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Culturally Safe Assistive Technology Provision in Australia: Concept Mapping Perspectives From Aboriginal and Torres Strait Islander People

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ABSTRACT

Disparities in Assistive Technology (AT) access exist for Aboriginal and Torres Strait Islander peoples despite recent policy reforms. This paper brings together First Nations and Western academic ways of being, knowing and doing to deliver an AT practice analysis based upon primary data from two research reports into the cultural safety of AT information, products and services in Australia from the perspective of older persons. Secondary analysis was conducted through concept mapping utilising the World Health Organization 5P people-centred AT model and AT provision guidelines. Findings from this secondary analysis were returned to and checked by the six Aboriginal and Torres Strait Islander communities that contributed to the primary data source. Secondary analysis generated barriers and facilitators related to people, products, personnel, provision and policy, and nine principles to support culturally safe assistive technology provision in Australia. There is a paucity of research to guide culturally respectful and safe AT programmes with First Nations peoples in Australia. The primary data reports, and this secondary AT practice analysis, offer new evidence of actions required if Australia is to deliver assistive products and services in culturally safe and effective ways.

1 | Introduction

Health interventions enable people to function and to flourish. These interventions may be needed by any person during their lifespan for reasons of illness or injury, or related to ageing with disability or ageing into disability (World Health Organization 2019, 2021, 2015). One important health intervention is assistive technology (AT). AT refers to the combination of assistive products and the associated advisory services necessary to select and fit products with individuals based on their unique goals and context (World Health Organization 2023). Appropriately provided, AT can optimise functioning and reduce the experience of disability and includes products such as mobility supports, adapted cooking products, vision aids and bathing equipment (WHO and UNICEF 2022). The World Health Organization (WHO) urges Governments to provide access to AT through universal health care initiatives (World Health Organization 2022; United Nations 2023). The United Nations identifies access to AT as essential to delivering human rights (United Nations 2006).

Global bodies recognise the imperative for any health actions to be undertaken in the context of culture (World Health Organization 2001, 2024 release). Culture, language, gender,

age and indigeneity shape identity, and influence the way health interventions might be experienced (United Nations 2018). Evidence demonstrates significant health inequities linked to cultural and linguistic diversity and indigeneity, compounded by both social determinants of health and health risk factors (Australian Institute of Health and Welfare 2024b; World Health Organization 2022). These inequities are further compounded by western culture's failure to value the contributions of traditional knowledge systems to science and technology, as ways of being, knowing and doing or perceiving and understanding the world (UNESCO 2000; Yunkaporta, n.d.). While the journey towards full realisation of epistemic justice in culture and indigeneity is not complete, a current key concept is that of cultural safety.

Cultural safety for Aboriginal and Torres Strait Islander peoples[1] is determined by the individual's experience of feeling respected, safe, and empowered in their service encounter, where their cultural identity, values, and preferences are explicitly recognised and affirmed (Australian Health Practitioner Regulation Agency 2025; Victorian Government Department of Health 2020). Service providers must actively create broadly culturally safe environments through ongoing self-reflection, addressing power imbalances, and adapting practices to meet diverse cultural needs. This makes cultural safety both a subjective individual experience, and a continuous shared service provider responsibility (Craft et al. 2022; Tujague and Ryan 2021).

While there is a broad set of literature focusing on cultural safety, there is a paucity of research pertaining to culturally safe and respectful AT provision for Aboriginal and Torres Strait Islander peoples in Australia. Evidence available in this area can only be found in non-academic literature, and pertains to small numbers in the larger community population and only specific dimensions of practice (see e.g., Walker et al. 2013; Congdon and Lindop 2019). With evidence that AT use increases with age, the latest reporting indicates that the Aboriginal and Torres Strait Islander population is ageing. As of 2016, approximately 124,000 older Aboriginal and Torres Strait Islander peoples (50+ years) were living in Australia. This number has continued to rise in recent years and is projected to keep growing steadily in the coming decades (Australian Institute of Health and Welfare 2024b, 2024c).

The introduction of Australia's second Disability Strategy recognises access to AT as a policy priority (Australian Government 2021). As a result, the Australian Government has commenced tracking the proportion of Australians within Australia's National Disability Insurance Scheme (NDIS) who receive AT, and whether these supports vary for First Nations and non-Indigenous NDIS participants (Australian Institute of Health and Welfare 2024a). Most recent data indicates that 36% of First Nations NDIS participants received AT supports, compared with 46% of non-Indigenous participants. This data begins to illuminate the disparities in AT access for First Nations Australians. Given the ongoing evidence gap that exists, however, further understanding of contemporary AT provision in Australia is required. This understanding should be informed by primary data sources that are co-constructed with Australia's First Nations population, Aboriginal and Torres Strait Islander peoples (Sherriff et al. 2019).

