

Ethical Difficulties of the Elderly Challenges and Opportunities in the smart phone era

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Abstract. This paper analyzes the ethical problems encountered by the elderly in China when using smart phones, such as information security and operation problems. Despite the convenience of smartphones, older people also face challenges, such as difficult password entry and poor operating experience. By investigating the elderly in Shanghai, the article explores their experiences and difficulties in smart life, and proposes improvement strategies, including strengthening intergenerational integration, providing assistance and improving smart device design to create a safer and more convenient environment. The study emphasizes the importance of social care and support for the elderly, and suggests that the needs of the elderly should be considered when designing smart devices to improve their quality of life and promote social harmony.

Keywords: Elderly, Digital Life, Ethical Dilemma, Smart Phone, Digital Divide.

1. Introduction

The rapid development of information technology, especially the arrival of artificial intelligence, has greatly promoted the progress of information technology. The popularity of the Internet has changed the way people shop, travel, pay and communicate, making it easier to access information. However, what the elderly face at the age of information intelligence is a very obvious "digital divide" challenge. The proportion of China population aged 60 and over is rising and is expected to exceed 300 million during the *14th Five-Year Plan* period. Although the total number of Internet users reached 1.051 billion, the proportion of netizens aged 60 and above accounted for only 11.3% of all Internet users[1]. The number of elderly people is growing, but the proportion of Internet users is relatively low. Older adults face ethical dilemmas in intelligent life, such as lack of digital life guidance, privacy and security issues, and social stereotypes that affect their quality of life and social support.

2. Research Status

2.1. Research on smartphone use by the elderly

In 2005, a US study of elderly attitudes towards smartphone use showed that men and women were roughly similar in computer use. However, women showed lower confidence in smartphone use[2]. A 2011 long-term follow-up survey of the elderly found that the elderly in the United States have positive expectations for smartphones and show a strong willingness to contact, understand, learn and use smartphones. The elderly surveyed also expect to be able to operate smartphones independently and integrate them into the current online society through smartphones.

With the popularity of smartphones, smartphone use among the elderly is steadily increasing, especially in urban areas, and the trend is even more pronounced[3]. In 2018, CAI Yi, Luo Yanhe and others took a community in Wuhan as a research sample, and found that more than two-thirds of the elderly have been able to skillfully use and operate smartphones. Another study found that in economically developed cities, the proportion of the elderly using smart phones is higher, especially in Shanghai, the elderly in Shanghai, the use of new media even exceeds the national average level of the same age.[4]

In terms of smartphone applications, the elderly are more likely to use their phones to obtain news, conduct social interaction and enjoy entertainment. According to a survey report of the elderly in

Hangzhou, they mainly use their smartphones to obtain health information, conduct social interactions and enjoy entertainment content. Another survey report taking Xi'an as an example also found that most elderly people prefer the social and entertainment functions of smartphones.

2.2. Two-way influencing factors of smartphone use in the elderly

2.2.1. Factors affecting smartphone use among the elderly

Domestic and foreign scholars have produced different research results on the factors affecting the use of smartphones by the elderly. Foreign studies have found that whether the elderly use smart phones is mainly affected by the difficulty of individuals to access the Internet, the motivation to surf the Internet and the adequacy of online knowledge reserve. Studies have also found that four factors, including socio-economic conditions, smartphone use environment, the difficulty of smartphone use and the convenience brought by smartphones, have a significant impact on the elderly's willingness to use smartphones.

