A Research on Senior People Online Consumption in China—From Perspective of Providing Technology Support

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While the internet skills of the elderly is no longer a big problem, it is still necessary to further improve the online shopping experience and activity of the elderly. Evidently, the frequency of seniors shopping online is not nearly as high as the younger generation, as the elderly online shopping frequency is still calculated by weeks. People with higher education and younger age are more likely to accept technology products and understand how to use them, but people with lower education and older age will find it harder to use technology product. The majority of the elderly have a vision for the further development of technology to help them. This study shows that the elderly group shopping demand is large, but when the majority of the elderly choose offline consumption, the option of just a simple online solution is insufficient. Some shopping apps have made improvements in such aspects as font enlargement, color contrast enhancement and simplified operation steps. However, these improvements only solved the superficial problems, and failed to consider and solve the problems based on the experience of the elderly.

Keywords: aging society, online consumption, shopping technology products

Introduction

With the rapid development of the national economy and the improvement of people's living standards, the aging problem of China's population is prominent. The increasing markets of elderly people for old-age care, medical care, tourism, and shopping are constantly expanding. Especially since the outbreak of COVID-19, online shopping has increased dramatically. But the market is still in its infancy.

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First, the number of enterprises related to elderly products in China is small, and the industrial chain development is not perfect. Second, the progress of technology for aging has been moving, but most of the changes remain in the form, and the product design has not been carried out in accordance with the understanding logic of the elderly.

What are the real demand characteristics of the elderly? What challenges has the market of the elderly product encountered? The paper explores a more humanized service model on this basis to further improve the happiness of the elderly.

Literature Review

Scholars studied and concluded that the factors affecting the internet utilization behavior of the elderly in China are as follows: First, economic issues: the elderly in China do not have reliable social security and pension; second, the issue of time: most Chinese elderly people are expected to take care of their grandchildren; and third, convenient technology: support and long-term training programs for the elderly in China are scarce (Reisenwitz, Iyer, Kuhlmeier, & Eastman, 2007).

The elderly have now become the fastest-growing segment of the internet consumer market (Hart, Chaparro, & Halcomb, 2008; Leppel & McCloskey, 2011). Moreover, although elderly online shoppers show less product search behavior than young online shoppers, their actual purchase volume is almost the same as that of young consumers (Sorce, Perotti, & Widrick, 2005).

Some scholars found that some elderly people hope that the internet can provide information and products that are not affordable or easy to buy. Some of them found that an important reason for the elderly's interest in online shopping was that their "mobility" began to decline, that is, their athletic ability declined. Iyer and Eastman (2006) believed that curiosity and positive attitude were important factors in promoting the elderly to buy online.

Zeng and Fan (2019) in China pointed out that the consumption market of the elderly is constantly growing, with great consumption potential and diversified consumption demand characteristics.

According to the research of Zhang, Zang, and Li (2020), the consumption by the elderly in 2020 was mainly on food, clothing, and healthcare drugs, accounting for 28%. And 21% are on old-age care.

In terms of the dilemma of online shopping for the elderly, according to the research by Wang, Zou, and Yang (2020), for elderly users, the basic operation has become the biggest bottleneck for the elderly to surf the internet with mobile phones.

Existing studies and academic discussions have carried out more analysis on the demand characteristics of the market of elderly products and launched more solutions in the software market. However, there are still few studies on how technology can improve the needs of the elderly and the market conditions. It is necessary to further explore the characteristics of the consumption demand of the elderly and the direction of further improvement of existing solutions from the perspective of science and technology to help the elderly.

Research Method

This study will have an in-depth understanding of the problems of the elderly, and on how to use scientific and technological means to solve the problems that hinder the convenience and comfort of life for the elderly.

This research will investigate the existing app market and the market of technology-assisted products for the elderly, and based on grasping the characteristics of the existing products, conduct a questionnaire survey and in-depth interviews with the elderly. The questionnaire survey mainly solved the following problems:

- Popularity and market response of existing solutions;
- Elderly people's ability to use scientific and technological products;
- Understand the market prospects of the alternatives in this study.

Depth interview is to find the typical user, get an insight into the old's life shopping needs, and shopping features, difficulties, and comfortable old product evaluation. First, for the questionnaire, a total of 604 valid questionnaires were distributed in 23 provinces of China. The effective recovery rate of samples from Jiangsu, Zhejiang, Shanghai, and Beijing was relatively high, accounting for more than 76%.

The age level of the respondents is shown in the data. Half of the respondents are under 54 years old and 36% are over 75 years old. The gender distribution of the respondents was about half. In terms of the knowledge level of the respondents, almost all the respondents have a junior high school education or above. The relatively high-skill group above college level accounts for more than 60%.

Second, for the group interviews, the group selected 5 elderly people to conduct in-depth interviews. Since the basic living habits and demand characteristics of the elderly are stable in a specific period and region, the results of the interview with 5 randomly selected elderly people are representative to a certain extent.

Survey Results and Analysis

The survey shows that: Firstly, the main consumption needs of the elderly population: the elderly mainly buy daily necessities such as food, health care products, clothing, medicine, and cultural items, which account for 80.8%, 39.9%, and 28.31% of the respondents respectively. In addition, the special needs of the elderly are living equipment, rehabilitation equipment, radio, electronic education, and leisure products.

