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They Said: A Global Perspective on Access to Assistive Technology

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Abstract

International experts in assistive technology from five global regions (South America, Asia Pacific, Europe, Africa, and Australia) and with affiliation to the World Health Organization (WHO) Global Cooperation on Assistive Technology (GATE) community were invited to share their perspectives on the delivery of assistive technology and provision of assistive products in their regions. Four common topics emerged from the experts: (a) user and environmental barriers; (b) policy, funding, and product access; (c) professional training, collaboration, and service delivery; and (d) occupational justice (i.e., empowerment, participation, and progress).

Keywords

assistive technology, occupational therapy, occupational justice

Cover Page Footnote

We would like to acknowledge the work of the World Health Organization (WHO) Global Cooperation on Assistive Technology (GATE) community, especially the members who have responded to and participated in this panel discussion. This editorial was not funded and is not subject to ethical approval.

Credentials Display and Country

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For the special section on technology of *The Open Journal of Occupational Therapy*, we invited a group of international occupational therapists (OTs) who are experts in assistive technology (AT) and who participate in the World Health Organization (WHO) Global Cooperation on Assistive Technology (GATE) community to answer questions and discuss factors influencing access to AT in their regions. We chose a diverse group of experts from five different regions of the world: Europe, South America, Australia, Asia Pacific, and Africa. We intentionally did not include a North American perspective, as this perspective has been extensively addressed in contemporary AT literature. In addition, all articles published in this special section of OJOT represent a North American perspective.

Access to AT can provide individuals with the ability to participate in the community, education, and everyday occupations. The vision of GATE is “a world where everyone in need has high-quality, affordable assistive products to lead a healthy, productive and dignified life” (WHO, 2018, para. 3). The GATE seeks to fulfill this vision through the provision of an international policy framework and research, and the provision of a service delivery model and personnel training. With consideration of this vision, OTs provide a unique perspective on access to AT as key stakeholders in the GATE community.

The experts who agreed to engage in the international dialogue provided thoughtful and extensive responses. We are unable to provide the breadth of the conversation here secondary to space limitations. We found many common themes in the experts’ insights despite differences in policies, populations, and geographical locations. Rather than provide a script of successive questions and answers, we opted to group the responses according to commonly identified strengths and barriers of AT service delivery. The responses below have been edited, reviewed, and agreed on by the experts to fit the format of the discussion and this editorial. Overall, several topics emerged from our experts as factors affecting access to AT: (a) user and environmental barriers; (b) policy, funding, and product access; (c) professional training, collaboration, and service delivery; and (d) occupational justice (i.e., empowerment, participation, and progress). It is interesting to note that these topics are closely related to the WHO (2017) priority research themes: people, products, policy, personnel, and provision (5P). For the purpose of this interview, we are guided by the terms assistive technology (i.e., the skills and knowledge related to AT service delivery) and assistive products (AP) (i.e., products developed to promote function, independence, and well-being).

Theme 1: User and Environmental Barriers

Mr. Jofré (South America): It’s known that my country is a long and narrow strip of land. There are factors that determine the distribution of human and economic resources, like population density, the demand for AP, the original culture/ethnicity of the user, geography, rurality, and the socioeconomic stratum to which the person/client belongs in each region of Chile.

Ms. Kongkerd (Asia Pacific): I think major limitations to AT use are service delivery and physical environmental barriers. Even though basic assistive devices, such as walking aids, wheelchairs, prostheses, and orthoses, are provided for free, many of these do not meet the needs and living environment of users. The devices are sometimes provided without appropriate service steps, such as fitting, proper training, and follow up.

Dr. Pousada (Europe): The main users of AT in Spain are people with disabilities and older people. It is estimated that, in Spain, the number of potential users of AT are about 1.5 million. However, despite the fact that this number is very high, they (potential users) have little knowledge about the devices that exist in the market, the needs that can be covered by AT, or their rights regarding

their acquisition. This reality encourages the number of end users to be clearly lower. In addition, the effective use of AT by people with disabilities and their integration in daily life can be difficult because of certain environmental factors. For example, the presence of stairs or inaccessible places restricts the access to and use of public spaces by this population. The stereotypes between citizens still exist, so users of wheelchairs might be uncomfortable using that device in public places. The expensive prices of products, the lack of information about the variability of AT devices, and the possibilities for acquisition by people with disabilities are also barriers.

