodwill from society. In the fast era of hurry and disturbance, we deserve to leave the option of slowing down for the elderly. How to fill the digital blindness of the elderly, bridge the "digital divide" and help the elderly integrate into the digital society is a problem that needs to be paid attention to and solved for a long time to come.

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