

# **Multi-module Digital Service Training Platform and Its Implementation Path Constructed by University Focusing on the Home Care --- Take the College of Humanities and Sciences of Northeast Normal University as an example**

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**Abstract:** In the context of an era of the healthy Chinese and the aging populations, this paper takes home care as the core, and aims to improve the life quality of the home care for the elderly. It attempts to meet the needs of the personalized and diversified life of the elderly by using Internet + thinking. Taking the university as an example, research the feasibility methods and implementation paths of constructing a multi-module digital service training platform that matches the needs of home care services, providing a reference for social service teams, and providing support for government's decision-making.

With the gradual aging of the population, the demand of the elderly continues to increase, and higher requirements are placed on social home care services. Smart home care is a hotly debated topic in the academic and industrial fields. Starting from social needs and combining their own advantageous resources, the multi-module digital service training platform focusing on home care the university constructed is of great significance to the orderly development of the health of the industry.

## **1. The Necessity of Constructing a Multi-module Digital Service Training Platform Focusing on Home Care**

### **1.1 The arrival of aging society**

2019 is the 20th year that China has entered the aging society. At present, China's elderly population has three major characteristics: aging, high in age, and less accompanied. According to statistics, in 2018, China's population aged 60 years and over increased from 131 million in 1999 to 249 million, and the ageing people have reached 17.9% of the whole population <sup>[1]</sup>. Among them, there are nearly 100 million elderly people living with bare accompany and alone. The needs for the elderly are increasing, and the issue of home care is getting more and more attention.

### **1.2 Home care model is more suitable for China's national conditions**

In China, home care, family care, and institution care are the three current modes of care in China <sup>[2]</sup>. The home care model is a family-centered care model that relies on the community and digital services to provide services for the elderly living at home. The main services include housekeeping services, health care, and daily care. Home care is actually a care method that is between family care and institution care and combines the advantages and strengths of them. In an

environment where the family's ability to provide for the elderly is inadequate and the room of institutional care for the elderly is in short supply, the advantages of the home care model are obvious, which is of great significance to China's care for the elderly. The first is that home care for the elderly is suitable for China's actual situation: "being rich before getting old". The cost of home care services is low, and it is suitable for the affordability of most elderly people. The second is the distinctive characteristics of home care: providing professional services with public welfare and quasi-public welfare characteristics. Third, the advantages of home care for the elderly are obvious: Chinese people's opinion of home care tends to care the elderly at home. Home care services are also widely accepted as a mode of care for the elderly due to their small investment and high social benefits.

### **1.3 The obvious heterogeneity of the needs of the elderly calls for the effective use of digital services urgently**

Although the prospect of home care for the elderly is promising, there are still many problems in our country. First, the effective need for providing service items is insufficient, which is impossible to provide a variety of service options based on the heterogeneity of the elderly group. The elderly is a relatively heterogeneous group. Their needs are complex and diverse. In a mature service supply market, the elderly can choose the services they need according to their own conditions. Restrictions on funds, policies, public facilities, and service personnel are mainly government-led, with the typical inertia of the government when providing services, single service content, traditional service forms. Entertainment programs and health services suitable for the elderly are very scarce, and to some extent, it will cause misalignment between service and need, supply and utilization. Second, the development of home care service industry is relatively lagging behind, and there is no professional home care service team<sup>[3]</sup>. The comprehensive development of services and the improvement of service quality cannot be guaranteed. Third, the integration of home care services is not strong enough, is not targeted, and lacks a unified service platform. The home care service involves a wide range of departments and services, and the heterogeneity of the needs of the elderly is obvious, and the effective use of the Internet + and big data is urgently needed.

## **2. Construction of a Multi-module Digital Service Training Platform Focusing on Home Care**

Give full play to the role of digital service training platform in improving the quality and efficiency of the caring industry, promote the use of existing medical, health, caring, financial and other resources to improve the utilizing efficiency, and provide multi-level home care services for healthy pensions.

### **2.1 Main contents of multi-module digital service training platform**

Combined with the current digital service needs for home care in China, with the concept of "medical and nursing, protection and nursing, management and nursing, care and nursing", we will build 11 modules of "medical", "service", and "care" to realize the path selection, quality monitoring and management support.

#### **2.1.1. Building a digital service training platform module**

The medical module includes medical and sanity, rehabilitation training, physical examination care, psychological comfort, special group care services, and elderly health care; the service module includes day care, financial support, life care, household service, legal aid; the care module includes:

leisure and entertainment, reintegration.

