

The Use of Technology by Older People

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Abstract— There are benefits and issues of technology used by people in different aspect of life. The paper examines some literatures on the matters faced by older people in accepting technology. Since most of older people did not rise together with the development of technology, it is important to find their acceptance level of technology adoption. It also discusses research conducted in evaluating technology used by older people; and appropriate actions that need to be taken in order to promote the use of technology among them.

Index Terms—Benefits of Technology, Issues of Technology, Mobile Technology, Older People

1 INTRODUCTION

GLOBALLY, the number of individuals aged 65 years and older is predicted to increase steadily, particularly among the oldest old (aged 80 years and over) after the year 2010. Older people have a strong preference for aging-in-place (i.e remaining in their own homes and communities) compared to other forms of care, such as nursing homes. For older people, independence is about choice and control over their own lives. Somehow, aging has effected changes in their perceptual, physical and cognitive ability [7]. These age-related changes can create issues for older people to utilize technology in their daily life.

2 LITERATURE REVIEW

2.1 Definition of Older People

In gerontology and geriatrics, the common definition of “elderly” means people aged 65 years and older [18]. Some have defined “old people” as people between ages 60-80 years [20] whereas in gerontology a common definition is that people over the age of 65 are considered “old” [19]. Older people population is defined as person 60 and above according to World Health Organization United Nation.

2.2 Benefits of Technology for Older People

Technology has become important factor to the human life and has the potential to support people across the age range. Technology is viewed part of a service solution [1, 2] and considered to lessen older peoples’ burden in managing life activities, increase health level, engaging with society and increase spiritual life. Technology can play a role in increasing the effects of older people functionality and thus help to compensate for age-related issues [6].

With the help of technology, older people are able to live independently [3, 4] and more meaningful in a way that they can manage their own life. Older people are given freedom to handle their life according to what they plan and which they require less help of other people or family members. Technology has create a sense of autonomy [8] in older people which bring them happiness, healthy and participative living. This ends the perception of older people as dependent, and ensures that longer life is healthy and fulfilling, and that older people are full participants in society [1].

There are many kind of new technologies such as household appliances, communications, banking and health care have contributed to a better quality of life [5], improve parameters of daily living like transportation, mobility, communication, financial, health, social life and spiritual. Communication technologies such as mobile phone, computer, internet, email and video, if deployed in the right way, as a supplement to and an enabler of direct contact, can help older people to maintain and develop social support networks [1]. It also benefits social life of older people by preventing isolation, loneliness, developing social contacts and engaging actively in their communities [1, 7]. Technology has become a new way for older people to interact with their family and relative; and participate in community events.

Besides social benefits, financial benefits can also be gained from the use of technology in elderly life. The development of ATM machines and cards has transformed the method of getting the money and transfer the money. Vines et al. [11] developed an electronic pen and cheque book for older people to perform payment and ease them in mobility.

Technology also plays a role in terms of security for older people [8]. According to Blythe et al. [9] older people are most likely to fear crime, even though they are least likely to be victims. By placing surveillance technology at their home; it reduces the fear and enables them to report directly to police and community Website. Hanson et al.[10] also reported that, besides using mobile phone to get connected with family members, older people use mobile phone as part as their security and emergency purposes.

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Adapting technology also helps older people to develop skills and gather experience [1]. By using technology, they will strengthen their learning skill and experience to gain required information. Besides, it can improve their confidence level and ability to access other services using technology. By engaging with technology, they manage to ensure 'the world does not pass them by', to seek knowledge, particularly news and health information, and also to support their learning and education generally [1]. Since technology is the status of modern world, this can affect older people feeling and mentally to be more alert, challenged, useful and 'younger'.

The benefits of using technology not only affects older people life, but it also affects the care givers whom are taking care of the older people in center [4]. With assistive technologies, the care givers can conduct sessions to teach older people to use technologies and allow them to interact independently. This able to lessen burden of the care givers and allow them to focus on other task and responsibility.

