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Research on information education for the elderly under the background of "Internet Plus education"

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Abstract. This paper mainly presents the information problems facing the elderly under the background of aging society and information society, and studies the information needs and challenges of the elderly in urban communities and how to improve the information level of the elderly by means of "Internet plus Education", so that they will not feel removed from the information society and will be accustomed and comfortable in the society. The elderly realizes lifelong education, and acclimatize themselves to basic scenarios of the information society in communities and life under the background of "Internet plus Education". In the process of promoting the lifelong education for the elderly, "Internet plus Education" needs to take into account the integration of online and offline learning and focus on the importance of fragmented learning for the elderly. Meanwhile, "Internet plus Education" promotes the realization of informatization of the elderly driven by the young, and helps the elderly to adapt to the information society better in learning and application.

Keywords. "Internet plus Education", the elderly, informatization, lifelong education.

1. Introduction

According to the latest forecasts released by the Ministry of Civil Affairs, China will enter an aged society (more than 20% of a country's population is 60 or above, or more than 14% of the country's population is 65 or above, according to the United Nations standards), with the number of people aged 60 or above likely to exceed 300 million, by the end of the 14th Five-Year Plan period in 2025.

Resolution 252 adopted at the 60th United Nations General Assembly in March 2006 designated May 17 as the World Information Society Day since 2006, marking that the influence of network informatization on human society has entered a new stage. Nowadays, informatization is further developing, promoting the construction of the information society to become the common choice of all countries around the world. Such a large elderly population base and rapid growth are a huge challenge that China has never faced. It's the common goal of the society to pay attention to the quality of life of the elderly and improve the quality and level of their life. We should not only fully guarantee the material life of the elderly, but also lay emphasis on their spiritual life, including their lifelong learning and their pace of keeping up with the development of the information society.

Lifelong learning of the elderly has become a field of much attention in literature at home and abroad, and the elderly education and learning also attract much attention in the traditional sense in a learning society in which it's never too late to learn. After entering the information society, the urban planning and construction, work and life are gradually becoming intelligent, such as online working, online education and online shopping. Some scholars have noticed the elderly's adaptation to information and re-education, such as young people's feedback. However, from the perspective of "Internet plus Education", there are few studies on promoting all the elderly to learn all the time and everywhere by information education. Certainly, some studies have analyzed the status quo of information education of the elderly, explored the main reasons that hinder the elderly from receiving information education from such aspects as the non-compulsivity of elderly education, the existing network information content, the obstacles in active learning and the physiological and psychological characteristics of the elderly, and put forth some feasible suggestions. That is, when providing information technology education for the elderly, we should not only think through the learning features of the elderly, but also consider the teaching methods, contents, services and other factors for the elderly (GUO Hui-yu, FENG Ming-cong, 2016).

In the information society and under the national strategy of realizing "education informatization", the embedding of information is required to explore the new modes and improve the quality and effect of elderly education. The features of elderly education and the Internet jointly determine the necessity and reality of the integration of elderly education and the Internet. Therefore, we should promote the application of "Internet plus" in elderly education and perfect and promote the construction of the "Internet plus elderly education" platform as soon as possible. "Internet plus" cannot and do not have to completely replace traditional education. However, as an important teaching mothed and auxiliary way, it needs to help innovate traditional education and rejuvenate the education for the elderly.

2. Challenges in information education for the elderly

At present, a wave of information revolution is sweeping over the world, making the elderly marginalized inevitably. Information and knowledge have become the main wealth of the society and the main impetus of social development. The Internet, as the main medium of information dissemination, has been quietly integrated into all aspects of our life. In recent years, the rapid development of the mobile Internet has turned over a new leaf in the development of the Internet. While billions of people are enjoying the convenience and pleasure brought by the Internet, the elderly, a special group, are isolated from the Internet to varying degrees for various reasons.

At present, the Internet is undoubtedly a platform dominated by young people, with only a few old people knowing about or having access to it. However, the Internet is incomplete and imperfect without the elderly. With the advent of the information society, we see the elderly in urban communities are facing information and intelligent challenges in all

aspects, such as basic necessities of life, medical treatment, finance and acquisition of information. They are, in daily life, reflected as shopping on various e-commerce platforms, participating in group buying of communities, video chatting with relatives far away, paying for life, getting and using a health code, asking for a taxi on the online platform, making an online appointment for medical treatment, applying for a bank card, and so on. For young people, they are simple and convenient information and intelligent means; yet for the elderly, they are thresholds that the elderly have to, but are difficult to, cross. This urges the elderly to live and learn. In the society, the Internet and the information and intelligent means must be made more age-appropriate according to the characteristics and needs of the elderly, so that the elderly can adapt to these means in a way that they can receive, digest and use, and truly enjoy the life of the information society. In general, challenges that the elderly are confronted with in information education are shown in the following aspects.