Ms. Giljam (Africa): The majority of South Africans live in poor socioeconomic circumstances. Having access to a wide range of locally appropriate 24-hour positioning devices from the government is a major facilitator promoting the inclusion of people with disabilities in social, economic, and political opportunities. However, in reality, there are also challenges with the system. A large percentage of our population live in rural areas where users struggle with physical access challenges due to severe rough terrain, lack of accessible and affordable transportation, lack of trained staff to carry out wheelchair service provision and support services, and budget challenges related to product procurement. For instance, users can travel up to 5 hr to a health center to access these services; we struggle with a lack expertise in the field, especially in rural areas. Despite much progress in recent years, we still come across stigma in our communities. There are many traditional and cultural beliefs about the causes of disability, and this can cause parents to be ashamed or scared to take their children out of the home. This means that children do not access health care and other services and are isolated in their homes.

Dr. Layton (Australia): AT use in Australia is as diverse as our country itself. Conditions range from equatorial heat with wet and dry seasons, to temperate regions with snowfields. Our population of 25 million people congregates around the coast in urban centers, but also lives in regional, remote, and very remote communities. Less than 4% of Australians identify as indigenous or First Australians, that is, Aboriginal and Torres Strait Islander peoples. A range of barriers means First Australians have substantively worse health and education outcomes. Culturally-safe occupational therapy and AT practice is required to approach service delivery in a culturally appropriate way; to ensure a common understanding of valued outcomes; and to ensure that AT is appropriate for terrain, identity, practicality, and longevity.

Theme 2: Policy, Funding, and Product Access

Mr. Jofré (South America): In Chile, under established public policies linked to the system and/or service delivery, AT is coordinated by programs from the Ministry of Social Development, the National Disability Service (SENADIS), and the Ministry of Health. The Ministry of Finance organizes and distributes the funds of the country based on the advice of experts of each area.

AP—for example, those included in the Technical Guidelines for AT (Ministerio de Salud, 2017) or in the list of AT financed through SENADIS (SENADIS, 2018)—are available to customers in different ways. The most common and accessible method for anyone who can afford it is through stores specialized in this area. Another way is through public policies of the state that are freely accessible to those who are part of the public care system. Those dependents of the SENADIS are delivered free of charge to the poorest percentage of the population and through financing shared with the other percentage of the population. When describing the manufacturing source or origin of these products, a high percentage is imported from other countries, mainly from the Region of Asia, Oceania, Europe, and North America; a smaller percentage is directly manufactured in Chile.

Ms. Kongkerd (Asia Pacific): AT use has been widely promoted in Thailand since 1991 when the first disability law was passed in which assistive devices were stated as one of the essential services that the government must provide to persons with disabilities. The Ministry of Public Health via governmental hospitals provides the majority of services. Some types of devices are provided to children with disabilities in special education schools supported by the Ministry of Education. The Ministry of Digital Economy also provides some devices. The laws and regulations influence the provision of AT in all sectors. Most devices are provided free of charge. However, only devices on the approved funding lists can be provided, as hospitals can reimburse from public health insurance schemes. Policy on promoting the rights of persons with disabilities is the main factor that influences accessibility and availability of devices.

Dr. Pousada (Europe): In a few regions of Spain, clients can buy assistive products with financial assistance, but it only covers the price of wheelchairs and mobility devices, not the rest of other ATs necessary for daily life. Many clients buy their APs from other clients who no longer need their devices. Orthopedic clinics sell different types of APs mainly for mobility, grooming, bathing, and feeding. These devices are very expensive. Each region of our country has its own system to manage AT services. These systems can depend on the availability of social services or health services.

Ms. Giljam (Africa): World Health Organization guidelines on the provision of manual wheelchairs in less resourced settings lay out the process in a simple and easy to understand manner that can be applied in many different settings (WHO, 2012). In a setting such as in Shonaquip, this is the primary basis of the structure of our service, as we do not provide occupational therapy services in the traditional sense. We do, however, use our occupational therapy-specific skills in assessing clients and advising parents on any recommendations that we feel are relevant for their children. Although there is much potential for this to be sustainable and ethical due to the development of international guidelines and training by the WHO, in the majority of situations, these devices are provided to users who have not been formally assessed. Limited types of devices are made available and there are no support services, such as fitting and training, as part of the delivery of devices. With medical aid and non-governmental organization funding, most of these devices are not locally manufactured and thus it is difficult and costly to maintain them.