2.3 Issues of Technology by Older People

There are number of significant barriers to older people in using technology.

- Inappropriate technology design guidelines

Most of technology target user is younger people and the design guidelines are often based on the studies of younger users which may not appropriate for older people [12]. Older people need to struggle and force themselves to adapt the design guidelines that specifically meant for younger users, which may vary due to age and cognitive factors.

For example in mobile technology, the product is not user-friendly for older people where the button is small, fiddly controls and complicated interfaces [1, 12]. McCarthy et al. [13] reported that older people found Personal Digital Assistant (PDA) is extremely difficult to use with the interface that is not intrinsic and intuitive. The size of PDA also small for older people to use, and has complex menu structures where it is difficult for them to remember the functions.

There was also a study [21] conducted in two countries (Malaysia and United Kingdom) where there were common design issues related to mobile technology such as mobile phone. The issues were related to: i) difficulties with physical interface of the mobile phone ii) function complexity such as text functions were complicated and iii) language-related where Malaysian older people has difficulties understanding poor direct translation of mobile phone.

Hassan et al. [14] also reported, Malaysian older people complaints that the design of mobile technology are too small and difficult for them to see and the buttons and characters are too small which causing them to push wrong numbers frequently. Older people also reported that, they avoid using complex function and non-user-friendly menu arrangement which always confused them.

These findings were similar as reported in [21].

Older people also faced similar problems with design of financial technology such as the use of ATM machine [5]. Most of older people neglected to use ATM machine due to ATM screen problems and difficult handling of ATM keyboard. Older people prefer the traditional way of saving and cash the money by attending the bank counter or using cheque payment method, which to them; it is much safer and confident [15].

- Older people attitudes

The issues of acceptance of technology also come from older people attitudes where they are ignorance, fear and feel embarrassed to use the technology [1, 5 and 16]. Most of them have greater resistance to adopt new methods of doing things [12]. They are more convenience to do doing things in a traditional way where they habitually performed the task without difficulty and with other's people assistance. Besides, they also feel that they are too old to learn new technology which most of the users are the youngsters [13]. Their perception on technology is that, technology is developed for the life of younger users and not applicable to their life. Besides of their own perception, they also fear of carrying negative perception from society as being weakness when they are using assistive technology [16].

- Physical cognitive

Health and physical status also reflect an important issue in accepting the technology [5]. Health problems such as poor vision, poor dexterity, poor hearing and cognitive problems [1] can be barriers for them to use the technology. To effectively operate and conduct the technology, it requires a good sensor of motor control [17], thus this health issues bring difficulty for them to control the technology.

McCarthy [13] reported that, poor levels of vision or dexterity brings problem for older people in using PDA especially to operate scroll bars and typing text. With limited eye vision, older people difficult to focus and requires more time to identify task performed.

Vines et al. [11] in their study reported that, UK older people prefer to cheque payment method due to difficulty to access cash as a result of mobility and cognitive impairment. By using cheque, older people still have power to control money transaction without depending on other people to withdraw the cash using ATM machine.

Hanson [7] also reported that, due to perceptual difficulties related to vision and hearing can create variety accessibility problems for older people. Besides, older people may have difficulty using a mouse and keyboard due to illness and injuries that limit their movement.

Baker [15] also reported that assistive technology may not be effective for people with multiple impairments. This may due to multiple capabilities in order for them to operate the technology by their own efforts. Since, they require other people assistance.

- Educational background

Educational background also becomes an important matter in determining acceptance level of technology [5].

Older people with higher educational background reflect higher level of confidence in operating the technology [18]. Similarly to older people who have experience working with technology, they have greater acceptance in technology and able to adapt technology in their life. However, when older people have retired from working, they also might face issues in using technology in later time.

