ISSN 2959-6149

Living in the Digital Age: AI Technology and the Changing Lifestyle of the Elderly

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Abstract:

As technology advances, diverse artificial intelligence products are invented and put into use. While dramatically improving the quality of human life, digital technologies are also changing the lifestyles of different groups to varying degrees. Focusing on the elderly population, this study utilizes a combination of questionnaire, interview, and documentary research methods in hopes of collecting information in a broad and comprehensive manner. The study mainly focuses on how AI technologies in the digital age are changing the lifestyles of older people and the potential factors that lead to such changes. The study reveals that the digital age has a dual impact on the lives of older people. Thanks to the intelligence and simplicity of AI technology, older people's lives have become much more efficient and convenient. However, the expensive price of AI devices and products, which also keeps some older people from enjoying the convenience of technological inventions, prevents them from integrating into the digital society. Among many lifestyles, changes in home-based lifestyles are the areas of greatest change in the lifestyles of the elderly in the digital age. These changes are mainly influenced by social, technological and personal factors. The present study expresses ample social concerns for the elderly population. It also conducive to helping older people fully integrate into a smart and convenient life and equally enjoy the dividends of the digital age.

Keywords: AI technology; the elderly; lifestyle; digital age.

1. Introduction

People have entered the digital age. The digital age has brought disruptive changes to human life, and every aspect of human social life has begun to undergo digital transformation to varying degrees. The development of digital technology has almost radiated its influence to all demographics, and many have enjoyed the conveniences brought by artificial intelligence (hereinafter: AI). For example, doctors can run AI technology to provide patients and sufferers a professional health care machine and a service of looking after. And young generation a produce a digital valentine or a robot girlfriend by modern AI technology. Also, the people who are feeling lonely can keep their own robotic pets. However, not everyone can equally enjoy the benefits and convenience of this digital age. A study has shown that some vulnerable groups in society has existed digital divide or digital barrier when AI technology is widely used in an extensive range of fields. This makes it difficult for them to use digital services as smoothly as ordinary people. Among those vulnerable groups, the elderly are one of the most important and typical instances in this digital epoch. Elderly lifestyle has been happening a big change, the issues on digital services for the elderly has been attracting increasing attention of the public. Recently, the research in AI technology affects the elderly's lifestyle in academic world, primarily gather in legal and ethical concerns of the elderly, changes in the social and entertainment, as well as methods and alterations in overall elder's daily living performance. In studies related to law and ethics, research found AI deeply affect the elderly in a positive way, but also bring corresponding challenges. One study has mentioned that AI and robotics have shown significant potential in assisting older adults, though challenges remain. In the area of socialization and recreation, research has developed that the huge leisure and recreation and socialization needs of the elderly can be achieved through appropriately nuanced robotic improvements. Further research points out that community-dwelling older adults show a growing acceptance of robot technology for daily living assistance [1]. In aspects of daily life for the elderly, most scholars believe that integrated measures can be taken to provide elderly services. For example, while relying on the traditional method of supporting the elderly, artificial intelligence technology could be introduced to raise the quality of their life [2]. However, current research is not mature enough, and systematic research on the changing lifestyles of older people

in the digital age is lacking. More intensive exploration is necessary.

This paper mainly studies the influence of AI on the life of the elderly with the motivation of making the elderly better use of AI. In order to deeply understand the lifestyle of the elderly group in the digital era, the analysis of many factors affecting the use of AI by the elderly. This research will use interview and questionnaire research methods as well as literature research methods, a situation where implement in-depth collection of the real needs of the elderly, render the author to understand their real attitude and finally analysis of the specific impact of the development of AI technology on the change of the lifestyle of the elderly, provide the elderly some suggestions and inspirations to promote better integration of them into the digital age.

2. Methodology

2.1 Interview Method

Interviewing is a qualitative research approach that involves face-to-face communication between the interviewer and the interviewee to perceive their perspectives and experiences. The interviewing method itself offers operational flexibility and a vast amount of information acquisition. This study conducts a semi-structured interview format, considering the cultural, health, and mental conditions of the elderly. It is believed that implement a face-to-face interview with elderly individuals allows for a more direct and comprehensive understanding of their personal attitudes, living conditions, and other information compared to other methods. In order to thoroughly examine the characteristic of different elderly individuals, the author adhered to the principles of scientific rigor, representativeness, and operability, choosing community nursing homes as the research field and inviting five elderly between 60 and 80 as the interviewees. The content of the interview involves the basic information of interviewees, the proficiency in using AI products and personal opinions, as well as the lifestyle of the interviewees. The average interview duration for each participant is approximately 10 minutes. Next, this research integrates the record of interviewees about 3529 words in the paper, and invite the interviewees to verify and confirm the content of the interview records. Before the interview begins, all interviewees have been fully informed of the academic purposes of this research and have agreed to be recorded throughout the process. The personal information of all interviewees will be handled anonymously.

