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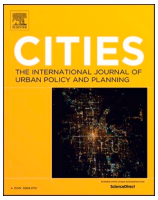

Improving inclusion for children and young people with a disability in inner-city Melbourne, Australia

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ABSTRACT

Children and young people with a disability experience challenges in accessing urban environments. This study aimed to generate ideas that can help make an inner-city local government area in Melbourne, Australia more inclusive for children and young people with disability. A workshop was held with children and young people self-identifying as having a disability ($n = 5$) and their parents and guardians ($n = 4$). Participants brainstormed ideas in response to a prompt centred on ways that Melbourne's inner-city could be made more inclusive for children and young people with a disability. A qualitative analysis of the ideas was undertaken. Ideas common across both groups included the need for adequate and disability-appropriate communication, the provision of pedestrian infrastructure, and accessible public transport. The study's findings have direct relevance for policy makers, informing upcoming policy in the local municipality. The value of research/policy/lived experience-collaborations for local policy improvement is clear, as they provide an opportunity to draw upon a range of perspectives to identify and address local challenges, while also informing larger-scale projects and initiatives in other cities. Through such collaborations, it is possible to tailor infrastructure and accessibility improvements to the specific needs of local communities, resulting in more effective and equitable policy outcomes.

1. Introduction

Disability affects people of all ages, inclusive of children and young people. In accordance with a biopsychosocial understanding, disability is a complex phenomenon arising from the interaction between features of a person's body and features of the society in which that person lives (World Health Organization, 2001). Approximately 647,600 Australian children and young people (aged 0–24 years) have a disability (Australian Bureau of Statistics, 2016). Globally, the United Nations estimates a minimum of 2.5 % of the world's children (aged 0–14 years) live with moderate to severe levels of sensory, physical or intellectual impairments (UNICEF, 2007).

Article 23 of the United Nations Convention on the Rights of the Child (United Nations General Assembly, 1989) recognises that children *"should enjoy a full and decent life, in conditions which ensure dignity, promote self-reliance and facilitate the child's active participation in the community"* and emphasises the responsibility of all signatory states – including Australia – *"to recognise the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development"* (Article 27). Statements on the active inclusion of children and young people in society include the right to not be discriminated against on the basis of the child's or their parent's or legal guardian's race, colour, sex, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status, and the right to express their views regarding matters that affect them, and to have those views be given due weight (Article 12).

Ample research has shown that urban design (the scale, form and function of areas including the street network, destinations and open spaces) influences inequalities and inequities in the general population (Ghani et al., 2018; Rachele et al., 2017; Sugiyama et al., 2019). Evidence suggests that people with disability may be more vulnerable to the effects of poorly designed urban environments (i.e. differential

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vulnerability), than their non-disabled counterparts (Clarke et al., 2008). Among planning literature, a recent systematic review identified a lack of evidence focusing on the issues and needs among people with disabilities (Terashima & Clark, 2021). However, there still exists several studies that have explored the creation of disability-inclusive urban spaces. For example, from the perspective of intellectual and psychiatric disability, Bredewold et al. (2020) explored the spatial and social conditions conducive to convivial encounters (superficial, fleeting interactions) between people with and without disabilities, identifying three conditions: a shared purpose, built-in boundaries, and freedom to (dis)engage. Rachele et al. (2020) explored disability-inclusive interventions among people with disability, along with feasibility of implementation with government urban planning staff. The result was a series of ideas identified as both important and feasible that could be implemented in the short-to-medium term with the potential to significantly enhance disability-inclusion. From the evidence on disability and ageing, while there has been some research from the perspective of mobility and sensory impairment (Garin et al., 2014), there are still significant gaps in our understanding of how urban design specifically affects children and young people with disability (Stafford, 2014; Van Melik & Althuizen, 2022). Children and young people with disability have the right to participate in society on an equal basis to those without disability (United Nations General Assembly, 1989). However, the specific needs of children and young people with disability to be fully included are not entirely known.

