



Aging and Technology

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INTRODUCTION

This document seeks to identify some of the ways in which older people can benefit from technology. Technology has significant potential for older users, helping them to remain active, healthy and connected to their family and community.

We recognize that some older users have never made significant use of technology, whilst others may be confident with some forms of technology whilst anxious regarding adoption of newer forms of technology.

Older users are not a single group, they have a diverse range of needs and experiences. In determining an approach to meet those needs we need to understand some of the issues they face and how technology can assist.

In this document we will focus upon high tech solutions, we recognize the importance of assistive technologies for mobility, independent living and personal care, but here we will focus much more on the social and emotional needs of the users.



Understanding the Needs of the Elderly

There are many changes that occur to our bodies as we age. Whilst they emerge gradually it is important to understand that they may create barriers to an active and independent life. Many older people do not consider themselves to be “disabled” but rather face barriers and challenges through a variety of functional limitations.

Common age related functional limitations we may experience in later life include:

- Hearing, which declines especially in relation to the highest pitched tones.
- Memory and thinking, whilst the majority of older people do not experience significant memory loss there is some decline in the ability to recall information and express thoughts clearly. Such conditions increase significantly in people over 85 years.
- A loss of muscle and bone strength and coordination occurs with an accompanying loss of mobility, agility, and flexibility.
- A decrease in the sensations of taste and smell and a decline in visual ability may occur as a person ages.
- Changes take place in the cardiovascular and respiratory systems, leading to decreased availability of oxygen and nutrients throughout the body.
- Vision, age related degeneration of sight is common, it is usually assisted through glasses or small magnifying devices for reading etc.

These age-related changes often require some changes to be made in our daily lives. Age, like many conditions, is something that needs to be managed and accommodated, it cannot be reversed or “cured”. There are many effective ways to cope with it with increasing age and increasingly older people are discovering that assistive technology devices and services and home modifications provide new ways to “get around” limitations.



What is Assistive Technology?

Assistive technology (AT) has been defined as

“Any service or tool that helps older adults or persons with disabilities perform activities that might otherwise be difficult or impossible.”

For older adults, such technology will be diverse ranging from an aid to improve mobility, an amplification device to make sounds easier to hear, or a handheld magnifier for someone who has poor vision. Many people may need some assistance some of the time, or may need combinations of solutions to meet their needs.

In this model the Assistive technologies are anything that aids continued participation in daily activities. The solutions allow many people to live as independently as they wish.



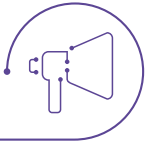
Physical Challenges to Using Technology

Many seniors have physical conditions or health issues that make it difficult to use new technologies. Around two in five seniors indicate that they have a “physical or health condition that makes reading difficult or challenging” or a “disability, handicap, or chronic disease that prevents them from fully participating in many common daily activities”. This group is significantly less likely than seniors who do not face these physical challenges to go online (49% vs. 66%), to have broadband at home (38% vs. 53%), and to own most major digital devices.



Difficulties Learning to Use New Technologies

A significant majority of older adults say they need assistance when it comes to using new digital devices. Just 18% would feel comfortable learning to use a new technology device such as a Smartphone or tablet on their own, while 77% indicate they would need someone to help walk them through the process. Among seniors who go online but do not currently use social networking sites such as Facebook or Twitter, 56% would need assistance if they wanted to use these sites to connect with friends or family members.”



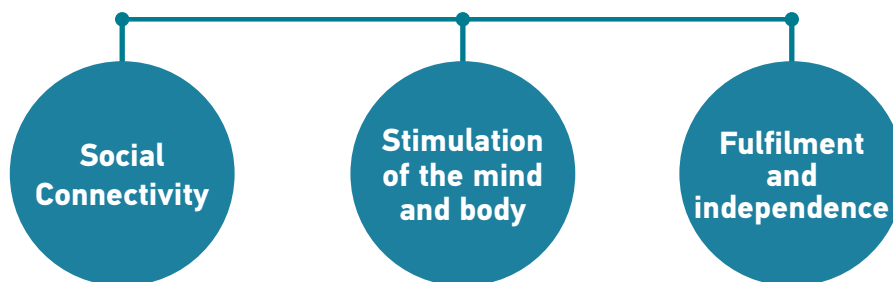
The Impact of Assistive Technologies

There has been significant research indicating the potential impact and benefits of integrating assistive technologies into the lives of older people which suggested that “the rate of decline can be slowed, and the cost of institutional care reduced through a considerate provision of assistive technology and an accessible environment.”