- Low awareness

Low awareness among older people of benefits in using technology might cause from the failure of marketing issues [1]. Lacking of benefits and sense of relevance in using technology reflects the failure to accept technology in older people life. Due to unaware of potential benefits of technology, older people would feel that they gain nothing and lead to negligence in using technology.

- Training

Most of older people have high interest and potential to use technology. However, they have inadequate training from society to teach them to use technology. Older people are struggling to adapt the technology in their life, but without or lack of skills and training, have demotivated them [5]. Elliot [4] stressed that older people do indeed retain their ability to learn, but they require unique training approaches. Older people are less familiar with technology, thus it needs proper training by society to help them expose to the benefits of technology into their life.

- Financial support

Economic support or incentive from institution and family also become an issue for older people to use technology [5, 10, 18, 19 and 20]. Certain cost of technology is not cheap and unaffordable to them, and requires funding in order to have them accessible to technology.

2.4 Technology used by Older People

Technology is very useful to enhance daily living regardless of education, culture, religion, gender and age; from young to old. It is a waste if only certain people able to enjoy using the technology while others such as older people become alien to technology. Thus, it is critical to know why some of older people manage to use technology and satisfied with it, while some of them are neglected and ignorant to use technology.

Roupa et al. [5] investigated 300 older people aged 65-85 above from different geographical division i.e. Macedonia, Thessaly, Central Greece, Attica and Peloponnese regarding the use of technology or household appliances. The result reported that women used household appliances such as washing machine, digital microwave oven, hair dryer, vacuum cleaner, electrical kitchen and wireless phone, greater proportion than men which only used TV. They also reported, few participants used ATM technology because of difficulties in handling the keyboard, fear, ignorance and screen problems. Besides, they also found that elderly men used mobile phone more often than elderly women. However

the mobile phone usage is limited to the function of achieving calls and texting.

Morisson and Barnet [1] reported in their study, 70% of over 65s never used internet since they feel that internet is not relevant to their life. And older people aged 80 above is the least likely the group that use technology as they have no educational background. They also found that older people are motivated to use technology with proper guidance and training. By using technology, they feel that they are younger as they are becoming more alert, challenged and useful, and improve their confidence level. They also manage to actively participate and contribute in society.

Carmichael [3] developed Interactive Digital Television (iTV) as a platform to provide rich personalized multi-media prompts and reminders for older people with Dementia. iTV objectives are to relieve some of caregivers' burden for scheduling activity particularly reminding their charge and the emotional challenges associated with 'telling them what to do'. This technology assists older people to expand and improve the quality of human contact between caregiver and patient.

Vines [11] investigated the financial payment used by UK older people. They found that, is been a dominant mode of payment where older people are using cheque payment method. Older people prefer to use cheque payment method because they are less familiar with alternatives and desire to keep control of their own finances. Older people have put their trust in cheque payment method as it is more secured in the knowledge that only the person named can bank it into an account under their name. Due to this scenario, they have developed an electronic pen and cheque book for older people to perform payment and integrated with banking system.

3 DISCUSSIONS

There have been issues in determining the definition older people. Most of developed countries have accepted aged 65 and above is considered as older people. However United Nation has agreed that cutoff for older population is 60 and above [1]. Older people population and definition somehow associated with the age at which one can begin to receive pension benefits.

Older people have high motivation and determination in using technology in their life. They are fully capable of learning technology and interested in doing so provided that they are aware of its benefits. Thus, exposing older people with the benefits and relevance of adapting technology in their life manage to increase acceptance level among older people in using technology. Marketing people and society should tune older people's interest; attitudes, expectations and needs in using technology such as enable them to connect with family members using internet and mobile technology. This will increase their awareness and create sense of enjoying to keep on using the technology.

Older people have the enthusiasm to use technology, however they are not familiar and have less educational background in using technology. Therefore, they need support to access the technology and appropriate training to develop their skills. In order to increase their anxieties as well as to improve their confidence level in using the mobile technology, training program should be provided to assist older people to use the tech.

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