RESEARCH ON THE PATH OF HIGH-QUALITY CULTIVATION OF DIGITAL LITERACY FOR THE ELDERLY IN THE DIGITAL ERA——TAKING HAINING, ZHEJIANG AS AN EXAMPLE

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ABSTRACT

With the arrival of the digital era, how to resolve the contradiction between the digitization of life and the aging of society, and to help the high-quality cultivation of digital literacy of the elderly has become an imminent problem. Taking the elderly in Haining City as the research object, we found that the cultivation of digital literacy of the elderly in Haining City is facing a number of problems through investigation and research, and then on this basis, we propose that the government needs to give full play to its leading role and actively establish a lifelong education system; build a dual learning channel online and offline; open a specialization in education for the elderly in cooperation with the school and the local community; and the family and the society need to enhance the strength of the digital feedback to build a good atmosphere of learning for the elderly, etc. The paths are as follows. In order to provide practical suggestions for the high-quality cultivation of digital literacy of the elderly in Haining City.

KEYWORDS: digital age; older adults; digital literacy; cultivation paths

1. INTRODUCTION

At present, we are in the digital information era of the rapid development of the Internet, science and technology penetrate every aspect of our lives, how to make the elderly faster and better adapt to the digital life has become our focus of thinking. Since the 21st century, the degree of population aging in China has been growing rapidly. Haining City, the seventh population census resident population survey data show that the resident population of Haining City is about 1,076,000, about 203,700 elderly people over 60 years old, the aging rate has reached 18.93%, compared with the sixth census, the aging rate rose 3.01 percentage points during the ten-year period. This set of data shows that there is a huge contradiction and an insurmountable gap between the digitization of life and the ageing of society, which we need to make efforts to solve.

In the face of such a situation, as early as November 2020, the State Council issued the Implementation Plan on Effectively Resolving the Difficulties of the Elderly in the Use of Intelligent Technologies, which called for the continued promotion of the construction of an intelligent society that fully takes into account the needs of the elderly, and insisted on the parallelism of traditional service methods and intelligent service innovations, so as to effectively resolve the difficulties encountered by the elderly in the use of intelligent technologies. At present, China's digital literacy cultivation for the elderly suffers from unbalanced regional development and unbalanced urban-rural development [1]. Factors leading to difficulties in cultivating digital literacy among the elderly can be divided into individual and social factors. Individual factors: a large number of elderly people are deterred by the lack of smart devices, the lack of positive attitudes towards the use of smart applications, and the lack of the ability to flexibly utilize smart technologies.[2]; gender, age, and education level also have a significant impact on the use of computers, the Internet, and smartphones by the elderly. Gender, age and education level also have a significant impact on the use of computers, Internet and smartphones by the elderly, with education level playing a decisive role [3]. Social factors: Producers aiming at "maximizing profits", driven by the principle of the greatest common denominator, selectively ignore the needs of the elderly and produce products that are not suitable for the elderly, which is a great obstacle for the elderly to cross the digital divide [4] .

At present, many scholars have put forward many constructive suggestions for cultivating the digital literacy of the elderly, and some scholars have analyzed the possibility of improving the digital literacy of the elderly from four levels: individual, community [5], family and government [6]. Individual level: It is suggested that the elderly should take a more positive attitude towards their future life, "live to learn"[7]; the elderly need to overcome the old-fashioned thinking, update their concepts, take the initiative to understand and learn the skills of using the Internet and related smart products, try to follow the times within their learning ability, overcome the fear of the Internet, and don't be afraid to learn. Overcome the fear of the Internet and don't be afraid to learn[8] . Community level: Take the community as the base, build a mechanism for community cultivation and implementation of digital literacy and skills for the elderly, and link community health service centers, street offices, property centers, home care service centers and other parties to carry out publicity, counseling, training, and education on digital literacy and skills for the elderly, which is conducive to expanding the supply of digital cultivation for the elderly [9]. At the family level: create a social atmosphere of family support at the value level, and give full play to the effects of intergenerational feedback and "integration of the young and the old", so as to prevent the tendency of digital marginalization of the elderly [10]. Government level: The government should continuously innovate the concept of governance of the digital divide, clarify the responsibilities and rights of multiple subjects, and provide the necessary policy support and institutional guarantee for eliminating the digital divide in the elderly through the improvement of relevant laws, regulations and supervision, as well as the construction of information technology education system [11] . There is also a contradiction between the digitalization of life and the aging of society in foreign countries, and all countries are actively exploring solutions, and many scholars use theoretical research to be

