

# Technology and aged care in Australia

Miyahara Hidekazu Akizuki Toshiro\*

## Contents

1. Introduction
2. A case study of the Independent Living Centre (WA)
3. Discussions and Conclusion

## Abstract

This paper aims to review the activities of the Independent Living Centre (WA) and discusses the relevance of using technological aids in aged care. Independent Living Centres play an important role for older people to live independently as much as possible. However, there are some political issues involved for further development of technology in this field including re-orientation of the policy towards more capital intensive care.

## 1. Introduction

Researchers at the University of Technology, Sydney, have developed a system, called the Mind Switch, that allows a person to remotely control (turn on, change channels, turn up volume) electrical devices such as a television using their brain signals. Presently, a trial is being conducted in the homes of severely disabled persons, in which the disabled are being

---

\*Murdoch University

evaluated for their ability to control their television entirely through brain signals. So far, it has been tremendously successful, with control (e.g. turning on or off, changing channels, turning up the sound etc.) occurring reliably and quickly.

The above is quoted from Science and Technology Budget Statement of the Australian government (Department of Industry, Science and Resources, 1999). It is quite shocking and amusing that this article implies a future possibility that a completely physically disabled person may operate machines simply by ordering in one's mind. A person without arms and legs may still survive without dependency on others but with technological aids to compensate for one's immobility.

The relevance of technology to social welfare has hardly ever been discussed in academia nor policy makers. Aged care and disabled care are usually regarded as labor intensive task rather than computer and communication project. However, the importance of technological development in this field needs to be investigated more, since one may foresee greater needs for technological aids in the future for various reasons.

One reason is a possible extension of the third-age period before one enters into the fourth age. Miyahara (1998) defines the third age to be a period from retirement through to the time one has lost independence and has started relying on care and/or nursing. The fourth age is the final stage of one's life while the third age is still the time one can enjoy life independently. The border between the third aged and the fourth age is variable according to a few factors. These factors include medical treatments and technological devices. Although the third age means a time when one is still healthy and independent, whether one enters into the fourth age or not often depends on these factors which may help extend the

third age period. In Australia, the importance of technology for independent life has been recognized and Independent Living Centres have been established. These centres are investigated in this paper to evaluate its social relevance in the context of aged care.

Another reason for the recognition of technological relevance to aged care is the expected structural change in the future population. Especially in Japan, it is expected that the future population structure will consist of more older people and fewer younger people. The situation will make it difficult that more older people are cared by fewer younger people in the same labor intensive manner. The capital-intensive care system which utilizes technology to a greater extent will help reduce the burden of the younger generation to support the older generation.

Australia is a lucky country where people have a spacious living environment which is adaptable for the introduction of wheelchairs and other technological aids. Australia has a culture which appreciates abundant enjoyable life after retirement. Australia is also known to be pioneering in the development of social welfare systems. In view of these background factors, this paper investigates the use of technological aids to maintain independent life among people in Australia.

## **2. A case study of Independent Living Centre (WA)**

The Independent Living Centre of Western Australia (Inc.) is a non profit organization located at Shenton Park, Western Australia. There are six similar Independent Living Centres in Australia, one in each state. All of them are nationally coordinated by a central committee in Canberra called the Australian Committee of Independent Living Centres. The Australian Committee of Independent Living Centres is responsible for the

development and maintenance of the national guidelines and standards for the operations of an ILC, and for international representation as Australia's expert resource on technical aids centres.

This section describes the activities of the Independent Living Centre of Western Australia (Inc.) (ILC) to show how technology is relevant in assisting the disabled and other people in need.

### (1) Organization

The ILC has 22 years history since its foundation. It has seventeen full time equivalent staff headed by the executive director. The executive director reports to the board of management which is the formal decision making body of the ILC. Under the executive director, there are the deputy executive director, senior occupational therapists and other professionally qualified staff. The operation of the ILC is mainly funded by the state government and partly funded by the federal government. However, the ILC has its own source of income and has accountability for its management as a non profit organization. The facility at Shenton Park is scheduled to relocate to a new building in 2001. The budget for such capital expenditure is supported by the state government.

### (2) Operation

The ILC's professionals help people make informed choices about assistive equipment and resources. Professional advice is given to the people visiting the ILC or through a telephone consultation. In 1995/96, 16000 people visited the ILC. The ILC provides a variety of services, but the main function is the display of a great number of equipment and the relevant consultation.