Dr. Layton (Australia): Our National Disability Strategy (Commonwealth of Australia, 2011) and Aged Care Reforms (Tune, 2016) support a vision where all Australians go about their social, community, economic, educational, political, cultural, spiritual, and recreational lives with equitable access to enabling products for mobility, communication, self-care, instrumental tasks, and cognitive support. Realizing this vision is, however, a work in progress. Australians are likely to come across AT through their engagement with government or nongovernment services. Health care, disability, aged care, early childhood intervention and education, compensation systems, veterans' affairs/defense, corrections, and job access (work) are key funders of AT. There are substantial pragmatic constraints on occupational therapy practice in terms of funding for AT services and products. Quality of life, increased autonomy, decreased difficulty with activities, and increased participation are evident in the literature base. Therefore, to build the case for good policy in the provision of AT and related supports, a cost effectiveness argument is required. Australia's current impetus to improve access to AT, whether for aged care, private health care recipients, or others, is based in the clear effectiveness argument for bundled provision of a suite of AT products and services. The next challenge for the AT sector, led by OTs, is to make the cost effectiveness argument to relevant funders to enable equitable provision of this

enabling resource. Australia and New Zealand are first world economies, but with sparse populations, the majority of AP are imported from overseas. Australia and New Zealand Standards Committees collaborate to write new standards as necessary to harmonize with international standards and to minimize barriers to importation. Australians who seek AT to make life easier will find small ranges of AP in their local pharmacy, more extensive ranges in specialist rehabilitation and mobility supply shops, and increasingly, mainstream products with assistive features in general hardware or supermarket chains.

Theme 3: Professional Training, Collaboration, and Service Delivery

Mr. Jofré (South America): The level of development that the AT service has at the national level is still incipient, therefore the way in which it has been integrated into the occupational therapy process has also been basic. Occupational therapists only have undergraduate training at the university level, and then begin to practice and carry out AT processes. It then depends on the practitioner's interest and motivation to acquire specialization and greater knowledge in the area in order to also provide better service to users. In this line, I have made efforts to integrate AT in the environment where I work by sharing support materials and attending talks, courses, and seminars on the subject. Personally, I have spent the last several years disseminating information about AT services among colleagues and academicians, participating in 3D printing projects, providing training for software and computer access technologies, home automation, and other seminars and lectures. I also see a great opportunity for sustained growth of technology in global terms, not only for those in the health sector, but also for those in information and communication technologies and social networks. I believe that challenge and effort must be invested for promoting the training of university instructors who teach our discipline and who can offer more graduate programs, disseminate knowledge about best practice, and establish networks and alliances of mutual cooperation among those of us working in this area.

Ms. Kongkerd (Asia Pacific): Service delivery and the knowledge and skills of personnel need to be improved in Thailand. The provision of AP needs more up-to-date knowledge and skills than what is covered in conventional occupational therapy programs. Knowledge and skills in the provision of AP are still limited among all rehabilitation professionals. This is why OTs who work in AT are still small in number. Currently, interest in the design of new APs among different professions, such as engineers, architects, therapists, and doctors is rapidly increasing. OTs can work in partnership with those other professionals to create new products.

In Thailand, OTs place more attention on devices for basic activities of daily living (ADLs) as a result of a limited number of professionals in many settings. Therapists have to assess both users' needs and the availability of devices. If devices are not available, then therapists must be creative and design and produce devices for users. OTs are strong in identifying clients' needs in all areas. I think there are many opportunities for AT in OT practice as OTs are able to assess clients' occupational performance, life style, and environment. When physical and mental limitations are identified, AT might be able to help. However, therapists may need to be more open and proactive.

Dr. Pousada (Europe): In Spain, OTs have acquired knowledge about AP during their bachelor's studies to promote autonomy of people with disabilities and older people. Professionals work jointly with clients in providing, prescribing, training, and monitoring AT devices. One barrier, however, is that there is neither a model nor protocol that exists [in Spain] to implement AT systems in occupational therapy and the larger health care community. AT is an important tool in the professional

competences of OTs in Spain. In fact, there is a good number of OTs who are specialized in the use of AP as a tool or resource during treatment of people with disabilities and older people.