Considering the characteristics of the elderly and the social environment, the elderly are restricted by more and more complex factors when using new media compared to other age groups. In this context, age, education level (education level), savings, hardware equipment, and vision status can all have a significant impact on smartphone use among the elderly. Another study also showed that older people with better health were more likely to use smartphones than weaker ones. In addition, there are comprehensive factors such as social capital that have a very important impact on the intention of the elderly to use smartphones.[5][6]

2.2.2. Impact of smartphone use on the elderly

Several international studies have shown that smartphones have significant positive and positive effects on the elderly. For example, the use of smart phones helps with the social participation of the elderly group, thus reducing their loneliness. The elderly who use smartphones frequently tend to have better health status and higher life satisfaction.[7]

Domestic scholars generally believe that the use of smart phones has both positive and negative effects on the elderly. On the one hand, the popularity of the Internet and smart phones has promoted the communication and communication between parents and children, but at the same time, it has also brought some problems, such as reducing real face-to-face communication and possible parent-child disputes.[8] Taking WeChat as an example, the positive effects of smartphone applications on the lives of middle-aged and elderly people include improving the living habits of the elderly, changing interpersonal interaction mode and meeting their psychological needs; the negative effects are mainly manifested in three aspects: excessive exposure of personal information may lead to security crisis, the reduction of real interpersonal interaction may lead to emotional crisis, and the spread of false information is easy to mislead middle-aged and elderly people.[9]

In the social background of the rapid development of information technology, intelligent technology has penetrated into all levels of people's life, and has greatly changed our way of life and quality of life. However, for the elderly group in China, the rapid development of intelligent technology has brought great challenges to their own lives. This paper aims to explore the difficulties encountered by the Chinese elderly in the face of the intelligent society, and the multiple influencing factors behind these difficulties, so as to provide a comprehensive perspective on the intelligent life dilemma of the Chinese elderly. The above research not only promotes the solution of the ethical dilemma of intelligent life for the elderly at home and abroad, but also expands the research in related fields from more new perspectives, which is of great significance in caring for the well-being of the elderly. However, there are still some shortcomings in the studies of elderly people in different regions and economic conditions. In particular, the diversity of elderly personal lives was not included in the study, and the lack of in-depth fieldwork data led to the lack of deep research results. Most of the above research is using quantitative research or modeling methods, but the author pays attention to the qualitative research method, personally, feeling, and thorough observation and interview from

different cultural level and knowledge background of the elderly group, further explore the influence of intelligent life for the elderly, and focus on the ethical dilemma.

3. Definition of concepts related to digital life for the elderly

3.1. The elderly

The concept of "the people" is usually defined by age, although it varies slightly between cultures. However, because the life cycle is gradually transitional, the line from young to old age are often blurred. In our country, some people see work retirement as a sign of old age, while others believe that old age begins with becoming grandparents. Internationally, respondents from different countries also hold various views. In Japan, for example, more than 40 percent of people consider being 70 or older considered old age. According to the actual situation in China, some relevant personnel believe that 45-59 years old is the early old age, 60-79 years old is the old age, and over 80 years old is the longevity period. At the same time, some Western countries define 45-64 years as old age, 65-89 years as old age, and 90 years is called old age.[10]

In the above defined indicators, "age" mainly refers to the chronological age.[11] However, human age can also be understood from three physical, psychological and social dimensions. Physiological age is the physiological age inherited from the parents, which is determined by the functions of cells, organs, tissues and systems, and is basically immutable. In contrast, the psychological age and the social age are subjective. Psychological age is judged based on individual consciousness and personality, while social age is mainly reflected in the role played by the individual in social interaction. These ages can often be made younger through unremitting personal efforts and intensive exercise. This study defined "older people" as those aged 60 years and older. According to the educational level, the elderly group can be divided into two groups: mainstream groups (mainly engaged in agriculture or workers before retirement) and well-educated groups (who have obtained a university degree or above). In this study, the author selected two extreme groups for comparative analysis: former farmers who were at most educated from primary school and university professors who had a degrees.

