Digital Elderly Care for Sustainability

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Abstract. Recently, entrepreneurs in East China have expressed their interests in this project. Authors of this paper are going to have dialogues with those entrepreneurs and study the feasibility and commercialization of this project. Market response reflects the potential marketability and possible value of this project.

Introduction

Save to political efforts among nations, advancement of medical technology, general awareness of people, easier access to knowledge, life expectancy of mankind is extended. Definitely, it is a good sign in nature itself and bring goodness to people enjoying longevity. Nowadays, people who are under 65 [1] are regarded not old, in which the general perception of being old is further changed. Longevity is a blessing to family and society because people can stay longer with family members and still contribute to society intangibly in terms of artistic [2], spiritual, academic fields and the like. At the same side of a coin, extended longevity exerts pressure to present health care system, social security and current aged home system.

Apart from extra inputs of resources into present systems, there is growing reliance on technological implementation so that efficient use of resources is justified. In digital world, assistive technological aids may be anything or even everything we can imagine. This is the case no one will envisage the falling use of physical bank notes ten years ago. This essay targets to illustrate assistive technological aids of digital science in aged home environment in Hong Kong, Greater China and hopefully extended to nations along the Belt and Road [3].

Assistive Digital Aids

Physical Considerations

For physical considerations, the elderly tend to have problems with motor skills like flexibility, strength, speed of execution, hand-eye coordination, mobility and agility. These characteristics lead to a decline in strength and endurance, a decline in balance and coordination, and the potential growth of involuntary movements. Generally speaking, people at 65 years old have already lost one-third of the muscular mass. As to psychological aspect, the decrease of income, the loss of pre-existing social networks, isolation leading to emotional shifts in terms of loneliness, tension, anxiety, dependent on others, and fears about safety.

Assisted digital aids are used to improve the better quality of elderly lives. They are not exhaustive and limited to the mentioned ones in this essay, which include a set of computer soft-wares, wrist belt with sensor built-in, electronic sensor receptors, personal digital assistant (PDA), video-tape machine, mega computer and its storage.

Setting in an Aged Home

The setting of assisted aids in a health care institution is shown as in the following diagram.
The wrist belt can store data like heartbeat, breathing rate, body temperature, oxygen saturation level, posture change, access control and encrypted personal identity. It is not to record medicine intake or physiological data like bowel volume, or meal intake volume. For such data, they are managed by the care workers stationed in the institution and they perform data loading by means of a PDA, which link wireless to the mega computer.

Digital intelligence is not much involved up to this stage. However, digital intelligence can be utilized in interpretation of regular programs of an aged home, then to a cluster of aged home, further to the health care institutions under the same corporate, and finally to the health care system managed by government. The regular programs of an aged home is conducted in common area, which do not interfere personal privacy. There are TV viewing time, music listening time, group work time, meal time and so on. The degree of participation, happiness, involvement and contribution to these programs can be captured through video-tape and be learned by the digital intelligence. In this way, the kind of entertainment, learning activities or group work may be analysed and compared with the findings from another aged home, or compared with the cluster in a region. A common soft-ware used to perform this analytic work is Power BI [4], a soft-ware developed by Microsoft Incorporation.

Another advantage of this digital intelligence is the posture reminding ability. For instance, a client without moving activity for half an hour, the system will prompt the staff in charge of the aged home for such a message. This reminder becomes important in case of client living alone in his house but joining a visit program by nursing staff of a nearby aged home. Staff in charge will ascertain the safe situation. If there is no answer for whatever reason, nurse should be sent to the client house immediately.

Financial Implications
The setup cost of extra electronic device and soft-ware installation is inevitable but controlled. In a 40 persons aged home, the cost involved is about US$200 000 and yearly recurrent maintenance fee US$20 000. Forward looking entrepreneurs will look for new additional clients to suit the new system rather than laying off staff, resulting from the extra expenditure on device.

Effects Brought for Consideration
The new device brings efficient uses on water, electricity, meal consumption and energy. Other than these, it fosters clients’ psychological well-beings by generating a safe environment of falling free danger, mis-intake medicine danger, accurate scheduling of medical appointment and its
transportation arrangement, accurate daily medical data, immediate attention to prolong non-movement alarm, an increased self-esteem, life satisfaction and autonomy [5]. Good reputation to a corporate is a free advertisement in fact. Taking into account of trivial investment of electronic device, we may promote such an idea to countries along the Belt and Road. For this sum of a bearable amount, the promotion can go farther and further.

Summary

There is pressing need for use of assistive technology to cope with increasing life expectancy, the need to remove pressure from the medical assistance system and sustainable development of individual corporate and a country as a whole. It brings physical efficiency and psychological well-being in different situations, from communicating with family and friends to being monitored with respect to health issues.

References