1.1 | The Australian Context

Two of the largest public policy initiatives that fund AT in Australia are the government-run National Disability Insurance Scheme (NDIS, n.d.) and My Aged Care (Commonwealth Department of Health and Aged Care, n.d.). Each has high-level policies or guidance espousing the importance of cultural safety. See, for example, the NDIS inclusion and diversity framework (https://www.ndis.gov.au/about-us/careers-ndia/inclusion-and-diversity); NDIS First Nations Advisory Council (https://www.ndis.gov.au/about-us/reference-group-updates/first-nations-advisory-council); and My Aged Care guidance (www.myagedcare.gov.au/support-people-culturally-and-linguistically-diverse-backgrounds and https://www.myagedcare.gov.au/support-aboriginal-and-torres-strait-islander-people). Both schemes fund AT deemed low risk (no prescription or customisation required), under advice (would benefit from professional advice to ensure that they are selected, installed, or used effectively) and high risk/complex (must be prescribed by a suitably qualified health professional) (Department of Health, Disability and Ageing 2025). Low-risk and under-advice products represent the highest allocation of AT funding across both disability and aged care initiatives delivered in Australia, and this is particularly the case for older Australians (Australian Healthcare Associates 2020). It is also important to note that, from November 2025, a new AT and Home Modifications (HM) scheme will commence in the Support at Home Program for Older Australians (as part of My Aged Care). Recent research has highlighted some of the market stewardship issues that require close attention to ensure inequities do not widen or become entrenched within government programmes for particular subsets of programme recipients (Carey et al. 2019; Green et al. 2024; Layton et al. 2024). Given this, particular to the new Support at Home Program for Older Australians, there is now some information on this change available specifically for Aboriginal and Torres Strait Islander communities, with more consultation underway (Australian Government Department of Health and Aged Care 2024).

1.2 | Acknowledgement of Country and Theoretical Approach of the Authorship Group

This paper is written by authors who bring service provider and academic roles with identities including First Nations, disability and both Indigenous and western healthcare. We acknowledge and pay our deepest respects to the Traditional Custodians of the land upon which we live, learn, and work. We recognise the deep, enduring connection that Australia's First Nations population, Aboriginal and Torres Strait Islander peoples, have with this land—a connection that spans thousands of years. Their stewardship is an ongoing source of inspiration, reminding us of the respect and care with which we must continue to treat this place we call home. By offering this acknowledgment, we affirm our awareness of the past and the ongoing relationship of Aboriginal and Torres Strait Islander peoples to their land and culture. We also recognise that this land was never terra nullius. Instead, it was home to complex societies, guided by a deep understanding of science, physics, and mathematics. This knowledge fostered innovation and reflected the strength, wisdom, and resilience of Aboriginal and Torres Strait Islander peoples throughout history.

In this current work, our theoretical approach is one of epistemic justice, or fairness in how knowledge is produced, shared, and valued (Udah 2024). Epistemic justice ensures that marginalised voices and perspectives are included and respected, and that power is shared (Carroll et al. 2020; Sherriff et al. 2019). Importantly, we align with and follow, the protocol in this work that 'if you take something, you put it back' (Yunkaporta, n.d.). The original primary research undertaken with First Nations communities to learn about AT provision (Independent Living Assessment 2024, 2025), and this secondary analysis, have been shared back with First Nations communities to ensure this knowledge sits with them.

1.3 | Background to this Conceptual AT Practice Analysis

To establish whether older Aboriginal and Torres Strait Islander peoples find AT information and service provision to meet cultural safety aspirations, research was conducted by Independent Living Assessment (iLA) with a number of Aboriginal and Torres Strait Islander communities and Aboriginal Community Controlled Health Organisations (ACCHOs), which are community-governed organisations (Independent Living Assessment 2024, 2025). iLA is a Perth-based for-purpose organisation delivering digitally enabled programmes across Australia, that empower genuine and informed decisions through the provision of independent information, navigation, and capacity-building initiatives, with a unique expertise in AT and reablement. The aim of this current paper is to undertake a conceptual AT practice analysis of data from these two reports, utilising the World Health Organization's 5P person-centred AT model (World Health Organization 2020) and related guidelines for AT service delivery (Layton et al. 2024; World Health Organization 2020), and return that to the six Aboriginal and Torres Strait Islander communities that contributed to the primary data source. This reflects a commitment to decolonising the AT ecosystem, by critically reflecting on dominant service models and recentering Aboriginal and Torres Strait Islander perspectives and priorities as fundamental to transformative practice (Mackean et al. 2025).

2 | Method

The secondary data analysis reported in this paper utilised concept mapping, a useful methodology to enable 'diverse participant groups to develop shared conceptual frameworks that can be used in a variety of policy contexts to identify or encourage complexity, and the adaptive emergent properties associated with it' (Cabrera 2009, 11). Specifically, this approach was used to undertake a conceptual AT practice analysis and mapping of published data provided in the form of two iLA reports (Independent Living Assessment 2024, 2025). This secondary analysis of existing data does not involve research with human participants and so did not require human research ethics approval.

2.1 | Participants

The original iLA research reported the use of purposive sampling to recruit two groups: (1) Aboriginal and Torres Strait Islander peoples aged 50 and above, self-identifying as someone who might benefit from access to low-risk and under-advice assistive products and (2) staff from ACCHOs, self-identifying as someone working closely with Aboriginal and Torres Strait Islander peoples aged 50 and above within their organisation's aged care and disability services. These groups comprise a primary dataset published in two iLA reports (Independent Living Assessment 2024, 2025).

The iLA research included perspectives from Aboriginal and Torres Strait Islander persons and staff from ACCHOs. While only service users can determine cultural safety on an individual-bases, ACCHO staff are embedded in community life and possess the practical knowledge necessary to help articulate barriers to cultural safety within service delivery, and to develop effective, feasible solutions to community and individually defined needs (Campbell et al. 2018; National Aboriginal Community Controlled Health Organisation 2019). Including the perspectives of staff from the community-controlled sector reinforces Indigenous leadership in health decision-making and service delivery. This approach aligns with the United Nations Declaration on the Rights of Indigenous Peoples, ensuring that Indigenous health solutions are community driven and effective (Australian Government Department of Health 2021).