3.2. The Digital Divide

Between 1990 and 2000, the term "digital divide" went through four stages: concept presentation, definition, official release, and issues of widespread concern[12]. The term was first proposed by the American futurist Alvin Toffler in his 1990 book, "The Transfer of Power". [13]Nine years later, the National Telematics and Information Administration (NTIA) formally defined the concept in its report, *Falling in the Web: Definition of the Digital Divide*, that the digital divide is the difference between owned and unowned tools in the information age. In 1999, the United States officially released a report on bridging the Digital Divide. Then, at the APEC meeting in 2000, the "digital divide" became the focus of discussion, and the World Economic Forum (WEF) presented its special report "From the Global Digital Divide to Global Digital Opportunities" to the G 8 Summit. The digital divide is mainly reflected in the gap between the people with advanced network hardware and software services and their related education and those who cannot access the latest information technology, network services and independently use the technology for various reasons. At the same time, the digital divide is a multi-dimensional comprehensive problem, which is not only related to the development level and popularity of information and communication technology, but also reflects the continuation of traditional social differentiation; it is largely affected by the economic level, leading to the deep gap between rich and poor; finally, the existence of the digital divide also reflects the individual differences in knowledge acquisition and application ability.

3.3. Digital inclusion and its ethical dilemmas

In the field of developmental psychology, there is a theory of continuous activity in older age, which studies how older people adapt to older age and emphasizes their personalized differences. The theory

suggests that older adults who tend to adapt to persistent behavioral patterns are more prone to acquire new social roles and enable to better reintegration. The theory can be further subdivided into four sub-theories: active activity theory, continuity theory, social construction theory and detachment theory. Moderate participation of the elderly in social activities has significant positive effects on improving their quality of life and enhancing social ties.

For the elderly, the problem of information poverty is more prominent than for other groups, both at the international level and within countries. The lack of economic capacity, together with low educational levels and a lack of digital literacy, leads many older people to suffer from the exclusion of digital information while experiencing financial difficulties. This phenomenon intensifies the social contradictions and the ethical dilemmas of the digital life of the elderly. The lack of information access capacity will limit the ability of individuals to participate in the achievements of social civilization, especially in developing countries, where information poverty aggravates the gap between rich and poor. However, the progress of information technology helps to break the information block and promote the diversification of society.

In the whole process of social development, human cognition and the dissemination of information rely on the joint efforts of the whole social group, and the elderly are no exception. Older people who are disadvantaged in information technology applications often face material or spiritual inequalities from the diffusion of innovation and are even marginalized from the information world. However, according to the theory of innovation dispersal, if we actively deal with the problem of digital inclusion and gap among older people, although their digital adaptation may not progress slowly at first, their improvement will accelerate once they accumulate to a certain extent. Social support theory emphasizes the importance of free help, and social support networks help vulnerable groups to cope with various challenges by providing material and spiritual help. The larger an individual's social support network is, the stronger its ability to withstand external challenges. Social support networks include not only personal resources, but also social resources. By increasing the scale and quality of social networks, individuals' ability to withstand social risks can be significantly enhanced.

However, no matter how clearly explained by the above research and theories are or trying to break the "digital divide" faced by the elderly, the ethical dilemmas faced by the elderly in digital life still exist in real life, which seems to be a difficult practical problem.

4. Survey content and results

The author through the depth of the elderly group in parts of Shanghai interview, understand the elderly group in various aspects of digital life, the specific obstacles and attitude towards a series of problems, the influence factors of the elderly digital divide and the present situation of the elderly digital tolerance, and the plight of digital tolerance, will study the elderly digital ethical dilemma crack path to provide certain theoretical basis.

4.1. Current status of smartphone use in the mainstream elderly groups

4.1.1. Social advantages of smart phones

By organizing the observation of the elderly smartphone learning class and interviews with some elderly people, it is found that the most frequently used mobile phone functions and applications in the elderly group are mainly wechat and camera. WeChat, as one of their favorite social applications, their video call function is particularly welcomed and praised by them. The program allows the elderly to easily have face-to-face communication with their friends and relatives as if they are around, significantly shortening the distance between each other. Among the many functions of wechat, chat is undoubtedly the most popular. The elderly can keep in touch with relatives and friends through text, voice and emojis to share every bit of their daily life.