### (2-1) Equipment display and consultation

The ILC has an extensive variety of equipment and tools to improve human mobility, comfort and sensory functions. There are about four thousand kinds of equipment and tools presented at the show room. The ILC does not own the equipment, but suppliers hold their ownership and they pay a fee for the exhibition of the equipment. This is a reasonable arrangement, because the ILC's staff explain how to use the equipment and provide necessary advice to visitors, thereby promoting the sales of the equipment and tools. The ILC does not sell them but informs the visitors of where and how much to buy them with a computerized data base.

Visitors to the ILC are able to see and try to use them in order to find a suitable equipment or tool. They have to make appointments to utilize the facility before they come. The ILC's professionals (occupational therapists, community nurses and speech pathologists) guide the visitors to the show room and present the possible solutions and let them try to use them. If the visitors are interested in using them and knowing more about the products and the suppliers, the ILC's professionals may show the data base in the computer to the visitors. If requested, the relevant data may be printed and given to the visitors. The data base includes information on the product specifications, dimensions, pictures, evaluations, supplier details, prices, etc. The data base holds such information concerning approximately nine thousand kinds of equipment and tools. The number is greater than that of those which are exhibited at the facility, since the data base covers not only the products commissioned by the suppliers for exhibition but also the products which are available but not commissioned. Even from a telephone consultation, information from the computer base can be mailed or faxed to people.

Then, the visitors may directly contact the suppliers for purchase, but may choose to borrow them if (i) they want to try to use them for a while before purchase, or (ii) they need them only for a while for various reasons such as replacing an item which is being repaired or rapidly changing needs, and (iii) the items they want to borrow are available at the ILC's Equipment Lending Library. The items displayed at the show room are not for lending and a separate Equipment Lending Library in the centre caters for such needs. Before describing the Equipment Lending Library, the product items available at the show room are explained as follows;

(a) Hoists, lifting and moving people

In Australia, it is legally mandatory that professional carers such as nurses or helpers use hoists when they move people who can not move themselves. This law was enacted in terms of safety of both patients and carers who may be relieved from the risk of backache. It is also effective at home to reduce home carers' load and it is feasible in Australian relatively larger houses. The ILC has a variety of hoists with different specifications.

(b) Wheelchairs and scooters

Australia is probably the only country in the world where people in the wheelchairs are able to access any public place including government offices, shopping centres and other amenities. Any building, even one with only one tenant of a public nature must have special car park lots, wheelchair access slope, special toilets, etc. The law is strictly enforced and publicly accepted. This is why overseas visitors are often surprised at seeing so many people moving in wheelchairs as part of their daily life in cities in Australia. The ILC

has various wheelchairs to meet the different needs of people.

(c) Lounge and dining room chairs

All sorts of special household sofas and chairs are available at the ILC. A sofa which may change its angle assists people to stand up from a sitting position. There are of course reclining chairs as well.

(d) Building hardware – taps, rails, flooring and more;

Some building materials are legally mandatory at public facilities for the comfort, safety and easy access of disabled people. The ILC holds such sample materials that are used for flooring and construction. In addition, there are special taps for those who have difficulty in turning water taps, and a variety of household rails and systems which will help people improve mobility.

(e) Office chairs, desks and accessories

The ILC has private-business clientele who seeks for more comfortable and safer equipment for office workers. The ILC charges consultation fee for this segment of clientele. Many office workers have physical discomfort or troubles to different degrees caused by sitting at chair for a long time working on computers. The contemporary office work conditions are quite likely to cause shoulder pains, back aches and other physical problems. The ILC not only holds furniture for those problems, but also has intellectual resources for consulting about preventing and easing the problems.

(f) Portable back and neck supports

The ILC has special supporting tools and equipment for those who

have back and neck troubles.

(g) Continence aids and advice

Incontinence is a very common problem for elderly disabled people who have dementia and other conditions. Special continence aids will reduce the load of carers and improve the comfort of these people.

(h) Eating, drinking and household

The ILC has a variety of unique utensils which help people eat and drink independently and properly. For example, a special knife is designed for those with one arm. The knife enables them to cut meat without the other arm for a fork holding a piece of meat. Another interesting invention is a cup with a special shape for those who can not bend their necks backwards. The cup enables them to drink a cup of water or juice completely without bending their necks. Ordinary people hardly ever notice how difficult it is to drink a whole lot from a cup without bending their necks.

(i) Bathing and toileting

One modern piece of equipment the ILC displays is an adjustable sitting equipment which is placed at the bottom of a bath tub. The machine may adjust the sitting angle and lift a person from the bottom of the tub up to a height where a carer can easily wash the person's body and move him or her out of the tub.