2.2 | Data Collection

The research guided yarns[2] were conducted by iLA, online and by phone, between August 2023 and January 2024. These yarns ranged in duration from 60 to 90 min and aimed to: (1) identify factors that could contribute to culturally safe AT information and service provision for Australia's First Nations population, and (2) clarify which areas require more understanding to support progress in this area. There was a specific focus on three support types available under the Australian Government Aged Care Act being loan or subsidised assistive products, and wrap-around assistive services, exploring how these supports have or could impact older Aboriginal and Torres Strait Islander service users and their uptake of assistive products.

Participant recruitment continued until data saturation was reached, defined as the point where representation included major cities, inner and outer regional and remote areas, and no new themes emerged. Saturation was reached at 24 individual interviews with Aboriginal and Torres Strait Islander peoples aged 50 and above, and 10 individual and group interviews involving 26 ACCHO staff. Results were organised through thematic analyses by iLA, with the drafted results provided to all participants for feedback and approval.

2.3 | Concept Mapping and Conceptual Analysis Procedure

Concept mapping is a participatory mixed methodology consistent with an evolving paradigm of complex adaptive systems thinking, which is inductive (allowing shared meaning to emerge) and based on a simple set of rules (operations) that generate patterns and results (Cabrera 2009). Six steps have been identified in concept mapping, and were applied in this project (Trochim 1989). The authorship team reviewed and reflected upon data from these reports.

The authors agreed on relevant international frameworks with which to conduct the analysis, following codebook analysis principles enabling themes to be developed within a structure of a priori codes (Braun et al. 2018). Authors LC and NL extracted the data units according to the categories specified in the analysis framework (see below). Authors SH and VL reviewed and verified these data. Authors, individual participants (service users), and ACCHO staff (service providers) reviewed and endorsed or adjusted the analyses, until consensus was reached. This process supports recommendations aligned with what service users consider culturally safe and respectful (Curtis et al. 2019).

2.4 | Analysis Framework

The content was organised and mapped according to whether the data were about people, products, personnel, policy or provision, as these concepts form the AT ecosystem envisioned by the WHO and reproduced with permission in Figure 1 (WHO and UNICEF 2022).

FIGURE 1 | WHO 5P people-centred assistive technology model.

Then the subset of data on provision was analysed according to the best available evidence regarding service provision steps. Global guidance is available as to the steps of good practice or good service provision for AT and HM, grounded in the WHO/UNICEF Global report on AT (WHO and UNICEF 2022) and further developed in a recent scoping review of global guidance (Layton et al. 2024). Between 4 and 9 steps can be found in the published literature depending upon the use case, but the 8 steps listed below comprise the agreed foundation elements of AT service provision. The layout depicts the common 'clustering' of provision steps into the 'occasions of service' which frequently occur. Steps include initiating engagement with a service by identifying a problem in functioning and becoming aware of what AT solutions are possible; accessing some form of assessment which leads to the identification of potential solutions; engaging in a process of trial and selection; product supply, set-up, fitting, and training; accessing troubleshooting, support, maintenance and repair; and finally re-entering the process if goals change and further functioning problems occur (Figure 2).

3 | Results

We firstly describe the demographics of participants from the primary data set reported across the two reports, then summarise data according to themes under each of the WHO 5P model subheadings of people, products, personnel, policy and provision through concept mapping. The primary data set included ACCHOs in New South Wales, Northern Territory, Queensland, South Australia, Tasmania and Victoria. Aboriginal and Torres Strait Islander peoples aged 50 and above, from over 21 Aboriginal and Torres Strait Islander communities and language groups nationally, were represented. These participants were subsequently invited to comment upon the secondary data analysis.

Table 1 presents demographic details according to the Australian Statistical Geography Standard—Remoteness Area index (Australian Government Department of Health and Aged Care, n.d.).

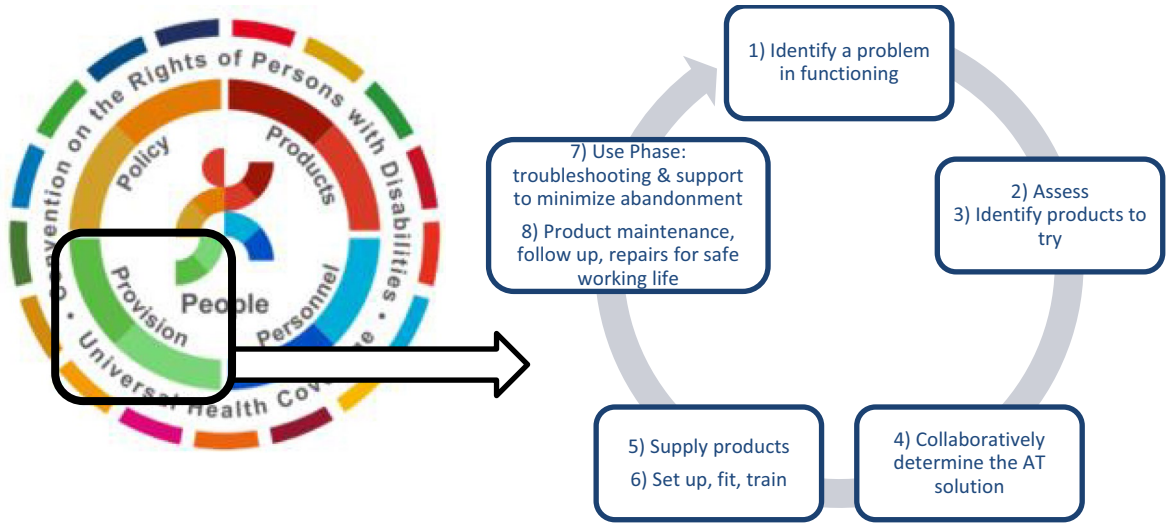

FIGURE 2 | AT service provision steps.