2.2 Questionnaire Survey

A questionnaire survey is a research method, which render investigator uses a uniformly designed questionnaire to understand the situation or solicit opinions from selected survey subjects. The advantage of questionnaire research method lies in the standardization as well as small cost and large benefits. In the survey, each interviewee answers the same questions, making the data easier to compare and analyze, which also reduces the distraction of respondents answering irrelevant and repetitive questions. In addition, questionnaires are often cheaper than other data collection methods, especially online survey do not even have printing and distribution costs, but can collect large samples of data. The reason why the author adopts the questionnaire research method is that the collected data is easy to make statistics, find the trend and draw conclusions. Researchers can collect a large number of relevant data in a short time, which saves time for writing the paper. In this research, the author distributed questionnaires to individuals aged 60 and above by combining online WeChat platforms with offline surveys. The content of the questionnaires mainly includes the basic conditions of the elderly, their usage of AI products, and their opinions on AI products. A total of 100 questionnaires was distributed, and after collection and screening, 53 valid questionnaires were obtained.

2.3 Literature Research

In order to obtain more abundant information, this research also adopts literature research method. The literature research is a method of conducting research through the collection and analysis of library resources, mainly including journal, academic papers and so on. The benefits of this method are the available information is wealthy, which means the library has a large coverage of resources in other words sufficient resources. Another benefit is the collected information is of high quality, because relevant information is all based on the academic review, which can effectively reduce duplication of work. Furthermore, this method is convenient to obtain information and there are many online literature resources, so researchers only need to use the computer to get the literature. By reviewing existing literature, researchers can more comprehensively gather information about the impact of AI on the lifestyle of elderly people. At the same time, the rich literature can supplement the interviews and questionnaires as well as corroborate and contrast with the data already collected.

3. Result

3.1 Different Impacts of AI Technology on the Elderly's Lifestyle

As for the impact of AI technology on the elderly's lifestyle, different elderly have different perspectives. On the one hand, some of the elderly contend that the arrival of the artificial intelligence era has indeed had a tremendous

positive impact on their lifestyle. The AI products and devices bring convenience to their lives, as it can help avoid the use of complex operational procedures in daily life. One interviewee cited the AI assistant *Xiaoyi* in his Huawei phone as an example, stating that the convenience of AI has saved him a lot of effort in navigating the complex functions of his phone. On the other hand, a number of elderly believe that artificial intelligence technology has not brought any significant benefits to their lives. They think that AI devices are expensive and that there are many privacy and security issues. For instance, two interviewees mentioned that the cost of AI is very high, and their current economic situation does not allow them to purchase any AI-related devices. Another elderly person expressed discomfort with AI technology handling their personal data, especially regarding health. In addition, 27 respondents of the questionnaire surveys believed that AI has not had any impact on their lives, mainly because its high cost prevents them from experiencing it.

3.2 Biggest Benefit: Home Lifestyle of the Elderly is Changing

AI technology has actually significantly affected elderly's lifestyle. The field study of older adults found that the majority of older adults responded most strongly to the impact of AI technology on their lifestyles at home [3]. With the popularization of AI technology, the home lifestyle of the elderly is adjusted and optimized towards the direction of safety, comfort, convenience and personalization. In the industrial era, elderly people primarily used household appliances such as washing machines, water heaters, and coal stoves. These appliances required manual operation and settings, such as turning knobs and pressing buttons, and the level of difficulty in operation was high, often involving many steps, which could easily pose safety risks for the elderly [4]. Entering the digital age, the AI technology leads to the continuous advancement of smart home products, such as robotic vacuum cleaners, smart refrigerators, smart living assistance robots, smart wheelchairs, and smart kettles, which are now becoming a significant part of the daily lives of the elderly. These smart home appliances are easy to operate, and some devices even have voice control features, allowing seniors to simply express their needs to the robot. They can also enhance the safety and protection of elderly individuals, sometimes including emergency call functions.