Secondly, purchasing channels: the three channels that the elderly often use are children's help, supermarkets, department stores, and online shopping, accounting for 18.21%, 51.99%, and 74.01% of the respondents respectively. 74.01% of the elderly can consume online, indicating that the use of internet skills by the elderly is no longer a big problem, but it is still necessary to further improve the online shopping experience and activity of the elderly. In addition, the frequency of online shopping by the elderly is still low; most of the elderly online shopping frequency is calculated by week, not as high as the frequency of young people.

Thirdly, there is a positive correlation between age and educational background shown in the questionnaire. People with higher education and younger age are more likely to accept technology products (such as apps and robots) and understand how to use them, but people with lower education and older age have more difficulty in using technology products.

Fourthly, in terms of the requirements of online shopping for the elderly, most of the elderly have preferences for price, quality, brand, after-sales service, and product functions, indicating that the elderly have diversified their consumption and no longer simply place a premium on price, which poses new challenges and requirements for the updating of products for the elderly assisted by technology.

Fifthly, in terms of the application of major shopping software, Taobao, Jingdong, Pinduoduo, and Douyin are the major market holders. The survey found that the majority of the elderly wish for further development of technology to help them. Since most of the elderly have a relatively high level of knowledge, in terms of our ability to use scientific and technological products, as the elderly rarely use apps suitable for aging, we believe that it is necessary to further improve their cognition and attention to the consumer market of the elderly. There is still room for the elderly to use the internet more frequently, increase the market activity and improve the convenience of the elderly's life. Given the low utilization rate of existing retrofitting products for aging, it is

necessary to further understand the segmentation of the elderly consumer market with different ages, skill levels, and consumer preferences, and expand to the direction of specialization and individuation. From the perspective of the diversified and multi-dimensional shopping experience of the elderly, it is an important direction for future efforts to improve the basic functions of the program and enhance the service concept.

An interview with a 75-year-old retired teacher and a 75-year-old retired cadre shows that:

The main reason for the lack of influence of existing programs such as online shopping is that the elderly have not heard about them. In terms of the consumption characteristics of old people, their daily life is relatively pure. They always focus on housework and cooking, and their entertainment is only walking and looking at their mobile phones. The elderly cannot keep up with the pace of modern technology. They do not use online shopping because they cannot use apps. Even on mobile phones, they use the simplest apps such as iQiyi Video, Xiaoxiao Game, and NetEase News to relax. It can be seen that there are many new convenient features that older people want to use but will not use, preventing them from improving their quality of life.

At the same time, the elderly begin to have certain obstacles in many other life matters, such as constant physical ailments. These increase the living pressure on the elderly, but still lack independent and convenient solutions. They also want the robot to be able to share the stress of housework and shopping for them.

Conclusions

To find out the elderly's current practical difficulties in the process of shopping online and the actual demand, designing an app to meet the demand of the elderly's practical technology and using habit. This study shows that the elderly group's shopping demand is bigger, but the majority of the elderly choose offline consumption; online solution effect is insufficient.

First, the elderly generally need online shopping and a passion for learning. However, the lack of technology for helping the elderly discourages their enthusiasm for online shopping. Now the old are not afraid of electronic products and usually spend time on all kinds of videos, news, and games. Most shopping kind app needs more steps to achieve the goal. The complexity of the procedure is the main reason why the elderly are discouraged from online shopping.

Second, the market of products for the elderly is not developed enough, the publicity is not enough, the elderly cannot generally search, and the connection of information with consumers is not well completed.

Third, science and technology have made some progress in adapting to aging, but some specific problems have not been effectively solved, and the elderly have not truly benefited. For example, some shopping apps have made improvements in such aspects as font enlargement, color contrast enhancement, and simplified operation steps. However, these improvements only solve superficial problems and fail to think and solve the problems based on the experience of the elderly.

Solution and Actions

As a solution, the authors made a technological tool dedicated to improving senior citizens' shopping experience (see Figure 1):

First, the UI focuses on satisfying the functional, psychological, and user interface needs of seniors, who prefer a physical companion much more than a pure digital tool.

Second, the authors had made a hardware physical body to the online shopping functions. Also, it feels like a family member, rather than a heartless machine.

All the functions are tested with 3 rounds of user tests: 1st round with family and friends, 2nd round in Huangpu senior care center in Shanghai, and 3rd round in the bridge 8 senior citizen activity center. Among the test feedback, 80% showed interest to use more.

And last, for the market feasibility check, the production bill of materials is researched and concluded. Assuming the production size is 1,000 per batch, the production cost per unit is about RMB 2,500, and so the retail price is planned to be about RMB 4,000. Two collaborators of this tool are confirmed: they are NetEase as the commercial collaborator and Shanghai University of Medicine & Health Sciences as the urgent help service provider.

In the future, The authors will seek more collaboration with local community regulators and explore opportunities to work with more local government.

Figure 1. The first generation robot for the senior people online consumption showed in Shanghai.

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