TABLE 1 | Participant demographics: Primary dataset of the two iLA reports.

First Nations peoples (service users)	
Number	$n = 24$ First Nations peoples
Age	50 years and above
Identity	$n = 23$ Aboriginal and 1 Torres Strait Islander
Gender	$n = 17$ female; $n = 7$ male
Remoteness	$n = 13$ major cities; $n = 5$ inner regional; $n = 6$ outer regional areas Location: $n = 8$ New South Wales (NSW); $n = 6$ Queensland (QLD); $n = 4$ Victoria (VIC); $n = 3$ South Australia (SA); $n = 2$ Tasmania (TAS); $n = 1$ Australian Capital Territory (ACT)
Communities and language groups	Arrernte, Dhurag, Dja Dja Wurrung, Gamilaroi, Giabal, Gubbi Gubbi, Gunditjmara, Gundungurra, Jagera, Jaru, Kaurna, Larrakia, Miriwoong, Ngunnawal, Ngambri, Paredarerme, Turrbal, Wiradjuri, Yarrowair, Yorta Yorta, and Yuin
Allied health professional staff or 'providers'	
Number	$n = 26$ from 8 ACCHOs
Remoteness	$n = 2$ in major cities, $n = 4$ inner regional, $n = 1$ outer regional, $n = 1$ remote areas Location: $n = 2$ in NSW; $n = 2$ in VIC; $n = 1$ in QLD, $n = 1$ in NT, $n = 1$ in SA and $n = 1$ in TAS. One outer regional staff member did not agree to have their location identified

3.1 | AT Service Delivery for First Nations Peoples

A Traditional Owner from the Arrernte and Larrakia Nations noted that 'older First Nations people and service providers want to make a change and to close the gap, so will try every resource they think can help'. However, service users and providers described current AT service delivery in Australia as 'white-centred' and 'often square peg–round hole' (Non-Indigenous health worker, Koori Nation), revealing a disconnect between current AT delivery and Indigenous ways of knowing and being. One participant observed the prevailing 'white-lens and government-speak' framing of AT as a tool for 'self-management', which distances it from First Nations realities (Traditional Owner, Jarowait and Giabal Nations). This disconnect is experienced personally: 'It feels disconnected from me and my mob' (Traditional Owner, Kaurna Nation). Service users and providers emphasised the importance of embedding cultural identity, values, and preferences within AT service delivery, including relationality, noting that 'we need to deepen older First Nations peoples' experiences of AT with culture, country and community, those things are their protection to help them thrive as they grow older' (Traditional Owner, Yuin Nation).

3.2 | People

3.2.1 | Who We Are

With Aboriginal and Torres Strait Islander peoples qualifying for My Aged Care at 50 years old, providers are working with some service users experiencing both age-related issues (including frailty) and psycho-social issues (including intergenerational trauma[3]). These issues can play an interrelated role in service user health and functioning.

3.2.2 | Where We Are

Some service users move across major cities, inner and outer regional, and remote areas. This includes those who travel from outer regional and remote into inner regional and major city areas for services and support, and those who travel from major cities and inner regional into other major cities and inner regional areas, or outer regional and remote areas to connect with their homeland and community. Limited transportability and storage for assistive products can make it difficult for some service users with a transient lifestyle to embed and sustain their use in daily living.

3.2.3 | What Functioning Difficulties May Mean

Some service users understand their functional difficulty performing activities of daily living as linked to intergenerational trauma and grief. Some providers feel that assistive products should be supported by transport, social, and cultural activities for healing. This includes transport for attending social and cultural groups, getting back to Country,[4] visiting family and community, and Sorry Business.[5]

3.2.4 | Lack of Basic Infrastructures

Lack of access to adequate housing (including overcrowding and poor infrastructure) can make it difficult for some service users to effectively install and use certain assistive products. Some providers believe that assistive products should be bundled with support for relevant infrastructure (such as WiFi, wiring, power connections) if not available to the service user.

3.2.5 | Separating Person from Community

Some service users have multigenerational caregiving obligations so must share resources and funds, which makes any costs associated with assistive products, even small, a significant challenge. Some live in shared households, so have limited ownership over how assistive products are used and looked after, even within the home. Some service users are collectivist thinkers and align with

community-benefiting health behaviours so may share or give away assistive products to others. Some service users or their families may have cultural sensitivities around keeping assistive products that belong to someone who has passed away.

3.3 | Products

3.3.1 | The Experience of Being Limited in What Assistive Products Are Allowed

Many government policies specify what assistive products are allowable for subsidy. Some service users, particularly Stolen Generation survivors, can experience confusion and distress around product exclusions. Some may blame the provider or the government for taking away control over how they age.

3.3.2 | Beyond the Assistive Product

Compared to Australia's non-Indigenous population, the First Nations population experiences higher rates of home care and conditions of disadvantage (including higher rates of housing insecurity and overcrowding, unemployment, mental health issues, drug and alcohol dependence). All of which reinforce a unique connection for Aboriginal and Torres Strait Islander service users between white goods (including portable air conditioning, washing machine, fridge) and the ability to function well into age.