Ms. Giljam (Africa): In rural areas and some urban areas, there is a lack of understanding from therapists as well as users and families about the importance of having an appropriate wheelchair. In many situations, only one type of wheelchair is requested or ordered, and then this device does not support the posture and needs of the user. Being able to properly assess a user, select a wheelchair, and fit that wheelchair is a specialized skill, and not many people are trained in this field. Wheelchairs need to be repaired, adjusted, and maintained on a regular basis in order to extend their length of usability. Access to these types of services in South Africa is limited and, although there are spares available, they are difficult to access. Therapists also don't always have the skills to carry out the maintenance and repair of wheelchairs. In many cases, when something breaks on the wheelchair it is abandoned instead of repaired, and this adds to the cost burden in our health system. In terms of the future for AT and occupational therapy, I feel they are so complementary and part of each other that we would fail our clients if the two are not provided simultaneously and or did not have their goals aligned. The purpose of the device is not only to prevent the development of secondary complications, but also to promote independent mobility, improve body stability and function in sitting, and increase the user's ability to take part in activities. These are so well aligned to the goals of occupational therapy, and when used together with the same goal, can enable users to live their life to the fullest potential.

Dr. Layton (Australia): AT as a key occupational therapy strategy is taught in occupational therapy school curricula. Professional development events on AP are run by Occupational Therapy Australia divisions and by technology suppliers and are highly sought after. Occupational therapists are prominent in interdisciplinary conversations about AT—for example, leading transdisciplinary practice approaches in public health; working toward credentialed AT training opportunities through the peak body, Australian Rehabilitation and Assistive Technology Association (ARATA); and researching and coproducing evidence on AT use at relevant conferences. Good practice steps of initiation, evaluation, trialing, adapting and training, providing, maintaining, and reviewing are built into occupational therapy management plans. Occupational therapy and AT go hand-in-hand in Australia. Scope of practice discussions continue around boundary products, such as mobility devices and physiotherapy, pressure care and nursing, and switch access to communication devices and speech pathology. But a highly collegial sector (evidenced by the presence of our Allied Health Professions Association, AHPA) generally work collaboratively to ensure practical outcomes for our consumers. While new technologies emerge from engineering, human-computer-interaction, and design fields—which have not had a deep engagement with human diversity—occupational therapy can provide an invaluable contribution to appropriate, user-led design.

Theme 4: Occupational Justice, Empowerment, Participation, and Progress

Mr. Jofré (South America): I think that AT has definitely come to stay and can be a contribution of great value in the lives of people, not only for those who have a health problem, but for everyone. There is no doubt that technology makes it possible for significant occupational participation in different daily activities, in some cases being a determining tool in our users'/clients' ability to maintain or improve function and independence. In terms of occupational justice in such a long and diverse country as Chile, significant efforts have been made in the last decade to reduce access gaps in this area, allowing more people to access AP. Today we talk and see more transversal inclusion processes, more equal opportunities, and equal conditions in access to different areas, whether social,

political, cultural, economic, or other. In this way, the exercise of citizenship has been promoted to a human rights perspective—an aspect that also transcends the use of AP. It is incipiently clear that in the last 20 years, as technological development progresses in a global way, the contribution of AT in people's lives is also becoming clearer. For our profession, it is important to understand how to properly handle the use of technology while not saturating the client with support devices, but still maintaining occupational balance according to the needs and characteristics of our users/customers.

Ms. Kongkerd (Asia Pacific): In Thailand, many people with disabilities say that they prefer caregivers rather than using assistive devices. This might increase the burden on family members and caregivers. Some families have to spend a lot of money to hire caregivers. I think this may be because they don't have appropriate technology to make things easier. This could challenge therapists and inventors to create technology to support them and reduce caregiver burden. The appropriate technology will come when providers have knowledge and skills, and users know their rights. Attitudes toward persons with disabilities have also been changing over time. Stigma can still be seen, but much less than before. Persons with disabilities are accepted as people who are able to live and participate in society. They are empowered in all dimensions through access to medical services, education, work, and political activities. I think this could also influence the use of AT. People with disabilities know their rights, and the use of assistive devices can make their lives better.