(j) Transport - modified driving equipment, getting in and out of vehicles

There is a variety of equipment which will enable disabled people to continue to drive a car. For example, a turning sitting fixture helps



people with back problems to get in and out of vehicles.

(k) Beds and bedding

The ILC holds special beds and bedding accessories. They include beds with adjustable angles and beds designed for a healthier sleep.

(l) Anti pressure cushions and mattresses

When people are confined to bed, circulation impairment may occur due to prolonged body pressure. Unless adequate attention is given to relieving pressure, it may cause skin breakdown. One of the measures for preventing pressure sores is pressure management cushions and mattresses. The ILC has a number of products which are made of foam, water floatation, fibre, gel, sheepskin, etc.

(m) Communication devices and computer access and software

Access to computer is now becoming a social necessity like driving a car. The ILC has many alternative operational accessories such as keyboards, mouses, and other interfaces for computer operation. There are products which help people who can not speak nor hear to communicate with other people. For example, a keyboard connected to a two-side screen which is connected to another person's keyboard works like a written conversation machine.

(n) Recreation

The ILC stores special games with different sizes and specifications.

(o) Clothing and dressing

Disabled people often face difficulty in wearing and taking off clothes.

The ILC has a special tool to help people to wear and take off socks. It will make a big difference for some people whether or not they need others people's help just to wear socks every morning.

(p) Childcare and children's equipment

Caring for children with a disability needs special treatment and aids. An example is a picture book for children who can not speak but has reasonable intelligence. This is a book containing most of the things which children may want in their daily lives. Children may simply point to the things they want in the book instead of speaking to their carers.

(2-2) Equipment Lending Library

The Equipment Lending Library holds less products than the show room. The products kept at the Equipment Lending Library is owned by the ILC and lent out to people for the following purposes.

- (a) to try to use a piece of equipment before purchase
- (b) to replace an item which is being repaired
- (c) to assist a person who has rapidly changing needs

Compared to the show room, the library focuses on the more expensive technical and individual needs categories of equipment such as electric wheelchairs, hoists, computers and communication devices. The standard loan period is for one month. If no other person has requested the item, the borrower may extend the loan for another month. After this time the item must be returned. A fee is charged for the loan. It is based on the value of the item. Fees range from \$10 to \$45 per item for one month. Users usually need to be referred by a therapist or a health professional. Most equipment will need to be selected on professional advice or referral.

The library staff is able to help the users. External health professionals and carers can also borrow items to assess their clients. The same fees will apply and the loan will be for a maximum of one month only.

#### (2-3) Access and Design Consultancy

The ILC provides access audits to ensure public buildings and homes are accessible to people with disabilities, the aged, parents and children. In the audits, ILC evaluates the accessibility of the buildings and houses for those people, in terms of size, angle, space, structure, shape and other design factors.

#### (2-4) Education and Training

Half or full-day workshop training sessions are available to health service providers, community groups, carers and students. Workshops can be customised to suit the specific needs of an individual or of a group. Workshop topics include (a) manual handling, (b) communication equipment, (c) pressure management, (d) disability awareness, etc. Fees are charged for all the courses.

#### (2-5) Mobile Unit

Australia is one of the most urbanized countries in the world. The majority of people live in metropolitan areas. There is no exception in any state of Australia. On the other hand, the small fraction of the population live in a vast flat land. This natural condition always raises accessibility problems in public services to country people. To solve this problem, the ILC sends a mobile caravan throughout the state. A house-like caravan is pulled by a car in the mobile caravan. The caravan carries the same data base and provides specialist information and advice

on thousands of products. In addition, the ILC is in a position to provide education and training courses and conduct access audits in the country areas.

### (3) Clientele

The ILC does not distinguish the disabled or the people of minor or temporary problems. Visitors may include all sorts of people who may wish to improve their tasks at home, school, work or community. They are usually classified as follows;

- (a) Individuals with an impairment or disability, carers of people with disabilities, family and friends.
- (b) Parents of a child with a disability.
- (c) Service providers including occupational therapists, physiotherapists, nurses, care staff, teachers, speech pathologists, architects and others.
- (d) Students including health professional, design, and other students.
- (e) Manufacturers and suppliers.
- (f) Government representatives, including those from Health, Disability Services, Trade and Commerce, Public Guardians Office, Education and Employment departments.
- (g) Overseas visitors to Perth who wish to view the range of products available in Western Australia.
- (h) Private industry and business people who wish to have a comfortable office environment and meet the needs of office workers with temporary problems.