3.4 | Personnel

3.4.1 | The Experience of Being Assessed

Culturally unsafe Occupational Therapy (OT) assessments can negatively affect assistive product uptake among service users. Some providers believe service users could benefit from culturally appropriate resources to help them better understand the assessment experience. This includes resources to help reduce shame-job feelings[6] from physical observations and/or at home visits that may be required; resources to help service users self-identify needs and goals in the way the assessment process requires them to (including visual cues); and resources to help manage expectations for what happens after an assessment (including timelines for receiving assistive products).

3.4.2 | Who Holds the Knowledge?

A strong theme was the expectation, set by the government, that OTs and other qualified allied health professionals will conduct assessments and recommend assistive products; however there is a lack of system knowledge on the part of service users. Some service users lack awareness of the range of assistive products and services available to them and at what cost, limiting their choices and ability to self-determine care. For example, a service user might agree to purchase an assistive product based on assessment, but not have enough funding available later to fulfil other care needs important to them, like joining a social group.

3.4.3 | Does It Need to Be a Professional?

There is a lack of community-based OTs with expertise in working with First Nations service users, and a lack of training and resources to support alternative workers in the absence of these positions. Lengthy wait times between referral and receiving services mean that some service users are forced to retell their stories, or to go without the assistive products they need. To help navigate under-resourcing, some providers believe there is value in exploring whether certain low-cost and under-advice assistive products can be provided through less professionalised pathways, like over-toilet chair frames or four-wheel walkers. Due to existing trusted relationships with service users, some providers feel they are well placed to complete basic assessments (with the appropriate training) for some assistive products. Less reliance on OT assessments would also free up funds for service users to access the support they want and require. Some service users for example, are required to spend on an assessment but have limited funds left to purchase recommended assistive products. Appropriate training and resources would be required to enable provider staff to undertake assessments under remote supervision, or credentialing by an OT, where OT services are not available, or require lengthy delays and costs, that place the service user at increased risk.

3.4.4 | Avoiding the Unintended Consequences of Culturally Unsafe Assessment

Some providers give extra support to service users to get them where they need to be. Providers require well-resourced opportunities to connect with service users throughout service provision and implementation. This includes allowing provider-based case managers to be present during OT assessments to provide cultural support, and a post-assessment check-in. Some providers believe service users may benefit from nominating people from their immediate support network to join the assessment process for greater emotional and practical support before, during, and after assessment.

3.5 | Policy

3.5.1 | Trust in Government

Some providers and service users share a growing mistrust of My Aged Care. Some are concerned about exploitation by private businesses, including spending, selling or transferring package funding not in the service user's best interest. A lack of communication or warning from the government about AT policy changes can make it challenging for providers to sensitively manage service users' expectations. While some providers participate in government-led training and share government resources with service users, they feel they are neither culturally appropriate nor trauma-informed. They would like training and

resources that are tailored to First Nations, and which address the needs of Stolen Generation survivors.

3.5.2 | Co-constructing 'What Good Looks Like'

Government policy in Australia currently includes two types of support: subsidy or loan. Providers recommend co-developing subsidy and loan support in partnership with service providers through a process that prioritises lived experience evidence and puts greater trust in the provider to navigate the nuances.

Some providers feel that current subsidy support is too prescriptive and stifles practical solutions. They would like to see subsidised psycho-social services for healing as an element of functioning, as well as subsidised lower-cost assistive products that do not require specialised knowledge or certain housing infrastructure to prescribe or use. For example, service users can only access subsidised electric beds, but for some, a subsidised stretcher bed would be beneficial and preferred. Providers would also like to see greater opportunities for innovation so that providers can make more cost-effective decisions, such as utilising donated assistive products. Given the unique factors influencing Australia's First Nations population, some providers believe there is merit in creating subsidy support tailored exclusively for Aboriginal and Torres Strait Islander service users, or to create more flexible exception pathways.

In terms of loan support, some providers feel that government expectations are incongruent with lived realities which can cause avoidable stress on providers and service users. For example, even loaned assistive products require wrap-around support for housing infrastructure for effective set-up and use. It is not realistic to expect that loaned products will be returned in the same condition, or at all, for reasons including normal wear and tear, transient living, shared households, resource-sharing and others.

3.5.3 | Regional and Remote

While providers in major cities, regional and remote areas share similar perspectives, for providers in regional and remote areas certain barriers can be crippling due to challenges of distance, isolation and housing. Commonly mentioned barriers are compounded in regional and remote areas including allied health workforce shortages, low availability of stock, lack of infrastructure for set-up, and limited maintenance services.

3.6 | Provision

3.6.1 | Individual or Community?

Some providers would like to see AT information targeted to families and communities, not just individual service users. In getting the whole household on board, the service user will likely have greater emotional and practical support for assistive product uptake. This includes looking after assistive products on loan.

3.6.2 | Stock

Due to low stock availability and long waiting times, some service users go without the subsidised assistive products they need, resulting in injury and even hospitalisation post-assessment. Some service users pass away before receiving a product. Some providers have helped raise money on behalf of service users so they can access products through local suppliers sooner, including personal alarms for service users who have a high fall risk. Some providers have access to donated products they would like approved for use or re-use.