In addition, the elderly also like to use the function of wechat to share their life trends and express their personal opinions and feelings with their relatives and friends through this platform. The circle

of friends has become an important place for them to show their lives and record their beautiful moments, and also provides a platform for them to express themselves and interact. At the same time, the function of sending red envelopes is also deeply loved by the elderly. They often send red envelopes on various festivals or special occasions to convey blessings to relatives and younger generations, and participate in the festival celebrations, which adds a lot of fun and warm atmosphere to life.

In terms of photography, the most commonly used is the original camera application of mobile phones. This is because the original camera is easy to operate and intuitive interface, which is very suitable for the elderly. However, there are also a few elderly people not to be left behind, they have become skilled in using photography applications with beauty function, such as beauty camera, Meitu Xiuxiu, etc. These beauty features help them take more attractive photos, making them feel more confident and happy when sharing them with friends and family. Through the use of these functions, the elderly can not only record the beautiful moments in their life, but also improve their social experience and quality of life to a certain extent.

4.1.2. Online shopping of the elderly through smart phones

In the shopping field, Pinduoduo has gradually become one of the most popular shopping apps among the elderly group. This phenomenon appears mainly because Pinduoduo is widely praised for its low price and tangible benefits. It not only provides more choices for the elderly, but also makes shopping more convenient and economical through group buying. The elderly can easily find their favorite products on the platform and enjoy various discounts, which greatly improves their shopping experience.

However, some elderly people are still cautious about trying to use other e-commerce platforms, such as Jingdong and Taobao. They are not familiar with the operation process of these platforms, or worry about cyber security issues. However, with the rapid development of the e-commerce industry and the continuous improvement of its popularity, more and more elderly people begin to have contact with and gradually become familiar with these platforms. E-commerce companies are also constantly optimizing and improving their services to meet the special needs of the elderly, such as providing larger fonts, simpler interface design and more detailed shopping guides. These measures will undoubtedly help the elderly to better integrate into the digital shopping era and enjoy a convenient online shopping experience.

4.1.3. Online entertainment situation of the elderly group

The survey found that there are various forms of entertainment through smart phones, and short video browsing has become the most popular and common mobile entertainment activity among many elderly groups. On TikTok, Kuaishou and other short video platforms, there are a variety of interesting, humorous and even touching video content. These contents not only provide a relaxed and happy leisure time for the elderly, but also let them enjoy the beating of the Times and the vitality of the society while enjoying the entertainment.

In addition to browsing short videos, some elderly people will also choose to play some simple and puzzle-oriented mobile phone games in their spare time, such as "Happy Elimination Music", "A Sheep Is A Sheep" and so on. These games not only bring them joy, but also exercise their thinking ability to some extent, and help to delay the aging of the brain. Through these small games, the elderly can keep their thinking agile and flexible in a relaxed and pleasant environment, thus improving their quality of life. In general, whether browsing short videos or participating in puzzle games, these entertainment methods add more color and fun to the lives of the elderly.

4.1.4. Specific challenges of smartphone use for contemporary elderly people

In the use of smart phones, we often encounter some annoying problems, and urgently need to find solutions. First of all, due to the limited education level of some elderly users, they often struggle to recognize English letters when entering passwords, which brings a great barrier to them. Due to the

lack of knowledge of Mandarin pinyin, they also feel very difficult to read long characters, which leads them to rely on the shape of the letters to identify when entering passwords, which significantly increases the difficulty of operation. Secondly, the degradation of the body function will also affect the user's operation experience. Finger skin is prone to age, and the flexibility of the fingers is no longer as agile as young people, making precise clicks on the screen even more challenging. In addition, the input box on the phone screen is usually designed to be smaller, which further aggravates the operation difficulty and makes it more difficult for users to input.