inspired by foreign measures and put forward valuable suggestions for improving the digital literacy of the elderly in China. Li Baomin[12] et al. found that few researchers have paid attention to the construction of a digital literacy framework for the elderly, so they studied in detail the basic digital literacy assessment framework for the elderly in New Zealand, from which they gained inspiration for constructing a digital literacy framework for the elderly in China. Liu Xiaojuan and Xie Ruiting[13] investigated the digital literacy programs for the elderly in European countries in recent years in terms of training contents and forms, and summarized the useful insights in light of their own national conditions.

In summary, most scholars have made a great deal of achievements in discussing in depth the current situation and dilemmas of cultivating digital literacy in the elderly as well as analyzing measures to cultivate high-quality digital literacy in the elderly from multiple perspectives. However, in general the existing literature on the cultivation of digital literacy of the elderly has the following shortcomings. First, the existing literature pays more attention to the impact of the elderly's own deficiencies on the development of their digital literacy, focusing on analyzing the causes of the elderly's low literacy level, physical decline, psychological rejection, etc., and less on the impact of policies and society on the development of digital literacy in the elderly. Secondly, most of the research on countermeasures and suggestions for the cultivation of digital literacy among the elderly starts from a national perspective, with few targeted suggestions based on the characteristics of the municipal area. Based on this, this paper will improve the shortcomings, start from the real difficulties in the cultivation of digital literacy of the elderly in Haining City, improve the system of cultivating digital literacy of the elderly in Haining City, and establish an effective cultivation path.

II. Dilemmas in the development of digital literacy among the elderly in Haining City
(i) Lack of learning opportunities in educational institutions

At present, there is only one senior university in Haining City, as of February 2017, the school opened a total of calligraphy, brush painting, ancient languages, English, computers, singing, Yueju Opera, flowers, photography, cooking, Chinese medicine, gerontological psychology, fitness gymnastics, taijiquan sword and other 70 classes, the actual number of students is only 2,696 people. From this, we can see that the courses offered by the school are mostly about cultivating the body and mind, leisure and entertainment, and only photography and computers are related to digital information technology. Moreover, the use of cell phones is closely related to our life, but there is no course for learning how to use a cell phone in the Haining University for the Elderly. There are 203,700 senior citizens in Haining City, but there are only 2,000 students in the University for the Elderly, which means that the majority of senior citizens do not have the opportunity to enter the University for the Elderly to cultivate their digital literacy. Although in 2022, Haining City Chang'an Town set up the first town-level senior school, teaching time is divided into summer and fall, a period of two months, teaching courses are also the same as the university for the elderly, there is no course involved in the use of smart devices, but only to let the elderly sing, dance, make friends to pass the time, undeniably this is a very successful mode of old age, but can not allow the elderly to keep up with the pace of

the digital era to cultivate their digital literacy. It is undeniable that this is a very successful model for the elderly, but it does not allow them to keep up with the pace of the digital age and develop their digital literacy.

(ii) Low literacy level of the elderly and the presence of single empty nesters
However, more than 200,000 elderly people in Haining City, of which there are more than 6,000 are living alone in the empty nest elderly, no computer at home, the use of the elderly may also be a cell phone or even no cell phone, and do not know how to use the smart device of the young people around them almost lost the opportunity to contact and use the smart device. Even if they are willing to learn how to use them, it is very difficult for them to do so on their own. As they get older, their memory, comprehension, hearing and other bodily functions are gradually declining, which makes it difficult and intimidating for them to learn new skills. Most of the elderly people over 60 years old live in a time when schooling was not a common thing because of limited living conditions and the lack of learning resources in the country, and many of them may only have an elementary school diploma or even be illiterate, and there are a lot of words in the operation of smart devices, so it is difficult for them to understand the functions of the devices if they don't know the words and thus can't master the methods of using them. As a result, they will easily reject the smart devices and will not be willing to learn how to use them. Low literacy levels are a difficult hurdle to overcome in the process of cultivating digital literacy among the elderly.