3.6.3 | Delivery Costs and Wraparound Supports

How assistive products are delivered to service users is arguably as important to consider as delivery costs. Some service users are unable to travel to collection points for reasons including cost of transport, poor physical health or because they may not want to leave Country. Where delivery is required, it can be difficult for providers and couriers to recontact service users for reasons including transient living and shared contact devices. Sometimes assistive products are delivered by couriers to service users in parts, over time and/or without installation advice, further compromising assistive product uptake.

3.6.4 | Invest in Maintenance Services

Some providers do not have timely access to maintenance services, so they repair products privately. They want assistive products designed for greater longevity and greater access to maintenance supports. This is particularly true for providers in remote and regional areas where assistive products may have a shorter life span.

4 | Discussion

This paper utilises the World Health Organization's 5P people-centred assistive technology model in the first conceptual mapping practice analysis of its kind. Primary data contributed by First Nations peoples, gathered from a diverse range of communities with varied language groups from across Australia, represents a unique cultural heritage and history, contributing to the rich diversity of language and identity within Australia's First Nations population. The paper maps qualitative research regarding Indigenous knowledge and perspectives on AT information and service provision, with a focus on low-risk and under-advice assistive products, to the WHO 5P model. Data analyses from research with older Aboriginal and Torres Strait Islander peoples and their service providers illuminated a range of nuanced findings within the broadly recognisable constructs of the AT ecosystem. Critically reviewing 'current practices' through an Indigenous lens brings those practices into sharp focus and calls out areas where enhancements are required or indeed where practice does not deliver cultural safety. A range of barriers to accessing assistive products for the older Aboriginal and Torres Strait Islander age groups were identified, as were potential mitigating actions.

The AT ecosystem lens facilitates systems thinking, an approach recommended by the World Health Organization to facilitate health systems strengthening (De Savigny and Adam 2009). Describing the value of systems thinking in AT research, Maclachlan and Scherer (2018) suggest systems thinking enables analysis to address the relationships between constructs (forest thinking); to recognise that behaviours occur in patterns which may change over time or in different contexts (dynamic thinking); to acknowledge that cause and effect may be bidirectionally related to each other (loop thinking); and to allow for system-as-cause thinking, where changes to one aspect of a system can have identifiable effects on other aspects of the system.

The research highlighted several key barriers faced by service providers and users. From a systems perspective, it was found that non-culturally meaningful language and processes can create significant challenges for Australia's First Nations population, making it difficult for Aboriginal and Torres Strait Islander peoples to navigate services effectively. When service delivery frameworks do not understand or respect cultural differences, it can lead to a lack of engagement and trust, exacerbating existing barriers. However, the research also emphasised the importance of shifting towards a strength-based approach, which has numerous benefits. By focusing on the strengths and knowledge of Aboriginal and Torres Strait Islander peoples, this approach fosters increased respect and mutual understanding between all parties involved. It also promotes creativity in problem-solving, allowing for the generation of new ideas, perspectives, and strategies that are culturally relevant and more effective. Importantly, a strength-based approach decreases the likelihood of unwanted surprises, which can slow progress, and increases the participation and involvement of Aboriginal and Torres Strait Islander peoples in decision-making processes. This builds trust and cooperation, helping to overcome fear of mistakes, competition, or conflict, contributes to empowerment, greater equality, and the development of solutions that better meet the needs of Australia's First Nations population.

Cultural safety is an imperative for individual health practitioners but also for organisations (Curtis et al. 2019). To support the full realisation of culturally safe practices at a policy and programme level, guiding principles have been developed to guide the AT and service sector in appropriately applying an Aboriginal and Torres Strait Islander lens (see Table 2) (Independent Living Assessment 2024). The principles respond to the view of some older Aboriginal and Torres Strait Islander peoples and providers that the sector's current approach to communicating about staying independent through assistive products is 'white-centred'. The principles and better practice indicators are designed to re-centre Aboriginal and Torres Strait Islander peoples' perspectives on cultural safety in an AT context.

It is proposed that these principles, and more broadly, a proactive and targeted effort to decolonise the AT and service sector, offer a way forward in supporting a higher standard of AT provision, and more equitable opportunities for Aboriginal and Torres Strait Islander peoples to lead healthy and flourishing lives. At a practical level, the authors, individual participants (service users) and ACCHO staff (service providers) additionally propose some key actions for AT policy based on this research as depicted in Table 3.

TABLE 2 | Better practice guide for culturally safe information about assistive products: Guiding principles.

Guiding principle 1: First Nations informed
• Give legitimate voice to older First Nations peoples with lived experience of assistive products, from the grassroots up
Guiding principle 2: Trauma aware
• Acknowledge the Stolen Generations and the impact of intergenerational trauma on assistive product uptake. Promote dignity and control in what can be an awkward and confronting experience
Guiding principle 3: Strengths based
• Focus on what is strong in ageing, instead of what is wrong. Reveal and reinforce the positives of older First Nations peoples seeking support, accessing resources, and engaging with assistive products
Guiding principle 4: Person/family centred
• Empower older First Nations peoples to be drivers not just recipients of care. Respect a collectivist approach to using assistive products and consider the person to include individual, family and community
Guiding principle 5: Holistic goal oriented
• Look at all aspects of health and their relationship to assistive products. Recognise that information about assistive products that focuses on the physical aspect in isolation, will not lead to the best possible health outcomes for older First Nations peoples
Guiding principle 6: Learning focused
• Use First Nations learning techniques to share information about assistive products effectively, such as storytelling, visuals, metaphors, and humour.
Guiding Principle 7: Place based
• Acknowledge the difference in issues on the ground across geographic locations. Deliver information about assistive products into communities aligned with local priorities, alongside broad-scale aged care policy and practice
Guiding principle 8: Relevant
• Be inclusive in your selection of assistive products, and consider complex health needs, diverse criteria, and potential uses
Guiding principle 9: Contribution focused
• Recognise that the AT space is layered, and one piece of a bigger picture. Understand the role access to assistive products can play in other issues and sectors to contribute effectively to older First Nations peoples' health and wellbeing

Given the significant reforms underway in the social care sector for people with disability or health conditions that may necessitate the use of AT (Commonwealth Department of Health and Aged Care, n.d.; NDIS, n.d.), the current analysis offers

TABLE 3 | Service provision steps, barriers and facilitators.

