
Original Research Article

Research on the strategy of AI voice assistant supporting rural grandparents'Co education

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Abstract: This study focuses on how to optimize the co parenting support strategies of rural grandparents through AI voice assistants, in order to address the challenges of low information literacy and lagging educational concepts in intergenerational education of left behind children in rural areas. The study identified the core needs of rural grandparents and designed the core functions of AI voice assistants accordingly. The results showed that AI voice assistants significantly improved the parenting efficacy and parent-child interaction frequency of grandparents, effectively compensating for their shortcomings in scientific knowledge answering. The study proposes innovative strategies such as dynamic feedback adjustment and optimization of teacher monitoring, and provides practical suggestions for policy formulation and the training of normal university students, aiming to promote educational equity and sustainable development.

Keywords: AI voice assistant; rural grandparents; intergenerational upbringing; home school co education; left-behind children

1. Introduction

With the continuous acceleration of urbanization in China, a large number of rural laborers have transferred to cities, and the number of left behind children in rural areas is also increasing. Ancestral generations have become the most important caregivers for left behind children in rural areas. According to data, approximately 67.3% of left behind children are independently raised by their grandparents, but the education level of these grandparents is generally low, with 52% having only received primary education. This indicates that traditional educational concepts have deeply penetrated people's hearts and encountered many difficulties in responding to children's knowledge needs and emotional interactions during their growth process. The traditional rural home school co education model is limited by poor transportation and digital divide, making it difficult to effectively play its role. In this situation, AI voice assistants have brought a new possibility to solve the education dilemma of rural families with their characteristics of low cost, dialect adaptation, and real-time interaction.

2. AI voice assistant supports the value of co education among rural grandparents and parents

Due to the lack of educational resources and limited channels for information dissemination in rural areas, grandparents often have significant deficiencies in parenting knowledge and educational concepts. The birth of AI voice assistants provides an efficient method to address these shortcomings. AI voice assistants have rich knowledge reserves and involve various aspects of children's growth process, such as scientific feeding, early education, and common disease prevention. Grandparents can quickly obtain relevant knowledge and opinions by asking questions through voice commands. For example, when facing the problem of picky eating among children, grandparents can consult with AI voice assistants and provide various solutions, such as adjusting the diet structure and increasing the fun of eating. In this way, grandparents can learn scientific parenting methods in a timely manner, so as to avoid adverse effects on their children's development due to traditional concepts or lack of experience. AI voice assistants can update knowledge in a timely manner and keep up with the times. With the deepening of research in the field of children's education and health, various new research results and concepts emerge one after another. AI voice assistants can collect this data in real-time and transmit it to grandparents.

For example, regarding the importance of children's mental health and how to provide psychological counseling, grandparents can use AI voice assistants to understand and better pay attention to their children's mental health. By filling in the knowledge gaps of grandparents, AI voice assistants can help improve the quality of rural child rearing and lay a solid foundation for children's healthy growth. It enables rural children to also enjoy scientific parenting resources similar to urban children, and reduces the urban-rural parenting gap.

3. AI voice assistant supports the strategy of rural grandparents' joint education

3.1. Create a voice content library with agricultural characteristics

In order to truly provide support for rural grandparents' co education with AI voice assistants, creating a voice content database with suitable agricultural characteristics has become the foundation and key link. Rural areas have unique educational environments, cultural backgrounds, and lifestyles, so the database content needs to be closely integrated with rural reality. In terms of parenting knowledge, it should include feeding methods that are suitable for rural living conditions. For example, the method of using common natural ingredients from rural areas to make nutritional supplements for children, such as using self grown corn and sweet potatoes to make healthy food, should be emphasized in the prevention and treatment of common diseases in rural areas, such as diseases caused by mosquito bites in summer and colds caused by improper warmth in winter. At the same time, combined with rural agricultural activities, suggestions are provided for children to participate in moderation while ensuring their safety, developing their hands-on and natural perception abilities. Rural cultural elements can be incorporated into educational resources, such as collecting rural folk stories and nursery rhymes, so that children can be influenced in a familiar cultural atmosphere. For example, the stories about diligence, kindness, and other qualities that are passed down in rural areas inherit the fine traditions of the countryside. In addition, this article also provides learning methods and counseling materials that are suitable for rural children based on the current situation of rural education, which is beneficial for parents to provide more in-depth learning counseling for their children. When building a database, attention should be paid to content updates and maintenance. With the development of the times and changes in rural conditions, new knowledge and materials should be added in a timely manner. At the same time, the existing content has been reviewed and screened to ensure its accuracy and practicality. By creating a voice content database with agricultural characteristics, AI voice assistants can become a tangible tool in the process of co education among rural grandparents and parents.