(iii) Limited leadership policy guidance
In the past two years, the Haining Municipal Government has attached great importance to caring for the elderly, and has released a number of policies to improve the quality of life of the elderly, among which they have focused on how to build a better senior care system, and rarely released policies on how to integrate the elderly into the Internet life in a better and faster way. In November 2022, Haining Municipal Government published the "Special Plan for the Layout of Elderly Service Facilities in Haining City (2021-2035)", which plans to expand the scale of elderly care institutions and increase the number of community-based elderly care facilities, so as to build up a social elderly care system based on the home, supported by the community, and supplemented by the institutions; and in February 2023, it published the "Fourteenth Five-Year Plan" for the Development of the Elderly in Haining City. The "14th Five-Year Plan" was published in February 2023, pointing out that by improving the social security system, the elderly service system can be optimized to provide the elderly with a higher quality of life in their twilight years. On the contrary, the government has few policies to improve the digital literacy of the elderly. In the process of cultivating the digital literacy of the elderly, the government should not be absent, it should provide strong policy support, strengthen social education, popularize the knowledge of network civilization, and improve the digital literacy of the elderly. Society is progressing, but we must not leave the elderly behind.

III. Paths for Cultivating Digital Literacy among the Elderly in Haining City

The digital literacy cultivation of the elderly in Haining City has multiple problems, including the low cultural level of the elderly, the lack of acceptance of new things, the complexity of the use of digital devices, the lack of social resources for elderly education, and the lack of leadership policy guidance. For this reason, this paper proposes the following four cultivation paths to provide reference opinions for the cultivation of digital literacy among the elderly in Haining City.

(i) Give full play to the leading role of the Government and actively establish a lifelong education system

A lifelong education system should be established to ensure the right of the elderly to education.2021 In November 2021, the CPC Central Committee and the State Council issued the Opinions on Strengthening the Work on Ageing in the New Era, which for the first time in a central document explicitly included education for the elderly in the lifelong education system. The Municipal Ministry of Education leads the study and formulation of policies and action plans for the development of gerontological education, in order to promote gerontological education in schools with the necessary conditions, and to support social forces in opening gerontological universities, among other measures, with a view to expanding the supply of gerontological education resources. Elderly education is regarded as the last stage of lifelong education, and Haining City can draw on Fujian Province, Shanghai and Ningbo City to set up local lifelong legislative regulations to ensure that older persons enjoy the right to lifelong education, and that older persons' access to education is an effective means of high-quality development of their digital literacy.

Digital literacy training in universities and community schools for the elderly is an activity that consumes a great deal of human, material and financial resources, but the limited nature of social resources and the public welfare nature of education for the elderly make it difficult for education for the elderly to be carried out effectively without the initiative of social resources, so it is necessary for the Government to support the development of education for the elderly in terms of both monetary and financial policies. Monetary policy, the government can annually allocate a certain amount of education funds to senior universities and community schools to carry out the cultivation of digital literacy of the elderly and community libraries, reading corners of the daily operation; rely only on the financial support of the government, senior education is difficult to sustain effective and vigorous development, the power of the community is not to be underestimated, so fiscal policy, the government can issue fiscal policy, for example: to give the elderly education Donation of equipment, funds to the enterprise tax exemption preferential policies. In this way, the government can encourage and guide the society to take the corresponding responsibility to provide equipment and financial support for the education of the elderly.