Particularly, the morphological and functional changes of wheelchairs in different times are typical examples of the changes in the elderly's home life. In the past, elderly individuals with leg disabilities needed to be pushed in wheelchairs by others, or they would manually move themselves by gripping the wheels of the wheelchair, which was quite complicated and inconvenient. Differently, modern wheelchairs have become automated with the advancement of technology. Some smart wheelchairs come with remote controls, allowing users to simply press a button to change the direction and mode of movement. Additionally, certain smart wheelchairs can respond to voice command [5]. The invention of smart wheelchairs has greatly improved the mobility efficiency of the elderly, making their home life more convenient.

4. Discussion

4.1 Influencing Factors of Changes in the Elderly's Lifestyle

Different elderly people show diverse perspectives on the popularity of AI products and devices. This diversity of perceptions stems from the influence of social, personal and technological factors.

From a social perspective, due to changes in social structure and the social environment, the attitudes of elderly individuals towards AI technology will shift in response to the changing realities of society. As modern society sees a decrease in family size and geographical dispersion of family members, interactions between the elderly and their family members diminish, leading many to enter a state of living along [6]. This enhances the importance of community support and social networks in the lives of the elderly. AI technology can establish online communities and social circles, compensating for the physiological and psychological gaps brought about by changes in family structures for the elderly.

From a personal perspective, the change of AI technology in the lifestyle of the elderly is affected by factors such as the health status of the elderly, personal interests and so on. Elderly people in good health prefer the psychological support function of AI robots.AI social robots and virtual assistants, such as Apple's *Siri* and Huawei's *Xiaoyi*, can provide emotional companionship for the elderly and help them alleviate their sense of loneliness [7]. While elderly people with poor health conditions need robots even more to assist them in their normal life. Elderly people who keep an open mind to new technologies are more likely to support AI robots and enjoy robots recommending personalized content, movies, news, music, and more for them [8]. Whereas the elderly with conservative attitudes are more cautious about robots.

From a technical perspective, current AI technology is still in the process of development and refinement, and the application of some technologies is not yet mature. This may affect the user experience of elderly individuals with AI products, leading to resistance towards AI technology [9]. For example, some AI technologies do not fully take into account the living needs of the elderly, and their design is not sufficiently scientific or reasonable. This makes

it very difficult for the elderly to use them, and can even reduce their efficiency in daily life. Some AI products have unclear algorithms and functions, lacking production standards and regulatory laws, which may lead to violations of elderly people's data privacy. Considering all these factors, some elderly individuals rationally choose to stay away from AI technology and devices [10].

4.2 Suggestions for the Elderly in the Digital Age

In order to promote the popularization and development of AI technology, guiding AI products to fully serve the real demand of the elderly. Here come several pieces of advices. Firstly, relevant government departments should stimulate the interest of elderly people in AI. In their spare time, individuals can introduce relevant entertainment features to seniors, demonstrating how AI can provide entertainment. For example, using AI devices to play songs from their youth, offering updated news, and providing simple games suitable for the elderly. These functions can all probably appeal elderly. Secondly, encouraging the elderly to interact with others and see how their friends or peers use AI may inspire them to be willing to give it a try. Training can also be provided, where family members can teach the elderly. Family members can assist the elderly in using AI, guiding them step by step on how to operate it and answering any questions they may have during use. Additionally, communities or organizations can offer training courses on AI for the elderly, specifically, teaching them how to use AI.

5. Conclusion

In the digital age, AI technology is profoundly changing the lifestyles of the elderly. By enhancing the safety of machines and simplifying the complexity of AI operations, this technology brings unprecedented convenience and well-being to the elderly. Specifically speaking, elderly people generally believe that the most significant change AI technology has brought to their lifestyle is in the way they live at home. AI, with its high-tech features, has brought great convenience to the home life of the elderly. However, when it comes to the impact of the proliferation of AI products and devices on lifestyle, different elderly individuals exhibit a variety of perspectives. Some people highly affirm the high-quality changes that AI technology has brought to life, while others express their concerns and resistance towards AI technology and products. Further research has found that the acceptance and adaptability of the elderly towards AI vary, primarily due to the influence of social, personal, and technological factors. This paper mainly studies the influence of AI on the life of the elderly with the motivation of making the elderly better use of AI. Theoretically, this study applies innovative technologies to the field of health management for the elderly, promoting an integrated field of research that combines aging and AI technology, and facilitating the incorporation of health sciences and AI technologies. In the future, more research could focus on optimizing the design of AI technologies to better meet the needs of older adults, especially to enhance convenience and ensure privacy and security. At the same time, it is crucial to call on authorities to steer the market towards lower prices for AI devices. This is because expensive prices can make AI unaffordable for older people who want to use it. In the digital age, AI technology should do everything possible to serve the elderly and continue to improve their modern quality of life.

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