Service provision step	Barriers	Facilitators
1. Identify a problem in functioning	• Some service users are experiencing both psycho-social and age-related issues influencing problems in functioning • There is low trust for government and private businesses influencing access to AT	• Invest in subsidised psycho-social services to support healing and functioning • Leverage existing trusted relationships between service users and community-controlled provider staff, and give these providers greater decision-making power
2. Assess	• There is a lack of community-based Occupational Therapists (OTs) with expertise in working with First Nations service users, and a lack of training to support alternative workers in this absence • Some service users experience shame-job feelings through the assessment process, including from clinical jargon, physical observations, at-home visits	• Introduce provider-based case managers with credentialling by an OT for basic assessments, and cultural support during assessments where OTs are required • Invest in tailored resources and training about what to expect before, during and post assessment
3. Identify products to try	• Some assistive products are high end, but not necessarily preferred • Some service users may experience confusion or distress over what is allowable through subsidy, for example, white goods	• Explore a list of subsidised assistive products tailored exclusively for First Nations service users • Invest in tailored resources and training about inclusions/exclusions, early and ongoing
4. Collaboratively determine the AT solution	• Some assistive products are high-cost and therefore a high-risk to some service users who may sacrifice services for products • Some service users may use funding to purchase assistive products and not have enough for what they really want, like a social group	• Include lower-cost assistive products allowable through subsidy • Tailor training and resources about available solutions, to support effective decision-making and prioritisation
5. Supply products	• There is low availability of some assistive products • Some assistive products are delivered by couriers in parts over time and/or without information or advice	• Increase stock availability, includes considering approval for donated items • Consider delivery process, not just costs
6. Set up, fit, train	• Some assistive products require technical knowledge and support to install • Some service users lack sufficient housing infrastructure for products	• Include less technical assistive products and improved instructions for installation • Include wrap around support for infrastructure where not available, including for products on loan
7. Use phase: troubleshooting and support to minimise abandonment	• Some assistive products lack sufficient transportability to support transient lifestyles • Some service users or their families may give away products through resource-sharing, or discard products if they belonged to someone who has passed away	• Ensure assistive products on loan are easily replaceable, and provide advice on transport and storage • Mandate invitation to service users' family or other support, to join the assessment process • Invest in post-assessment outreach and support
8. Product maintenance, follow up, repairs for safe working life	• Some providers do not have timely access to repairs, so repair products privately, particularly in regional environments where assistive products are unsuitable for harsher environments • Some service users live in shared and open households, with reduced control over products	• Invest in maintenance services • Invest in awareness and education campaigns targeting families and communities about the importance of AT and responsibility for safe working life

important policy insights for the implementation of AT programmes with First Nations peoples. Both the new Support at Home Program (commencing 1 November 2025) and the NDIS have some documented processes for consideration of the programme needs of Aboriginal and Torres Strait Islander peoples, and information both led by and provided for these

communities (Australian Government Department of Health and Aged Care 2024). Specific to older First Nations peoples, the Australian Government has recognised that, as part of current reforms, it is critical that older Aboriginal and Torres Strait Islander people can access culturally safe, trauma-aware and healing-informed aged care in or close to their community and have stated that the Support at Home will be responsive to the diverse and changing needs of older Aboriginal and Torres Strait Islander people (see https://www.health.gov.au/our-work/support-at-home/features-of-the-new-support-at-home-program#inhome-aged-care-for-older-aboriginal-and-torres-strait-islander-people).

The current research provides nine guiding principles analysed and mapped from primary research with ACCHOs, which could be further considered within the design of an AT scheme for older Australians. This includes service provision barriers and facilitators—including workforce gaps that exist—that have been documented through this analysis. From a policy perspective, the thin assistive product and service market has been well documented. To address such market issues, there have been calls for 'distributed market stewardship to help join up the work of local level actors with central agencies' (Green et al. 2024, 707), and cautioning against programme reforms that hold potential to widen and/or entrench social inequalities (Carey et al. 2019). The current analysis has further highlighted the very necessary focus on AT provision that is both informed and led by First Nations perspectives. As the most commonly utilised AT assessors and advisors, the lack of community-based occupational therapists with expertise in working with First Nations service users—and a lack of training to support alternative workers in this absence—is a significant barrier that will require particularly close and time-sensitive attention if the AT Scheme in the new Support at Home Program is to be culturally safe and effective for, and trusted by, older First Nations Australians.

4.1 | Limitations

Australia's First Nations health and aged care sector is highly nuanced. Research with First Nations peoples and ACCHOs, informing the concept mapping reported in this paper, identified a diverse range of communities and language groups from across Australia. The authors acknowledge that, whilst care has been taken to capture the views of provider staff and service users, this has only been achieved with some communities. This paper does not intend to be representative of the perspectives of all Aboriginal and Torres Strait Islander peoples and does not purport to represent all views of provider staff and service users. Given the dearth of published evidence to draw from to inform this study, there is no doubt that further research in the field of assistive technology—that is led by and with Aboriginal and Torres Strait Islander peoples—is urgently required if Australia is to deliver culturally safe and respectful AT programmes.