(1) Reasons of the elderly, such as knowledge structure

Elderly people of this generation have relatively low education and learning and old knowledge structure, and are accustomed to receiving information through newspapers, radio, television and other channels. There is a wide gap between the economic structure and knowledge system, and the learning styles and information reception also differ significantly. Many elderly people, although they have information devices, seldom make full use of them. They do not like to try, and even reject, new devices; little information is involved in the learning and communication among the peer groups of the elderly, which also impedes their use of information devices to a certain extent. In addition, a series of irresistible physiological factors with age, such as the degeneration of somatic functions and inconveniences in the language and thinking, also bring challenges to the elderly in learning to use information devices.

(2) “Island architecture” of the information system

Application software and systems are all “data islands, application islands and hardware islands”; for each application system, entry of personal information, password setting, authentication and other operations should be repeated, data exchanges are not very friendly and many data need to be input manually, software functions overlap each other, and BUGs will be constantly upgraded and improved. All these are obstacles for the elderly to receive information.

(3) Huge digital divide in intergenerational differences

Intergenerational differences are an important form of digital divide. It can be seen from the acceptance, frequency of use and acquisition of knowledge of information technology that there is a huge gap between the elderly and the young.

As of March 2020, netizens over 60 accounted for 6.7% of the total in China, with a penetration rate of 23.7%, less than one third of that of young netizens (73.0%). Both the proportions of non-mobile Internet users and of mobile Internet users were significantly lower in the elderly that in the young. In China, one out of every two people surfs the Internet with mobile phone, but only one in five old people uses the mobile Internet.

The proportion of the elderly in the use of search engines, installation of APPs, use of Wechat and other aspects was significantly lower than that of the young. Among them, the proportion of the elderly using search engines was 4.4%, less than one sixth of non-elderly netizens (27.4%); the number of mobile APPs per old person was 37, only 44.0% of that (the number was 84 per person) for young netizens aged 20-29; the proportion of the elderly using Wechat was 26.2%, less than one third of non-elderly users (88.9%). These show that the elderly have a weakness in digital skills.

With the lack of digital information skills and the increasingly informatized society, the elderly are unable to obtain information-based services, and have less control over the IT-related life, thus suffering from new social exclusion and inequality. For example, the elderly are more vulnerable to online rumors and fraud; in the process of network politics, there are often few old people to express their opinions; the elderly find it more difficult to see doctors when many hospitals now require appointments through the software.

3. Opportunities in the development of information education for the elderly

We must be aware that the disconnection between the Internet and the elderly is both a challenge and an opportunity. On the one hand, the Internet construction for the elderly is an untapped market, and once properly developed, it may bring huge economic benefits to the society. On the other hand, the development of the market for the elderly brings Internet benefits to the elderly in need, so that they are no longer a watcher but a real participant in the Internet world, which makes their life convenient and colorful. Millions of old people thus benefit from this. The fact that the Internet serves the elderly may be a useful weapon for dealing with the “silver-haired wave”, and needs to be focused on in the society. The development of information education for the elderly will bring opportunities in the following aspects.

(1) The “silver-haired economy” under information technology can generate objective economic benefits

Just as the elderly’s shopping on various e-commerce platforms, participating in group buying of communities, asking for a taxi, travelling and so on mentioned above, information education, if it can increase the use rate of information products among the elderly, can increase the number of users and expand the coverage for the commercial market, thereby producing an objective “silver-haired economy” effect. Services such as medical health and elderly care can further deepen and increase the fields of intelligent services, thereby bringing objective economic benefits. Moreover, the number of new carriers of information devices held by the elderly will also be improved, such as the rapid spread of smart phones and iPads, thus bringing huge business opportunities.

(2) The information technology can expand the coverage of elderly education, save the education cost and improve the education benefits

At present, elderly education in China is different in urban and rural areas, and the cost for traditional school running is high. However, information technology can improve the coverage of elderly education and the elderly can receive education at home. The elderly can share, build and make full and reasonable use of teaching resources, and freely choose

learning time, thereby effectively solving the impact of traffic inconvenience; teaching interaction will be gradually networked, making the education more targeted, fully personalized and relatively relaxed, and the benefits will be correspondingly greater. Teachers more suitable for elderly education are also needed in the education industry, thus the cultivation of students with bachelor's degree or above in home economics, social work and so on should be strengthened, so as to constantly improve the education benefits from all aspects.

(3) The improvement of the pleasure of the elderly will bring better life experience and value

The elderly, who constantly improve the fun of learning through their own personalized and specialized learning, can satisfy their good wishes in personal life, social contact, interest development, medical health and other aspects, and constantly improve their quality of life. A mastery of some more intelligent knowledge, such as home monitoring security, intelligent alarm and medical services, facilities for the elderly, and old-appropriate intelligent operations, can safeguard life and bring better life experience and value to the elderly, ensuring that the elderly have opportunities to learn new things, enjoy themselves and properly care for others.