The potential benefits for people who use assistive technologies and associated services include:

- Increased choice, safety, independence and
- Sense of control
- Improved quality of life
- Maintenance of ability to remain at home
- Reduced burden placed on caregivers
- Improved support for people with long-term Health conditions
- Reduced accidents and falls in the home.

The benefits of AT on the elderly



Fulfilment and independence

Ultimately the use of Assistive technologies should enhance the quality of life of older persons. Research has shown that seniors who keep up to date with the internet can produce a positive impact on key areas of life, including:

1. Personal fulfillment
2. Health preservation
3. Social connectedness
4. Functional capability
5. Caregiver support



Stimulation of the Mind and Body

Technology provides new ways to assist older people to have a healthy mind and body. Participating in a video or computer game can be both entertaining but also offers an opportunity to enhance mental health as well. Researchers have been exploring how teaching elderly individuals how to play online activities can boost the brain and increase cognitive longevity. Scientists have discovered that all of their subjects between the ages of 65 and 75 years of age, completing a series of several computer games was able to improve memory, expand attention and increase sequencing abilities. Furthermore, video game systems have also proven to promote participation of physical activity with seniors due to a number of available virtual recreation programs that teach users how to dance or do yoga, two extremely beneficial forms of exercise for the elderly.

For many seniors, life tends to be a series of extended episodes of isolation, primarily due to being separated with friends and family by long distances. Using email and social networking platforms are a great way to easily stay in touch with those who are the closest to you.

Sometimes social isolation provokes feelings of loneliness and despair, another emotional aspect that the internet has helped seniors conquer. Researchers have reported that elderly individuals who spend occasional time online can drastically reduce symptoms of depression.



Finding the Best Solution

It is important that anyone considering assistive technology has clear information on what is available. People respond differently to different devices, and the products should meet the needs of the individual as best they can.

Choosing a piece of assistive technology is not always easy, but it is important to find the best solution. Decision-making should be shared, and the person should be supported and involved as much as possible in discussions and choices. If someone has been using a device (e.g. smartphone or tablet) when younger, then a solution based around this technology may be easier for the person to adopt. Many devices can be bought independently, but before doing so it is advisable to seek professional advice.

Things to consider when looking for assistive technology

It is important to make sure the technology is supporting the person and not restricting them. It is also a good idea to look at the person's living space and see if there are adaptations to the environment that may help.

When choosing assistive technology, some things to consider include:

- Whether there is definitely a need for assistive technology, or whether there is another solution
- The person's needs, preferences and ability to use devices, and how these might change over time
- The level of support the person can rely on
- How well the technology will fit in with the person's usual routines
- Whether the technology requires a phone line or internet access
- The cost of the technology

It is also worth being aware that the earlier the technology is introduced, the more successful it is likely to be. This is because the person will have more time to get used to it.

Ethical considerations

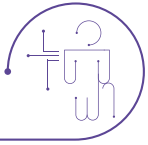
Assistive technology can have considerable benefits for older people, but it also has some potential negative aspects, and there is a risk that it can be misused. It is important that assistive technology is always used for the right reasons. It should be primarily for the benefit of the person, to enhance their independence, safety and daily living.

In practice it will often also benefit the caregiver, but it is important that the person's needs are put first.

It is also important that they are clear about the purpose of the technology and how they might benefit from it.

The following things must be taken into consideration when recommending AT:

- Assistive technology should not be used simply as an easy way for a caregiver to monitor a person without their consent or interests being considered.
- AT should not be seen as a replacement for the human interaction that caregivers, friends and relatives provide
- Consent is particularly important. When choosing to use assistive technology and selecting the systems or devices to use, the person with should be involved in any decisions, and their consent must be sought and gained, wherever possible. In some cases this may not be possible, if the person doesn't have the ability to make decisions for themselves (known as 'capacity'). In these cases, decisions need to be made in the person's best interests, and must also be the least restrictive option.
- Nobody should be forced into using technology they don't want, and technology should only be used when it's needed or wanted.
- Each person's individual needs should be considered carefully when weighing up the pros and cons of any device.