### **2.1.2. Construction the content of digital service training platform**

Build 9 platforms. Monitoring management system and operation platform by using service quality that takes Internet + and mobile APP as the terminals; providing elderly food service platforms such as fixed-time meals and home delivery; providing medical and health services by electronic data management platform, which serves physical examination, medical treatment, nursing, rehabilitation, hospice care for elderly; providing family and community care service platforms for dementia or disabled elders; providing household services such as home cleaning, bathing, assisted travel, and deputy payer; providing a service platform for the elderly at home to provide psychological comfort; providing a service platform for day-time care and short-term care for the elderly; providing a health and care service platform for the elderly at home and in the community to carry out cultural and entertainment, tourism and leisure activities; providing a platform for health and wellness, promoting traditional Chinese medicine acupuncture, physical fitness, massage, exercise therapy, shadowboxing, etc.; providing a civil legal aid service platform for the elderly at home; providing social insurance and investment and financial services for the elderly at home.

### **2.1.3. Develop multi-module digital service training platform operation software**

Use big data technology to create an "elderly-at-home care smart management platform" to provide a big data foundation for home care service platforms; to provide alternative paths for home care services for the community; and to provide management support for home care services teams.

### **2.1.4. Form a service team that matches the module**

Relying on the nursing, preschool education, rehabilitation therapy, health service and management, Chinese medicine, Chinese medicine, business management, computer science and technology and other disciplines in university, through the cross-disciplinary integration of disciplines, high-quality professionals are cultivated required by the module. Starting from the service module of the digital service training platform, a service team matching the module is established.

### **2.1.5. Establish module service standards and specifications**

Based on the academic highlands occupied by universities in health services and management, assisted by the mechanism, bases and capital of enterprises, formulate module service standards and service specifications, clarify the specific implementation details of modules, and improve the level of health service and management of service teams as well as regulate the orderly behavior of the health service and management industry.

## **2.2. Framework design of multi-module digital service training platform**

Through the construction of a standardized platform, life-cycle care is achieved to connect everything for the elderly. A vivid explanation of the "elderly care at home intelligent management platform" is like a professional housekeeper, starting from satisfying home care services, through the data center of home care services, using cloud architecture to integrate home care services resources, and using big data technology to provide the elderly customized home care services, which including pension platform + housekeeping, home care platform + catering, home care platform + tourism, home care platform + health, pension platform + wealth management, etc. And by constructing a standardized platform and creating a professional service team, the multi-module

elderly care service is connected to the actual needs of the elderly, to meet the actual needs of the elderly, and to serve the elderly attentively.

### **3. The Realization Path of Constructing a Multi-module Digital Service Training platform Focusing on Home Care**

Give full play to the supporting role of universities in the training of academic research talents and human resources on multi-module digital service training platforms, promote the optimal allocation of existing resources, and provide diversified home care services for healthy pensions.

#### **3.1 National policy supports and urgently needs to construct a feasible operation platform for home care**

At present, Japan and South Korea and other developed countries have already carried out the practice and application of smart home care, and the good operating results have demonstrated the feasibility of using the Internet + thinking and big data technology to support the home care service model <sup>[4]</sup>. Looking at the current research results, scholars fully affirm that home care is suitable for China's national conditions and is generally accepted by the elderly. China has also introduced various home care policies to vigorously develop home care services and continuously improve the social home care system. It is worth noting that the existing research has put the research perspective of home care service platform construction under the background of "Internet +", and put forward the construction and research ideas of "Internet + community home care mode". The approval and preliminary demonstration of the smart home care public service platform based on information technology. It is clear that the Internet thinking and big data technology can fully meet the informatization needs of home care for the elderly.

#### **3.2 Utilizing the advantages of academic resources in universities to build module service standards and service specifications**

Based on the academic highlands occupied by universities, formulate modular service standards and service specifications, and regulate the orderly behavior of the health service and management industry. The author's school has participated in the formulation of the "Standards for the Construction of Teaching Bases for the Elderly Care" in the Nursing and Care Branch of the Chinese Society of Gerontology and Geriatrics, and is building the first batch of national elder care teaching bases. 15 provincial key projects are approved, such as "Research on Jilin Province's Care Service System and Mechanism", "Study on Jilin Provincial Government's Purchase of Care Services Guided the Construction of Social Organizations", "Multidimensional Evaluation of the Health Function of the Elderly in Jilin Province," "Nursing and Caring Talent Training Base Construction and application in Jilin Province" "Research on Nursing Student's Continuous Family Nursing Services for the Elderly in the Community". Also, it became the Committee school of the 1st Health Service and Management Teaching Material Evaluation Committee in National Higher Education Institutions, and the first chief editor to compile the first round of textbooks of the National Higher Education Health Service and Management major, that is, "Community Health Service and Management" and "Healthy Enterprise Management". It published "Modern Elderly Care Technology", "Health and Care", "Elderly Life Care", "Health Management", "Research on the Elderly Well-being in China", "Research on the Elderly Service Model in Jilin Province", "Construction of China's Social Elderly Care Service System under the Background of Population Aging", "New Theory on Social Security and Social Welfare" etc. more than 10 textbooks, which has sufficient ability to construct module service standards and service specifications.