4. Strategies of information education for the elderly under the background of "Internet plus Education"

As mentioned above, the information society comes with the aging society. "Internet plus Education", as an important carrier to promote the elderly to adapt to the life of the information society, can improve the elderly's information level and ability to improve their quality of life and satisfaction in the following ways.

(1) It can promote the feedback and leading of the elderly's children relying on the Internet

Since the covid-19 pandemic, people's lives and travel have been restricted. How the elderly use health codes and travel codes to ensure their safe travel during the pandemic is the basic requirement of the present life, and also impels us to pay more attention to the popularization and application of Internet education platforms for the elderly.

Young people can provide support for the elderly in the information learning and application in their daily life and social contact with commonly used Internet platforms and social software. After buying smartphones for their parents, young people can download commonly used life and social software for the elderly and help them master the skills of using social software through real-time demonstration and daily interaction. For example, they can encourage the elderly to learn to use Wechat, payment apps, media software and so on. In addition, some Internet platforms have also launched information education courses for the elderly. Recently, the Dedao platform launched a public service video named *A knowledge gift of Dedao to our parents – how to use a smartphone*. This video course provides a good advocacy and introduces the application of smartphones. It advocates that in the smartphone era, young people can, together with the elderly, turn on their phones and download commonly used software. Parents will, through teaching and application in life, gradually accumulate many operation skills. Practical skills in this series of videos, such as how to bind a card in Wechat and Alipay, how to register, shop, order takeout, check a map, take a taxi, book train tickets, book a hotel with a mobile phone, how to take good photos, and how to make a mobile album, can be learned, played back and practiced constantly by simple mobile demonstration, and are an information education product that can be directly recommended by the young to the elderly, and young people can help the elderly to learn and practice mobile phones using the information courses.

(2) "Internet plus Education" needs to take into account the integration of online and offline learning methods

According to such requirements that "We should promote the integration of information technology into the whole process of education and teaching for the elderly, advance the integrated online and offline teaching, and support the elderly to learn online. We should provide learning support, such as guidance on learning and personalized learning recommendation, for the elderly using information technology" indicated in the main task in the *Development Plan for Elderly Education (2016-2020)*, we can effectively take advantage of new media technology, starting with elderly education and based on the physiological and psychological development characteristics and diversified learning needs of the elderly in the new era, so as to actively realize the online and offline integrated learning education model for the elderly.

Online learning can break through time and space limitations, and facilitate the learning of the elderly everywhere and all the time. However, online learning has high requirements for the elderly's comprehension and memory. Most of the elderly can hardly learn to use the Internet and intelligent products after a few online teaching sessions for fear of them, and need proper offline and even personnel teaching, and repeated application in real life scenes. Therefore, the combination of online and offline learning is an important factor of "Internet plus Education" to truly realize the education effect. Integration of online and offline learning is that according to the physical and mental characteristics of the elderly, by breaking through some limitations of the traditional education model and using new media (such as iPad video courseware, audio, video, Wechat on mobile phone, live class of computer QQ, and television), classroom teaching and online teaching are combined to establish O2O classroom teaching model.

Under the background of the rapid development of information technology, many development spaces and directions can be explored for the elderly education. As indicated by LIU Hua-sheng (2017), "bring your own device (BYOD)", as a new education information application mode, promotes the reform of "teaching and learning" mode in elderly education, and advocates use in learning and learning in use. It integrates the life and the classroom to make elderly education courses more open; it combines the virtual with the real to make the courses more vivid; it combines online learning with offline learning and the formal learning with informal learning to improve the information literacy and ability of the elderly.

(3) The lifelong education model of "Internet plus Education" requires good use of fragmented time

The mobile fragmented learning mode is an education mode that meets learners' diversified needs and personalized needs using new media technology in the era of mobile Internet big data and a mode of autonomous informal learning of learners using fragmented time, resources and media. The fragmented learning mode of the elderly in the lifelong education helps learners to memorize knowledge in a spiral and rhythmic way, which can improve the teaching effect in a better way. The elderly can independently choose relevant learning platforms and application software on the content they are interested in and skills they need, and learn them in a progressive way according to their own time and learning ability. This, in essence, is an autonomous systematic learning; the only thing is that it is a progressive process in which the elderly learn in a fragmented way. In this way, the elderly can make better use of their daily life time, and the learning difficulty can be reduced, so that they are more confident to learn and adapt to information and intelligent life.