Technologies and Aging

One definition which emphasizes the role of AT in maximizing the independence of older people is,

“AT is any product or service designed to enable independence for disabled and older people. The technologies embraced by these definitions include devices that might form part of `telecare' and `telehealth' service packages (that is, assistance devices linked to response teams via a person's telephone, such as community alarm services, detectors or monitors of fire, gas leaks or falls).”

The definitions also embrace a range of technologies from low-level to high-tech devices, however. These may also include more general technologies such as access to the internet which might have a role in promoting the independence and wellbeing of older people.

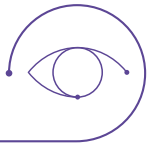
In general, four aging-in-place technology categories that have emerged:

1. Communications and engagement. This includes email, chat, games, video, cell phones, Smartphones and tablets, as well as personal computers.
2. Home safety and security. All manner of home security systems are emerging. The systems deal not only with possible intruders but a growing range of personal health and safety issues. They use sensors, webcams and digital communications to provide help with fall detection and the broader areas of personal emergency response systems.
3. Home health and wellness. Telehealth and mHealth (the “m” stands for mobile), medication and disease management tools and fitness products.
4. Learning and social contribution. Home-centered communications technologies can help people stay connected with friends and family, engage in online learning and education, participate in volunteer activities and earn income from home.

There are a very wide range of modifications available to assist older people to use technology. These will include

- Adaptive switches. Modified switches that seniors can use to adjust air conditioners, computers, telephone answering machines, power wheelchairs, and other types of equipment. Increasingly voice recognition is used to activate these switches.
- Communication equipment. Anything that enables a person to send and receive messages, such as a telephone amplifier.
- Computer access. Special software that helps a senior access the Internet, for example, or basic hardware, such as a modified keyboard or mouse, that makes the computer more user friendly.
- Education. Audio books or Braille writing tools for the blind come under this category, along with resources that allow people to get additional vocational training.

We can further categorize such aids by need



Vision

Low vision

Eye glasses, large print playing cards, card holders, screen magnifier for computer or TV, large button telephone, bright colored objects

Blind

Braille books, books on tape, guide cane, screen reader for computer



Hearing

Hard of hearing

o Hearing aids, amplified telephones, visual alerting systems,

Deaf

- Head phones for personal control of sound on TV or stereo, or at church or concerts
- Written communication tools, visual alerting systems, text telephone (TTY)

Physical access to technology

- Limited range of motion, limited use of hands, fingers or arms, limited strength
- Communication and work related devices; alternatives to the standard computer keyboard used for typing in data such as alternative and onscreen keyboards, switches, joysticks, touch screens.
- Environmental Control

Limited strength, limited range of motion, limited reach and mobility, low vision, hard of hearing

o Adaptations of timers, telephones, light switches, switches which can be activated by pressure, eyebrows, breath; text telephones, control mechanisms with sonar sensing devices, adaptations of existing tools, personal pagers, alarm systems, visual signalers



Thinking and Organization

Forgetfulness, confused thinking, memory loss

Pill dispensers, electronic calendars, timers, specifically designed computer software such as computer-assisted instructional programs, information management and record keeping systems.

It is clear that successful use of technology by seniors is not dictated by the device, but by the functionality and ease of use of applications upon that device. Many modern connected technologies have the elements of customization and personalization built into the operating system. It is the applications that engage the users, not the technology per se.



Planning for Technology and Older People

The technologies offer many built in facilities which maximize ease of use by older people. For instance as eyesight fades and it becomes harder and harder to see the printed page, what a tablets offer to their users to simply expand the type to a size that is easy to read. There is no need to have to ask for a large type newspaper or book, you simply adjust the text to make the font the best size for you. This type of functionality is available on many devices including tablets, phones and e-book readers.

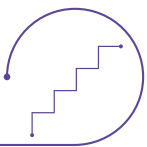
However when we think about introducing the technology to older users it is important to focus initially upon the apps they will use, and then to introduce later some of the “backroom” technology and functions that they need to know (saving pictures, changing text size etc.).

In understanding the use of technology by older persons, we need to appreciate that they do not use the technology in the same way as younger people, it is important that we do not assume that seniors are “too old” or automatically “uninterested” in emerging technology just because there is a potentially steep learning curve.