To overcome these dilemmas, we can take some steps to optimize the mobile phone use experience. To solve the above difficulties in the process of using smart phones for the elderly, we need to comprehensively consider various factors, starting from improving the user's level of education, optimizing the physical design and interaction mode of mobile phones, and introducing auxiliary devices and other aspects. Only in this way can we make smartphones truly the right-hand men in people's lives, rather than the source of trouble.

4.2. Comparative study on the digital life of high knowledge elderly and mainstream elderly

The elderly people have shown high proficiency in using wechat and camera functions. They are good at using these tools to keep in touch with friends and family and capture good moments in life. They particularly prefer Xiaohongshu, seeing it as a platform for sharing personal experiences and insights, and also seeing it as a powerful search engine for all kinds of information. For example, they can get recipes through the Little Red Book, or find solutions when they encounter technical problems with their mobile phones.

At the same time, gaozhi elderly people hold more negative views on short video platforms such as TikTok and Kuaishou. They believe that short videos tend to be too simple and crude, which may have a bad impact on people's minds and weaken their ability to think critically. Still, a portion of them will entertain themselves by watching short videos. In addition, they also use radio software such as Himalaya to listen to books and acquire knowledge, which is rare in mainstream older people.

It is worth noting that the elderly people have been exposed to intelligent technology and office software since the 1990s, such as using windows, office and other office software for document processing, and teaching through television and telephone. Therefore, they are more skilled in mastering smart phones than the mainstream elderly group, and will not have basic problems such as not knowing pinyin.

Although the elderly people are more skilled in intelligent living technology, they still face some challenges and difficulties. The first is that the rapid development of technology brings the feeling of difficult to keep pace, especially when the lack of children or other relatives and friends to help, there will be a lack of security. The difficulties caused by the degeneration of rigid physical conditions are also reflected in this group, and the deterioration of the physical condition with the growth of age also brings difficulties to this group.

There is a fixed concept in the society that the elderly are most likely to become the victims of online fraud. However, regardless of the age group interviews, the highly educated elderly group demonstrated superior cybersecurity awareness, which includes but is not limited to the protection of personal information and funding. According to statistics from the Ministry of Public Security of the PRC, in 2023, the average age of victims of telecom network fraud was 37, with 62.1 percent of victims aged 18 to 40, and 33.1 percent of victims aged 41 to 65. Therefore, social stereotypes about the elderly may cause them to be afraid when adapting to intelligent life, or their children may limit the right of the elderly to freely use electronic products.

5. Conclusion

In in-depth analysis of the mainstream elderly group and high about the elderly group in the background of intelligent life challenges, we clearly found that although the two groups in the level

of education and technical ability to adapt to significant differences, they are inevitably encountered the information security, digital divide and intelligent device operation problems. Mainstream older age groups have relatively low levels of education and technical adaptability, which leads them to encounter more challenges in using smart devices and handling information security issues. At the same time, although the elderly people are better in education level and technical adaptability, they also need to cope with the digital divide and the operational challenges of smart devices, especially in today's new technologies, they must continue to learn and adapt.

To help these two groups better integrate into intelligent life, we can implement a series of strategies. First, promoting intergenerational exchanges and cooperation is the key. In this way, the younger generation can deliver knowledge and skills to the elderly, helping them understand and use smart devices effectively. Secondly, providing external assistance is also an effective strategy. Family members, friends or community volunteers can provide necessary help and support for the elderly to help them solve problems in the use of smart devices. Finally, improving the design of smart devices is also crucial. Manufacturers should take full account of the use habits and needs of the elderly, and design more humanized and easy to operate intelligent devices to reduce their difficulties and obstacles in the use process.

Through the implementation of these strategies, we can create a safer and more convenient intelligent living environment for the elderly, so that they can more fully enjoy the convenience and fun brought by intelligent life. This will not only help to improve their quality of life and happiness, but also promote social harmony and progress.

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