Fees do apply for consultancy services and training to the government

- (f) and private industry (h). All other services are free.

#### (4) Accountability and management plans

The ILC is a non-profit organization and therefore, the income is used for cost recovery without margin for profit. In reviewing the operation of the ILC, the following six sources of income are identified.

- (a) The fundamental operation cost is funded mainly by the state government and partly the federal government.
- (b) Fees are charged to the suppliers which display the equipment and tools at the show room.
- (c) Fees are charged to the people who borrow the items at the Equipment Lending Library.
- (d) Fees are charge to the consultation for the government and private industry.
- (e) Fees are charged for various training and education sessions.
- (f) Other costs of a capital nature such as construction of a new building or a research project are sourced mostly from relevant government budget items.

Although the ILC maintains monopolistic exposure in the state as a unique facility, there is always competition for sourcing government funds. The government, on the other hand, evaluates the operational effectiveness of organizations which the government supports. As a venue for future expansion, the ILC implied a few strategic directions. One is research in the communication area like a new service on the internet. Dissemination of the data base on the internet is under planning. An electronic game on the internet designed for the disabled is being researched. Another strategic direction is the export of the whole management system of the ILC. The ILC has completed a project of transferring knowhow to Singapore and

is looking forward to another opportunity.

### 3. Discussions and Conclusion

This paper aimed to review the activities of the ILC to assess the technological relevance to aged care. The ILC's main goal is indeed to facilitate the application of technical aids for aged care. The ILC provides other services to a number of customer segments. The ILC plays an important role in helping these people as an information centre which provides them with what equipment are available, how to use and purchase them, and reasonable advice as to which one to choose. The ILC's main services are lending and consultation for trial use at the show room, which provides them with the opportunities of temporary use and bridging before purchase.

People with a physical impairment have a variety of problems to different degrees. Therefore, a variety of products are needed to meet their requirements. However, it is almost impossible for them individually to shop around for products which suit them best out of thousands of different specifications. Thus, the ILC's data base and professional advice are useful in a manner which integrates customers' needs and cost-effective supply of information service.

There are some political issues involved in the development of technological aids for the aged care. Although the ILC plays an important role in the aged care at the present, the future development will rely on a few political issues which include the following; These issues need to be discussed in the countries which may have the same problems.

#### (1) Government policy concerning science and technology

The story of the mind switch which has been introduced in section 1 of

this paper is quite exceptional in the past few years in the government budget statements. Most of the cases reported in the budget statements are concerned with manufacturing, medicine, agribusiness, mining, computer and communication, biotechnology, etc., not the technological development in aged/disabled care. This means that the government resource allocation for science and technology has almost completely ignored the importance of research and development in this field. It is a blind spot in the application of technology. The government policy probably reflects the people's level of awareness concerning aged care as a conventional labor-intensive job.

## (2) The capital intensive care vs. labor intensive care

As broadly discussed, the structural change in population is expected in many countries of the world in the coming 20-30 years. Especially in Japan, many more older people will need to be supported by fewer younger people. At the same time, the period of the third age will extend further and people's dependence on technology to live independently will increasingly be more important. Therefore, this paper suggests that the capital intensive care needs to be investigated more towards the future social needs. The capital intensive care means the support to the aged and the disabled by technological aids so that they may live more independently and carer's labor may be reduced.

## (3) Consideration of export market and relevance of life style

Some of the equipments exhibited at the ILC are exported to Japan through trading firms. Some of them are useful as they are used in Australia, but some of them may need modification to suit Japanese living conditions. Many of the older people in Japan live in a flat in a multi-story building,

often without an elevator. The flat's bathroom is small and the bathtub is not flat. Wheelchairs which have run on muddy roads are not allowed directly to run into the tatami-mat rooms. There are a number of environmental differences. Therefore, Japan needs to do its own research to develop effective technical aids to suit Japanese environment. Miyahara (1997) has pointed out the influence of life style, e.g., sleeping on bed or futon, on aged care. The relationship between life style and aged care in terms of technological aids may need further investigation.

#### References

- Department of Industry, Science and Resources, 1999, *Science and technology budget statement 1999-2000*. Canberra.
- Miyahara, H. and Miyahara, K. 1997, *Korei shakai wo tanoshimu*. Nakanishiya Syuppan, Kyoto.
- Miyahara, H. 1998, A study of retirement village in Australia. *The Economic Review of Daiichi University, College of Economics, Vol 28*, No. 2-3.