The key technologies that offer opportunities for older people include:

1. Tablets and iPads. From games that promote brain fitness to apps that track health information, a tablet can have a variety of positive impacts on seniors’ lives. Seniors can view photos, listen to music, read, learn languages--plus the devices are lightweight, their touch screens are easy to use, and font sizes can be adjusted for easier reading.
2. Hearing aids. Having to wear a bulky listening device is no longer an excuse for older adults to go without hearing aids. The continuing miniaturization of devices and the improvement of wireless transmission methods like bluetooth has meant great strides in hearing assistive technology. Hearing aids can be tiny, transparent, and nearly invisible or even implanted inside the ear itself.
3. Video and computer games. Software such as Candy Crush, Minecraft, Angry Birds, or the Nintendo Wii, have been shown to improve cognition, mental agility, and even physical health for seniors, with devices such as the Wii Fit. Not only that, video games can promote social interaction.
4. Video messaging. Social interaction can be significantly enhanced through software such as Skype. Communicating with family long-distance is a snap, you can view your family in real time, and us available for a wide variety of devices.
5. Health tracking software. If a senior has access to a computer or a mobile device, they should be aware of the wealth of software and apps available to help monitor their health, remind them of medications, and even track their nutritional needs, empowering them to take charge of their own wellness.
6. Smartphones. Cell phones are becoming more senior-friendly, with models that have larger buttons and readouts, as well as photo speed dialing and voice recognition to make usage easier. Not only are cell phones crucial to helping seniors stay connected with friends and family, they may also help perform critical safety functions like providing medication reminders and GPS locations.

7. **Wireless home monitoring.** Home monitoring systems that employ sensor devices can be, literally, lifesavers for those seniors who live alone, either at home or in assisted living. They can detect emergencies such as falls, report unusual behavior, and even track vital signs, without intruding on privacy.
8. **GPS.** For those who are concerned about getting lost, or who have dementia and occasionally wander, GPS technology can immediately alert caregivers to their location if they leave their comfort zone. There are separate GPS trackers that attach to the wrist or clothing, as well as Smartphone GPS apps.
9. **Home assistive devices.** Assistive technology in the home can go far in helping seniors remain independent and safe. Besides home monitoring and GPS, there are devices such as LED lighting, medication dispensing appliances, photo-enhanced phone dialers, and stove shut-off systems, all of which can help seniors with mild cognitive and motor impairment.



First Steps for Introducing Technology to Older People

In planning the introduction of such technologies for older people a simple three stage process should be introduced

1. Identify the Platform such as
 - Mobile Phone
 - Tablet/iPad
 - PC
 - TV
2. Introduce the apps that reflect the needs and aspirations of the users such as
 - Facebook
 - Email
 - Camera
 - Snapchat
3. Configure the device and apps for ease of use for the user
 - Alerts
 - Fonts
 - Text to speech
 - Colours

Each stage should be reflected in preparing an adoption plan for users and should outline the individualized or small group training required. Preferences for training should be respected and might include

- 1 Training from a certified tutor working at a registered entity for the care of the elderly or Mada team member (in many countries this is done by volunteers or sessional team members)
- 2 Self-help materials and guides
- 3 Intergenerational learning where younger family members are assisted to train and support older family members

It is important to plan and communicate with older users how they will be helped when the technology goes wrong or they forget how to do something. In these cases support from family and friends is especially helpful.



Home Modifications

Home modifications are technologies that make it easier for a person to overcome environmental problems including any feature of the home that is unsafe, that restricts access and limits task performance, or that results in discomfort. Four types of home modification can be identified.

- Universal design, life-span designs applied to a new home that work for everyone regardless of age or physical abilities (thirty-two inch wide doors, lever handles, and full length mirrors that accommodate everyone including wheelchair users),
- Adaptability, installation of adjustable sinks, counters, and grab bars so that they can be moved to different heights for different people,
- Accessibility, application of public building codes to private homes for easy accessibility both outside and inside the home,
- Accessible routes, a continuous pathway that is free of hazards and abrupt changes in level that connects all important areas of the home.

Assistive Technology in the Home

With the growth of connected devices and smart homes, the integration of assistive devices with home modifications to eliminate barriers in the homes of older persons is becoming more widespread.

In many cases home kits can be purchased online for simple installation at home.