(ii) Building dual online and offline learning channels

Haining City, as a county-level city, has only one University for the Elderly, which covers only a few thousand students, completely unable to meet the learning needs of more than 200,000 elderly people, and for this reason, the school can be opened to the doorsteps of the elderly, and the establishment of

the "township (street)-village (community)" two-tier linkage mechanism. Haining City University of the Elderly and community cooperation, the city University of the Elderly to provide school experience, school-based teaching materials to help the community to open schools for the elderly, townships, community service centers for party members and senior activity centers to provide space to create a "ten-minute walking learning circle. The township and community schools are first divided into three categories of classes according to the level of mastery of smart devices by the elderly: basic application, intermediate application, and advanced enhancement, and the difficulty of the courses taught in each class varies according to the different needs of the elderly at different levels, which is conducive to meeting the diversified needs of the elderly with different digital literacies through this kind of hierarchical teaching. Haining City can also develop "Internet + Elderly Education", through the research and development of their own set of courses, resource sharing, communication and interaction, level of study, learning card, etc., multi-functional integration of online elderly education platform, the platform needs to be realized in a short period of time, a number of elderly education, digital courses on-line. Elderly people register their accounts on the platform, teachers upload teaching videos of different smart devices on the platform and also conduct live teaching; elderly people learn from the videos every day and complete the subsequent assignments of the courses; elderly people can communicate with each other as well as with the teachers online, answer questions and solve puzzles; at the same time, the platform releases the level examination test every month to check the learning effect of elderly people in the past month, and sets different levels for elderly people according to their scores. Based on the results of the test, different levels of competence are set for the elderly. The higher the level, the more difficult courses can be unlocked. At the same time in the platform to open a learning result display column, the elderly can upload their own recording, editing video and shooting, ps photos and other results for a learning punch card.

In order to better create a digital learning environment and atmosphere for the elderly, libraries and reading corners can be opened in communities with the necessary conditions, and digital education columns for the elderly can be set up for the elderly to learn knowledge at their doorsteps. Community libraries and reading corners can offer lectures on digital education for the elderly from time to time, and invite experts in digital education for the elderly to give them professional guidance.

In order to strengthen and motivate the enthusiasm of the elderly for learning, townships and communities can hold regular digital skills competitions for the elderly and set up corresponding prizes for the competitions. First, each township and community will hold a preliminary contest, in which the elderly will register through the Internet and then take part in an online hourly question-and-answer session; each township and community will select the top 10 to enter the final contest, which will be held on-site to simulate the operation of the question-and-answer session, and the final contest will be ranked according to the degree of standardization of the operation of the elderly as well as the length of time spent on the operation, with a number of prizes set for the first, second, and third places. After the competition, the winners can be invited to share their learning methods with

older persons who are weak in their learning ability, so as to help each other and make progress together.

(iii) Cooperation between schools and localities in the establishment of a specialization in gerontological education

With the aging of society, the rights and interests of the elderly are receiving more and more attention, and the State has also strengthened its efforts to take care of the elderly. In response to the needs of the elderly, many colleges and universities have opened geriatric service majors, aiming to cultivate talents with the concept of geriatric service and professional skills to serve the elderly as their own responsibility, and to provide more thoughtful services for the health, old age and care of the elderly. At the same time, in order to improve the digital literacy of the elderly and keep up with the pace of the times, colleges and universities can also open gerontological education majors and courses similar to primary education and preschool education, and colleges and universities should strengthen the construction of disciplines and specialties and personnel training, and prepare gerontological education-related teaching materials. Colleges and universities should strengthen the construction of academic specialties and personnel training, and prepare teaching materials related to geriatric education. By strengthening the professional learning and training of students, colleges and universities can send young teachers with excellent professional knowledge and firm concepts of geriatric education to universities for the elderly and community schools for the elderly. In view of the current situation that the curricula of the universities for the elderly are biased towards entertainment and old age, the universities for the elderly can increase the number of new types of courses: cell phone applications, new media equipment, science and technology education, and other courses with modern digital technology. Colleges and universities can send teachers with specialized knowledge in this area to give classes to the elderly in senior universities and community schools, but this can only help for a short period of time, so in order to have a long-term effect, colleges and universities can set up a free training course, and townships and communities can select a number of teachers of gerontological education according to the number of places allocated to them to carry out specialized training and learning.