(4) Building age-friendly communities can help achieve lifelong education

Communities are the basic unit in which the elderly live, and most of their life is spent in communities. The building of age-friendly communities can provide a realistic field for the realization of the elderly lifelong education mode of "Internet plus Education". Age-friendly communities can integrate education training resources by connecting such departments as education, civil affair and health care and such organs as industrial enterprises and social organizations, and carry out special training by inviting industrial experts or other methods; they can also recruit talents as part-time teachers or volunteers to actively mobilize social public service organizations, industrial experts and other subjects to participate in the intelligent technology application training for the elderly, provide education in communities, and organize application lectures, individual tutoring or other activities, so as to help the elderly effectively improve their ability to use intelligent technology.

(5) Internet enterprises and social institutions should take more social responsibilities and create products suitable for the elderly

Many Internet enterprises have launched interfaces suitable for the elderly on intelligent devices, which have larger fonts and simpler functions and support handwriting, speech-to-text conversion and other features. All these are very good attempts. Therefore, Internet enterprises can undertake more social responsibilities and create products suitable for the elderly. Similarly, social institutions (such as hospitals) should be progressive in promoting online appointment and other aspects, better publicize relevant knowledge and educate the elderly, and ensure the guidance in hospitals and reservation and appointment of special cases in hospitals.

Enterprises now also provide some personalized information services for the elderly. For example, Alipay officially opened the "Nuanyangyang Line" on February 9, 2021, and users above 65 could directly ask customer service staff about such problems as Alipay scanning, grocery shopping, mobile recharging, payment for electricity and water, and pension checking by calling 95188 without the need to dial any other number. In addition, to give the elderly better access to news information, Internet platforms can consider reducing the interference of advertising popups and bundling of plug-ins, and increase the friendliness to the elderly, thus increasing the attractiveness and stickiness of services for the elderly.

5. Conclusion

While further changing people's lifestyles, covid-19 pandemic has also intensified the digital divide, and many old people cannot order takeout, shop online or take online courses for lack of adaptability to and control over modern technology, affecting the comfort of their lives. Therefore, we need to make efforts to lift the elderly out of their digitally vulnerable status.

At the Fourth Plenary Session of the 19th Central Committee of the CPC, it was called for "building an educational system for lifelong learning" and accelerating the development of a more flexible education system oriented towards and suitable for everyone to build a learning society. This makes new requirements and tasks for the construction of the education system in the new era. The elderly receive Internet re-education to gain the ability to enjoy a better life. The *Development Plan for Elderly Education (2016-2020)* emphasizes that: "elderly education is an important part of China's education and old-age undertakings. Developing elderly education is a vital measure to actively respond to the aging of population, realize the modernization of education, and build a learning society, as well as an inevitable requirement to meet the elderly's diversified learning needs, improve their quality of life and promote social harmony."

It is an important way to improve the elderly's living standard by improving their information level through "Internet plus Education", making them feel integrated and accustomed and live a comfortable life under the background of smart cities. Thus, relevant research and construction should be continuously promoted. Let's work together to help the elderly out of digital dilemma and digital divide, promote age-appropriate technology, and realize human-oriented digital inclusion, so that the elderly can integrate into the modern intelligent society and share a better life in the age of intelligence.

References

[1] ZHANG Yan. On the Concept and Mode of "Internet Plus Education" [J]. China Higher Education Research, 2016, (02).

[2] CHEN Li. The Innovation Essence and Reforming Trend of "Internet + Education" [J]. Journal of Distance Education, 2016, (04).

[3] HU Le-le. Research on the Opportunities and Challenges of the Internet Plus Brings to China's Education[J]. Modern Educational Technology, 2015, (12).

[4] FANG Zhi-yu. Enhancing Information Technology Education for Aged Generation with Development of Smart City[J]. China Educational Technology, 2018, (02).

[5] GAO Zhi-min, ZHU Min, FU Lei, TAO Meng-zhu. The Construction of Learning Society and Lifelong Education System in China: Review and Re-exploration of Knowing and Doing[J]. Open Education Research, 2017, (04).
[6] FU Xiao-ping. Research on Development of Elderly Education from the Perspective of Information Technology[J]. China Adult Education, 2017, (01).
[7] LIU Hua-sheng. Application and Exploration of New Technology in Elderly Education – Application Analysis of "Bring Your Own Device" (BYOD) Teaching and Reform of "Teaching and Learning" [J]. Vocational & Technical Education Forum, 2017, (03).
[8] OUYANG Zhong-ming, YANG Ya-yu, GE Xiao-tong. Research on Development of University of Third Age from a Global Perspective[J]. Distance Education in China, 2018, (06).
[9] ZHANG Bo. Research on Construction of Distance Education Service-Oriented Education for the Aged based on Foreign Educational Informatization Experience[J]. China Adult Education, 2017, (03).