These might include:

- Remote control switches for electric lights
- Emergency 24-hour monitoring systems
- Ergonomic tools and kitchen utensils
- Travel aids such as electronic maps
- Telephone amplifiers and loud ring signalers

Improving the quality of life for older people living in their own homes has been made easier by these technologies. Some of the more interesting solutions available internationally include:



Medical Alerts

One of the most frequently used products over the years for seniors living alone or not receiving continuous supervision is a medical alert device, also known as a personal emergency response system, or PERS. These devices provide a wearable “SOS” button, typically in the form of a necklace pendent or bracelet, and a base station that connects to the home phone line. These tools can be provided in a monitored model or an unmonitored model, or, to deal with falls or health emergencies that happen outside the home, there are mobile-alert GPS products now available that work anywhere.



Monitoring Systems

More sophisticated technology for home monitoring also are available. These systems will let you know whether an elder is waking up and going to bed on time, eating properly, showering or taking their medicine. These work through small wireless sensors (not cameras) placed in key locations throughout the home. The sensors will track movements, learning daily activity patterns and routines, and will notify family members via text message, email or phone if something out of the ordinary is happening. For instance, if someone went to the bathroom and didn't leave, it could indicate a fall or other emergency. Such systems also allow family to check up on patterns anytime through the system's password-protected website. And for additional protection, offer SOS call buttons as well that can be placed around the house, or worn.



Medication Management

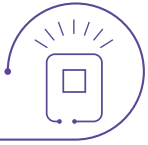
Ensuring that medication is being taken is important to maintain personal health and well-being. There are a range of medication management devices that will dispense her medicine on schedule, provide constant reminders and notify family members if medicine is not taken.



Supporting Health and Care Needs

Technology is increasingly supporting older people to live as independently as they wish, and it's helping many families avoid difficult decisions in providing care for an aging parent. “Smart” technology such as sensors, voice activation, GPS, Bluetooth, cellular connectivity via mobile phones, Smartphone monitoring apps and sophisticated computers are making aging in place a viable option for an increasing number of people.

There are many such devices that can help someone overcome challenges with memory, orientation or communication that may be affecting daily life.



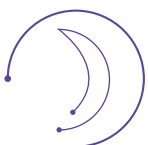
Automated Prompts and Reminders

One type of reminder, based on a motion sensor, plays a pre-recorded voice prompt when there is movement nearby. For example, a sensor placed near the front door could remind someone to lock the door, or one in the kitchen could remind someone to turn the oven off. Another kind of reminder is set to play a message at a certain time. For example, someone may record a message reminding them to take their medication or telling them that they have an appointment. This can be done on a mobile phone or tablet also. Such reminders can be personal with a family member or caregiver able to remotely access a tablet in the person's home and support them with reminders. This means the person has an active display of appointments, visitors and activities, as well as the reassurance of knowing where people who can help are and how to contact them.



Clocks and Calendars

There are lots of solutions available to help people keep track of the day and date. Automatic calendar clocks can be helpful for people who lose track of which day it is. Many show both the date and day of the week. Some clocks also show clearly whether it is morning or evening. These can help prevent people getting confused about the time, particularly in the light summer evenings. Clock and calendar apps can also be downloaded for tablets, which you can configured for personal preferences.



Medication Aid

There are lots of different medication aids available. Simple boxes for pills have compartments for each day of the week and specific times of the day. They can help people remember to take their medication on the right day and at the right time. More advanced technology might include automatic dispensers for pills that are taken regularly. These are usually stocked by the pharmacist to ensure no mistakes occur. When the medication needs to be taken, the dispenser sets off an alarm and the right compartment opens, allowing the person to access their medication. The alarm may continue until the pills are removed from the dispenser. There are also devices that can send an alert to a friend or relative to notify them if the medication hasn't been taken, or if the device isn't working, has low battery or needs refilling.



Locator Devices and Solutions

These can be used to help someone find things they regularly misplace, such as keys or a wallet. A small electronic tag is attached to each item. In one such system, the person has a dedicated locator device and, if they mislay the item, they can click a button on the locator device to make the tag beep. The locator device will need to be kept somewhere obvious, such as on a pendant around the neck. Those solutions built as apps can be included on a smart watch or other wearable. This less intrusive approach attaches a small tile to each item and these are linked to a smartphone through an app. One such system stores the last place your phone 'saw' the tile, which is displayed on the phone's map function.