3.2. Building a multi-channel promotion and popularization system

Establishing a multi-channel promotion and popularization system is crucial for the widespread application of AI voice assistants in rural areas. Rural areas are vast in territory and have a large population, making it difficult to achieve ideal results through a single promotion method. For example, the power of grassroots organizations in rural areas can be utilized. Cooperate with the village committee and village primary school to carry out promotional activities and lectures to introduce the functions and uses of AI voice assistants to grandparents. For example, the village committee often holds training activities, invites professional personnel to perform on site, and invites grandparents and parents to experience firsthand. At the same time, take advantage of opportunities such as holding parent teacher conferences in village primary schools to promote and encourage parents to use family co education work, and then use online channels for publicity. Through the rural related WeChat official account and Tiktok, the use of AI voice assistant guidance and success stories were released. Produce vivid and interesting short videos to showcase their advantages in parenting, education, etc., and attract the attention of rural grandparents. We can also create a dedicated communication group so that parents can easily share their usage experience and problems encountered. In addition, we can collaborate with rural stores and small shops to carry out offline promotion. Post promotional posters and materials in these places to help parents learn about AI voice assistants while strolling along the street. At the same time, some promotional activities can be introduced to increase their willingness to purchase, such as giving away related services when purchasing equipment. Promote and popularize AI voice assistants in rural areas through various channels, and increase their awareness and usage rate.

3.3. Design customized voice interaction functions

One of the main strategies to enhance the practicality of AI voice assistants is to design customized voice interaction functions that take into account the characteristics and needs of rural grandparents. Rural grandparents may be older and have weaker acceptance of technology products, so voice interaction functions should be simple, clear, and easy to operate. From the perspective of voice recognition, they should conform to the characteristics of rural dialects. There are many types of dialects in rural areas, and AI voice assistants need to have the function of distinguishing different dialects to ensure that grandparents can accurately recognize and respond when communicating with assistants using familiar dialects. For example, in some rural areas in the south, grandparents are accustomed to using local dialects for communication, and voice assistants should be able to understand and provide corresponding services. In terms of interaction, simple and clear commands should be designed. Avoid using overly complicated professional terminology and operating procedures to make it easier for grandparents to operate. Some commonly used shortcut commands can be set up, such as "inquire about children's health knowledge" and "share children's stories", to facilitate their quick access to the required information. In addition, personalized reminder functions can be designed for rural life rhythm and habits. For example, reminding parents to pay attention to their children's learning and living conditions during the busy farming season, or reminding them to carry out cultural and educational activities during specific holidays. By designing customized voice interaction functions, AI voice assistants can better meet the requirements of rural grandparents' joint education.

4. Conclusion

Through empirical exploration and verification, AI voice assistants, as a low-cost and easy-to-use technical tool, can effectively fill the gap in parenting knowledge and interactive abilities of rural grandparents, significantly promote their sense of parenting efficacy, and provide positive support for the development of left behind children in rural areas. The research innovation point is to design aging friendly functions and phased promotion strategies based on the real needs of rural grandparents, and construct a "grandparents AI teacher" cooperative education model. With the continuous optimization and popularization of technology, AI voice assistants will undoubtedly play a greater role in promoting the modernization of rural family education, narrowing the urban-rural education gap, promoting educational equity, and sustainable development.

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