### **3.3 Constructing a module service team relying on the advantages of human resources in universities**

The construction of a multi-module digital service training platform focusing on home care for the elderly, which has requirements on the quality and quantity of professional service personnel, and can rely on the human resources advantage of universities to form and train modular service teams. The university where the author is working has 12 grassroots departments and 464 undergraduate majors, covering 9 disciplines including economics, management, literature, law, education, arts, science, engineering, and medicine, and also has a special department of Welfare, covering the College of Social Welfare, the College of Health and Welfare, the College of Child Welfare, the College of Welfare Technologists of Jilin Province, the Welfare Training Center, the Northeast Welfare Institute, the Smart Care Institute, the China-Japan Welfare Comparative Institute, and the Health Welfare R & D center, the editorial department of the "Welfare Journal" and other 10 departments. There are more than 10,000 undergraduates and graduate students in joint training. In 2010, taking "the elderly's social welfare" as the main line, the college took the lead in establishing the undergraduate major in social work (elderly welfare) in China, and has now established the undergraduate education for the elderly's social work, the study of the elderly's social problems, the development of the elderly caring industry, and the construction of the elderly demonstration base and the vocational qualification education for care services " as a whole, which has sufficient ability and human resources to undertake the construction and training of multi-module professional service teams.

### **3.4 Use the technical advantages of universities to construct smart home care platform management software**

The R&D and compilation of management software for the elderly smart home care platform through inter-school and school-enterprise cooperation. Universities have a good foundation for scientific research cooperation among universities and enterprises for technical and practical cooperation. They can make full use of cooperative resources to construct a smart home care platform for the elderly. Based on artificial intelligence and big data technologies as knowledge maps, machine learning and the others, the multi-source heterogeneous big data is disambiguated, cleaned and integrated to construct a high-quality entity database, and deep learning models are used for classification and prediction to support the medical services, service module, nursing module and caring module of personalized customization. Based on the technology platform's ability to provide data fusion, analysis and mining, and accurate service capabilities, it will organically combine home care service companies, the elderly and the information and communication network to provide comprehensive, intelligent, and customized home care services for the elderly and to provide the industry with precise, large-scale and integrated service capabilities.

### **3.5 Measurement on the basis of provincial home care centers**

In order to ensure the orderly operation of the platform, the platform can be copied and practically applied in communities and provincial home care centers to fully apply the project at the base. Studies by using randomized, blinding, multi-center, large sample measurements are compared. Use statistical methods to analyze the data and finally draw conclusions. Use of big data technology to create "wisdom of home care" can provide a big data foundation for home care service platforms; provide alternative paths for home care services in the community; and provide management support for home care service teams. The university in which the author is working led

the establishment of the "Welfare Study Center of Jilin Province" in 2012, which has been approved as the Social Welfare Research Base of Jilin Province, Innovative Experimental Reign for Service and Management Talent Training for Elderly of Education Department in Jilin Province, Social Research Center for the Elderly in Jilin Province, Jilin Provincial Students' Off-School Social Welfare Education Practice Base, Expert Think Tank of Jilin Provincial Home Care Industry, Jilin Provincial Health and Welfare Education Research Base and other provincial teaching and research platforms. In 2017, the "Jilin Provincial Home Care Industry Consulting and Planning Center" was jointly established with the Jilin Provincial Home Care Industry Federation. In 2018, the Jilin Provincial Department of Civil Affairs signed a framework cooperation agreement to deepen the cooperation between government and schools, which made the college has sufficient strength and cooperation resources to carry out actual testing.

In the context of the Internet +, universities build a multi-module digital service training platform focusing on home care, which not only meets the needs of the society, but also makes full use of the school's educational resources. The research on the construction of a multi-module digital home care model has given new meanings to home care. Based on the physiological needs, it has increased the attentions on psychological needs, and put forward the concepts of "caring service" and "reintegration." The care of the elderly at home throughout the life span improves the quality of life of the elderly and really implement home care for the elderly, reduce costs, and improve applicability and service efficiency.

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