Communication Aids

These can support people with dementia to stay in touch with others. The most common type of devices are adapted telephones. These can be pre-programmed with frequently used numbers. The person can then call a friend or relative by pressing a single large button or a button with their photo on it. Some telephones are even designed so only preset numbers can be dialed. Many Smartphones also offer this option using their touch-screen function. For a person who has problems with speech, an app can be used to communicate through text and images may help.



Safety

Safety is a big concern for elderly people. Technology that supports someone to remain safe can help them to stay independent for longer. Technology designed to support a person's safety includes the following:

- Automatic lights that come on when the person is moving around. They can help to prevent trips and falls.
- Automated shut-off devices that can stop the gas supply if the gas has been left on, or turn off a cooker if it's been left on. These may need to be installed, which may cost money, and there may be costs for reconnecting the gas supply.
- Water isolation devices that can turn off a tap if it's left running, preventing flooding.
- Special plugs that allow users to choose a certain water depth in a sink or bath. If the water goes above that level, the plug opens and the water drains. They can also include a heat sensor that changes the color of the plug when it reaches a certain temperature. This can help prevent floods and scalds.
- Fall sensors that can register if a person has fallen.
- Telephone blockers that can be used to stop nuisance calls.



Safer Walking

Exercise is important to older people, and walking can have both physical and psychological benefits for them. However, there may be times when walking does present risks, such as the person getting lost or leaving the house during the night when they are not appropriately dressed. Some people may consider safer walking devices or apps. Types of safer walking device include both alarm systems which provide an alert when someone has moved outside a set boundary and tracking devices or location monitoring services which use GPS or mobile phone technology to locate and track the person. These take a variety of forms and include watches, Smartphone apps, key rings and pendants. These are generally used when there is a particular risk of the person getting lost or going missing and when an alert is triggered display the location of the person on a registered device. Many such devices also allow the person to press a panic button if they get lost. Such technology is increasingly integrated into current Smartphones. There are some issues to consider regarding reliability, charging and availability of the signal required for the devices to work effectively.



Telecare

Telecare refers to a system or devices that remotely monitor people living in their own home, enabling them to access support or when necessary. Such systems include community alarms, sensors and movement detectors, and video conferencing. These are to support independence and personal safety, helping reduce risks and can be useful for people with dementia.

It is now possible to set it up privately. Telecare comes in various forms and may be used for a range of situations:

- **Community alarm** This is a pendant worn by the person that they press if they become worried or if there is an incident (eg they have a fall). The person will need to remember to wear the pendant.
- **Medication reminders** An automatic pill dispenser can be linked to a call centre. If the medication isn't taken at a set time, an alert is raised and the person is contacted to remind them to take their medication.
- **Floods** Sensors can be fitted on skirting boards or floors in the kitchen or bathroom. If taps have been left running and cause a flood, the system will shut off the water and raise the alarm.
- **Extreme temperatures** Sensors will send a warning signal if the temperature is very low, very high, or changes suddenly. This can be useful in the kitchen for example, to detect a pan that has boiled dry. It can also detect if the temperature in a room is low enough to pose a risk of hypothermia.
- **Absence from a bed or chair** A sensor is placed on a bed or chair. If a person gets up and doesn't return within a pre-set time, or if they don't get up in the morning, an alarm is raised.

- Getting up in the night Sensors placed by the bed can be used to activate an alarm when the person gets up in the night for example, to alert someone to help them get to the toilet. Similarly, lights with movement sensors can switch on if a person gets out of bed or enters a room.
- Leaving the home A system may be set up to trigger a response if the front door is opened, perhaps during specified times (eg at night), or if a person does not return within a specified time.
- Devices to monitor daily activity These are unobtrusive movement sensors that can oversee a person's activity in their home over a period of time. They can sometimes help relatives or community services get a better idea of a person's activity during the day and night. This can allay fears that the person with dementia is not coping well, and may help others to step back and not become too closely involved. Alternatively, it may show that the person needs more assistance and can be used to start discussions about the type of support that may help. An alert can easily be set to tell the person monitoring if something unexpected happens, such as a visitor at an odd time or the person leaving their home in the middle of the night.



Devices to Support Emotional and Physical Health

Assistive technology is increasingly being used to support a person's social life and provide opportunities for activities and enjoyment. Helping them to maintain relationships, skills and wellbeing. With the increasing availability of tablets, Smartphones and apps, there are many new options to help people stay in touch and engage with those close to them. These can include reminiscence, creative activities (eg music), video calling and life story work. Some specific forms of leisure that can have a therapeutic benefit would include:

- Digital photoframes programmed to show a slideshow of photographs and may help support conversation with others
- Puzzles and games
- Sensory stimulation devices that use touch, sound and light (eg a sensory cushion)
- Mental stimulation (eg 'brain training' devices)
- Easy to use equipment (eg music players and radios).