Dr. Pousada (Europe): AT is one the best environmental factors to improve autonomy and facilitate performance and participation of people with activity limitations. Changes are needed to facilitate AT provision and management systems. Success will depend on different stakeholders and for OTs to play an active part in that change. AT is one scope of intervention for professionals, and it is important that we have opportunities to develop innovative methods and collaborate with governors, other professionals, and users and families.

Ms. Giljam (Africa): If mobility assistive devices are provided improperly (i.e., they are inappropriate) and without the correct training and support, they can actually facilitate occupational injustice and hinder the user from being able to fully participate in daily life. Likewise, if there are no locally available and accessible support services, the mobility assistive device can break down, become unusable, and can also cause harm if the user continues to use it out of desperation. Appropriate AT has the power to change people's lives and improve their ability to take part in all daily activities and roles. The key part here is that the mobility AP should be appropriate to each user's needs and environment, provide him or her with the appropriate posture support and fit and be easy to repair and maintain locally. With these elements, we can see that mobility assistive devices can facilitate occupational justice and promote meaningful engagement in daily occupations.

As our systems for mobility AT provision have been well-established for some years, we see that our clients are more able to participate in self-care, leisure, and school activities on a daily basis, and this enables our occupational therapy practice and interventions to be more impactful on clients' and families' lives. Having access to appropriate devices and services means that users are more active from a younger age and tend to develop less secondary complications, such as posture deviations and pressure sores. With the use of mobility assistive devices, occupational therapy interventions can facilitate more meaningful and sustainable community integration and participation of children with disabilities.

Dr. Layton (Australia): OTs are instrumental in enabling outcomes at individual, community, and system levels. In access-enabled communities and facilities you may see an older Australian riding to stores on a powered mobility scooter, a child in a mainstream classroom using an adapted pen grip, a

university student using text-to-speech with recorded lectures, a reverse integration wheelchair basketball team, and residents from the local aged care facility using a wheelchair accessible nature walk. The OT, as the health professional with the widest scope of practice across AT, must be an expert at managing the varying administrative systems in place and the inequities entrenched in them. Inappropriate technologies represent barriers to participation and opportunities lost. OTs are instrumental in making cost-effective and occupational-participation based arguments for the provision of fully featured power wheelchairs, which can manage diverse environments through curb climbing, seat elevation, and home automation-enabled integrated controllers—a game changer for many in terms of autonomy, independence, and the substitution of paid support. Australian OTs as system thinkers agree that, beyond AP, a range of systems, services, and policies need to be in place to deliver empowering, appropriate, and enabling AT solutions. The journey continues!

Expert Biographies

***Thais Pousada** is a professor in the Faculty of Health Science at Universidade da Coruña (Galicia, Spain). She has a PhD in health science, an MSc in assistance and research in health science, a BA in occupational therapy, and a BsC in nursing. She is member of Research Group RNASA-IMEDIR and is a member of the Expertise Committee of Rare Diseases in Spain.*

***Felipe Jofré, OT**, has worked since 2012 in public health primary health care under the model of community-based rehabilitation. In this context, the service of AT is delivered by a framework or protocol established by guidelines and standards issued by the Ministry of Health and the Ministry of Social Development.*

***Phatcharaporn Kongkerd, MSc (OT)**, has been involved in AT services for a decade. She is currently head of the Assistive Technology Unit, National Medical Rehabilitation Institute (SNMRI), Thailand. She has experience in providing occupational therapy for people with physical and mobility impairment and providing assistive devices for people with mobility disabilities and with visual disabilities.*

***Megan Giljam** is an occupational therapist working at Shonaquip and Uhambo Foundation working in the field of assistive devices as a tool for inclusion. She developed a passion for wheelchair seating as well as community development work while working at a deep rural hospital in South Africa.*

***Dr. Natasha Layton** is an occupational therapist practicing, researching, and teaching in the areas of assistive technology, disability, and outcomes. She is a senior lecturer with Swinburne University of Technology in Victoria, Australia. Natasha is President of the Australian Rehabilitation and Assistive Technology Association (ARATA). She works locally and collaborates with consumers at the state and national level in Australia, with disabled persons' associations and peak AT bodies, and internationally with the ISO product standards for AT and the World Health Organization (WHO) Global Co-Operation on AT Initiative.*

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