Concept mapping to the WHO 5P people-centred AT model proved a useful methodological approach in this study and has been recognised as valuable in studying complex human systems (Cabrera 2009). However, concept mapping has not been used in the exploration of Aboriginal and Torres Strait Islander perspectives on AT use previously, and other methodologies may be considered in future research including, for example, the ways of learning pedagogy frameworks (see Yunkaporta, n.d.). Finally, it is important to note that effective AT provision across low risk, under advice and prescribed AT can enhance independence at home and enable access to the community. The research that informed this conceptual review only focused on low-risk to under advice assistive products. While the principles identified are likely to hold relevance to more complex assistive products that require the input from health professionals or other assistive technology advisors, this was not the focus of the current work and could be an area for future investigation.

5 | Conclusion

For those who might benefit from AT, assistive products can have a big impact on long-term health and wellbeing. Assistive products are identified as a significant support to independence and community access. This paper aims to fill a blind spot for policymakers and practitioners in the AT and service sector by diving into the nexus between cultural safety and effective AT provision. The research that informed this concept mapping project consulted with providers and service users to identify some of the barriers to AT experienced by ageing Aboriginal and Torres Strait Islander peoples as they seek to stay independent and live well. It highlights that the effectiveness of AT for older Aboriginal and Torres Strait Islander peoples is significantly impacted by the way assistive products are discussed and provided.

While many of the barriers to accessing assistive technology products identified in this paper may be common to both Indigenous and non-Indigenous populations, older Aboriginal and Torres Strait Islander peoples experience these challenges in unique ways. Historical, cultural, and socio-economic factors contribute to a distinct set of experiences for Australia's First Nations population. By integrating First Nations ways of doing into AT services, non-Indigenous organisations can provide more relevant, culturally safe information and support. More broadly, this research underscores the importance of adopting intercultural strategies that foster strength-based approaches, encourage self-determined conversations, and promote genuine, healthy choices. Ultimately, the aim is to influence policies, standards, and practices that better serve Australia's diverse ageing population, with a particular focus on creating positive, sustainable outcomes for Aboriginal and Torres Strait Islander peoples. Through this work, we hope to contribute to a more inclusive and culturally aware framework for assistive technology and service delivery.

Author Contributions

Shane Hearn: conceptualization, writing – review and editing. **Vanessa Langenberg:** conceptualization, writing – original draft, writing – review and editing. **Kristy Harper:** writing – review and editing. **Libby Callaway:** writing – review and editing, conceptualization, writing – original draft. **Hilary O'Connell:** writing – review and editing. **Eleanor Kennett-Smith:** writing – review and editing. **Natasha Layton:** conceptualization, writing – original draft, writing – review and editing.

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Conflicts of Interest

The authors declare no conflicts of interest.

Endnotes

[1] In this paper, 'First Nations' and 'Aboriginal and Torres Strait Islander' peoples have been used interchangeably to refer to the original peoples of Australia, including both Aboriginal and Torres Strait Islander communities, and with respect for their diversity and preferences.

[2] *Research guided yarning* is an Indigenous research methodology originating from Aboriginal and Torres Strait Islander oral traditions. It involves informal, relational conversations guided by cultural protocols of respect, reciprocity, and participant control, creating a culturally safe space for sharing knowledge. Yarning prioritises Indigenous worldviews and epistemologies, emphasising trust and self-determination, and rejects extractive, standardised methods in favour of collaborative, community-driven research practices (Barlo et al. 2020; Bessarab and Ng'andu 2010).

[3] *Intergenerational trauma* uniquely impacts older Aboriginal and Torres Strait Islander peoples through a combination of historical and cumulative contemporary harms that shape their emotional, social, and physical wellbeing (The Healing Foundation 2024; Tujague and Ryan 2021). Older Aboriginal and Torres Strait Islander peoples may carry their own distress and that inherited from parents and grandparents who experienced colonisation, forced removal, disruption of families, land loss, racism, and cultural suppression (Atkinson 2002; Dudgeon et al. 2014).

[4] *Country* for older Aboriginal and Torres Strait Islander people encompasses not only physical land but a profound, living relationship that includes spiritual, cultural, ancestral, and environmental connections. It represents identity, wellbeing, and ongoing responsibilities to care for and be cared for by Country, integral to maintaining social and emotional wellbeing (Dudgeon et al. 2014). Research highlights that this relationship supports resilience and healing from intergenerational trauma through reciprocal stewardship and cultural practice (West et al. 2020).

[5] *Sorry Business* refers to the culturally specific practices of mourning and grieving following a death in Aboriginal and Torres Strait Islander communities. This involves taking time, for ceremonies and social obligations that uphold cultural identity, community cohesion, and healing. The nature and duration vary by community and kinship relationships, reflecting diverse customs and the importance of collective participation in supporting social and emotional wellbeing (Browne-Yung et al. 2020; Dudgeon et al. 2014).

[6] *Shame-job* refers to situations causing shame or embarrassment in Aboriginal and Torres Strait Islander communities, linked to breaches of cultural norms and loss of dignity (Dudgeon et al. 2014). This experience can be deeply disempowering, hinder help-seeking behaviours, and service engagement (Jones et al. 2020).

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