The low literacy level of the elderly is a fundamental obstacle to the development of digital literacy among the elderly, so it is not enough to teach the elderly how to use smart devices, but should also improve the literacy level of the elderly at the same time. It is understood that a total of four university campuses are located in Haining City, for the elderly living alone and empty-nested without young family members around to help use smart devices, you can make full use of the resources of the nearest university students, by the townships and communities to establish contact with the university, townships and communities to provide the need for volunteer services to the list of older people as well as the basic conditions of the University of the formation of volunteers pairing team to arrange for students to come to the community every weekend to teach the elderly basic cultural courses such as language, mathematics, etc., as well as hand skills. The university sets up volunteer teams and arranges for students to come to the community every weekend to teach the elderly basic

cultural courses such as language and math, as well as teaching them how to use cell phones and download and use APPs. The first step is to make the illiterate elderly recognize some simple words and understand the text expressions on the smart devices through the cultural courses, based on which they can easily understand the functions of the devices and how to use them when the university students guide them to use the devices, so as to improve their digital literacy.

(iv) Enhancing family and social digital feedback and building a favorable digital learning atmosphere for the elderly

Digital life has been an unchangeable trend, and while we enjoy the convenience that technology brings to our lives, the elderly are excluded from the mainstream. As the aborigines of Internet life, the post-90s and post-00s, their acceptance of new things and their ability to learn and use new technologies are stronger than that of the elderly, and they have higher digital literacy and the ability to feed the reality of the digital. As the relatives of the elderly, they have the ability and obligation to provide digital feedback to the elderly, and because the elderly are more willing to trust and rely on the people around them, it is more convenient and effective for their children and grandchildren to cultivate their digital literacy on a one-to-one basis. Digital feedback from the family can not only cultivate the digital literacy of the elderly, but also make the family harmonious. In reality, there is a digital generation gap between the younger generation and the older generation, they stay together without any topic to talk about, the younger generation lowered their heads to play with their cell phones, the older generation looked at them to say something, they can't find a topic of common interest between each other, letting such a status quo not be cared for will only make the two generations more and more distant from each other, and also prone to family conflicts, help the elderly to keep pace with the pace of the times and digital feedback to them. Helping the elderly to keep up with the pace of the times and feeding them digitally can not only bring them closer to each other and bridge the digital divide, but also maintain and enhance family relationships and strengthen positive interactions within the family, thus improving the happiness index of the family. Family members should always remind the elderly to pay attention to network security while teaching them how to use smart devices, not to be scammed on the Internet, and to reflect to their families for help when they meet uncertain things and people on the Internet. The unfamiliarity of the elderly with the Internet as well as their own cognitive decline have led to the vulnerability of the elderly to being scammed.

Digital feedback within the family is an important channel for narrowing the digital divide, and plays the most basic, direct and effective role in upgrading the digital skills of the elderly[14] , but at the same time, it cannot lack the digital feedback of the society, which is wider in scope and greater in intensity. Municipalities can place guides or short videos on the use of smart devices on billboards on bus and subway platforms, so that older people can look up and see them and learn while waiting for the bus. At the same time, municipalities can produce and print manuals for the use of smart devices and distribute them to the elderly, so that when they find difficulty in using the devices, they can take out the manuals and follow the steps in the manuals, which are physically easy for them to

keep and learn. The digital feedback of the society can be spread in every aspect of the life of the elderly, so that they are always understanding and learning how to use the smart devices, so that the information is silently engraved in their minds.

V. CONCLUSION

In the ever-changing digital era, people's lifestyles and social ways have undergone radical changes, the popularization of the Internet has greatly improved people's life efficiency and convenience, but the Internet has rejected the elderly, so to help the elderly cultivate high-quality digital literacy so that they can better adapt to the digital life is a matter of great urgency. This paper combines the real difficulties in cultivating digital literacy of the elderly in Haining City and the factors affecting the cultivation of digital literacy of the elderly, and puts forward countermeasures and suggestions to solve the difficulties in cultivating digital literacy of the elderly from the five perspectives of the government, the community, the university, the family and the society, so as to effectively solve the difficulties of the elderly's low literacy, the lack of education for the elderly, and the lack of policy support. At present, the cultivation of digital literacy for the elderly in Haining City is still in the initial stage, and new situations and problems will be encountered in the process of real implementation, and the cultivation of high-quality digital literacy for the elderly is a long way to go. Digital literacy is a relatively abstract thing, so there is a need to have certain indicators to assess, this paper will follow up to actively explore how to better build the evaluation system of digital literacy of the elderly.

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