A tablet used to deliver these can itself become a topic of conversation, and so lead to more interactions for the person. This is particularly true for 'intergenerational' interactions, where the shared experience of the technology gives a younger person a connection that might otherwise not have existed.

Technology can also be used to encourage exercise and support rehabilitation exercise programs; technology such as the Fitbit seeks to help people lead healthier, more active lives, tracking steps taken, stairs climbed, distance travelled, calories burned, activity level and sleep quality. The advent of gaming based on gestures has also added new ways to help people stay fit in their own homes. Technologies such as the Nintendo Wii with the additional Wii Fit unit or the Microsoft Kinect on Xbox have been shown to offer new ways to exercise, repeat exercises or practice skills such as balance.



Leisure: Potential Trends

Opportunities for elders to use technology to participate and enhance leisure experiences are considerable. Current technologies and high speed connectivity provide the opportunity for more engaging entertainment through services that support higher quality audio-visual presentation and are more tailored to the user's interests. They also offer more life-like remote social interaction through the sharing of information about oneself and others.

Reading

For many people access to reading is in itself a leisure activity. Increasingly technology is available that makes reading for older people easier and less obtrusive. One popular technology that allows users to increase the size of the text, change contrast or font settings to maximize readability is an eBook reader such as the Amazon Kindle.

Such dedicated devices are often more suitable for older users than apps for tablets as the devices have non-reflective surfaces.

When text becomes impossible to access, some of the devices also offer text to speech to listen to books, or can access a library of audio books with human speech reading the books rather than synthesized.

Gaming

Increasingly seniors are taking advantage of a range of games for computers and mobile use. In research up to a third of seniors report playing one or more games daily. Research has suggested seniors are embracing gaming as a way to connect to their children or grandchildren. The continued growth in online gaming will make it possible for older adults to play together with friends and family who may live far apart.

Travel

Travel is defined as, "being able to function, communicate, and to use resources to move around a community, as well as to visit a distant destination." Historically older travelers have relied upon an agent to make all arrangements, however this has changed through the use of technology. Online services such as Expedia have increasingly become the preferred means of making arrangements for travel.

Such technology shift can have an impact in helping seniors increase mobility within their community, as well as to a distant destination. Apps for booking taxis easily such as Uber are very helpful to older users, although without support we are aware that seniors are not as effective in using such technology as the general population. However, older adults who learn how to use the technology can benefit from it in their pursuit of leisure and travel.



Supportive Technologies

There are a range of technologies available that have been designed specifically to meet the needs of older users. These are useful to be aware of where mainstream technologies are not proving effective in meeting needs.

Some examples include:

Targeted Tablets, offer a simple and easy-to-use interface that combines video chat, photo sharing, e-mail and other popular features into a simple touchscreen device. These are usually delivered fully installed and ready to go out of the box, so are easy to set up.

Smart TVs offer high-definition video calls and access to the Internet on a large Television screen. Such technologies do not require a computer and are designed for the living room. Such models often feature a high-definition camera with wide-angle lens and a microphone array. They may also allow users to share photos from an SD card or USB memory stick and to send and receive video mail. Choosing such a technology is complex and care should be taken to consider the design of the on screen menus and the remote controls before purchasing.

TV amplifiers help people with hearing loss to hear a television or radio clearly without turning up the volume. With such technology, users can set their own headset volume and tone while others around them set the television volume to their preferred level.



Conclusion

Users of AT have identified the benefits and downsides to their experiences of AT. Many of the benefits relate to wellbeing and confidence in living independently rather than to direct health benefits, but have been shown to be important in the package of care delivered.

Although many of the questions about service provision are posed by practitioners, it is relevant for users and caregivers to be involved in the process. Users and caregivers should be consulted during discussions about using AT in their care package and have the opportunity for continuing input. In this way, users and caregivers can help ensure that they are clear about the nature and use of the AT device, in order to get the most out of it. In addition, it would be beneficial to the increased use of AT as a health and social care response for users and caregivers to be involved in future design and development programs.

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