This study aimed to identify ideas that can help make an inner-city local government area in Melbourne, Australia (the City of Melbourne) more inclusive for children and young people with disability. The findings of this study may be relevant to other cities in Australia and high-income countries as many of the identified ideas could be adapted to other contexts. The study provides insights into the importance of creating physical, digital and social infrastructures that are accessible for all people, including children and youth with disabilities, and provides information for other local governments to use in order to effectively design their own inclusive strategies. Additionally, the study highlights the importance of engaging with community in order to identify barriers and solutions, and the need for collaboration between stakeholders in order to implement effective strategies. This research can help inform other cities in their efforts to create more inclusive environments for people with disability and could potentially be used as a template (both the methods and findings) for other cities to follow. Melbourne was selected as the setting for this study, building on the relationships formed between the research team and government staff in our previous work among adults with disability in the same local government area (Rachele et al., 2020).

2. Methods

2.1. Setting: Melbourne

Melbourne is located in the state of Victoria, Australia. Greater Melbourne is made up of 31 local government areas, with a total of 4.9 million inhabitants covering 9992km^2 (Australia Bureau of Statistics, 2022). 'Inner Melbourne' for the purpose of this study comprised areas that make up the local government area of the City of Melbourne, which includes the Central Business District and surrounding suburbs such as West Melbourne, Docklands, North Melbourne, Carlton, East Melbourne and South Melbourne. The City of Melbourne has an estimated weekday population of around 911,000, comprising around 186,000 residents, 234,000 workers, 454,000 domestic visitors, and 37,000 international visitors, with an area of 37.7km^2 including 5km^2 of parks (City of Melbourne, 2022). Inner Melbourne is a central public transport hub, including 12 train stations, while greater Melbourne also has the world's largest tram network with 250 km of double track, and is supported by a metropolitan bus network (Visit Victoria, 2024). The Inner City is also home to several stadiums, including the Melbourne Cricket Ground, Docklands Stadium, Melbourne Rectangular Stadium, Olympic Park (which hosts the Australian Open Tennis Tournament), Melbourne Zoo, Melbourne Museum, Queen Victoria Markets, Flemington Racecourse (which hosts the Melbourne Cup), and numerous parks and public libraries. Melbourne was ranked the world's most liveable city for seven consecutive years (between 2011 and 2017) by the Economist's Global Liveability Index (The Economist Intelligence Unit Limited, 2024).

2.2. Study design

This research adopted a qualitative methodology to explore the perceptions of children and young people with disability as well as their parents and guardians about ways that Melbourne's inner-city could be made more inclusive. We conducted a tailored workshop in which participants' contributions (in two groups: children and young people on the one hand, and parents and guardians on the other) were separately transcribed and visualised, and subsequently analysed, inspired by Braun & Clarke's thematic analysis (2006, 2019). Since the data analysed consisted of the written and visual records of the workshop rather than a full audio record, although combined with facilitator reflective notes, they allowed for a 'small q' rather than a 'Big Q' analysis (Braun & Clarke, 2023). We took a realist approach to participants' contributions. In terms of positionality, the lens used was a transformative paradigmatic framework which recognises "the socio-political power structures that perpetuate marginalisation, discrimination and abuse for historically marginalised populations", inclusive of children and youth with disabilities (Camacho, 2019, p. 309). Although this study was bound to set timeframes, potential contributions to social justice were maximised (Mertens., 2010, p. 470; Mertens, 2009) by consulting with experts with lived experience in the development of the study design. The study was approved by the Human Research Ethics Committee of The University of Melbourne (Ethics ID 1954974).

2.3. Participants

Participants were recruited through snowball sampling. The research team through the Melbourne Disability Institute and the City of Melbourne through their Disability Advisory Committee circulated an advertisement to be involved in the research, which was passed on to other potential participants. To be considered eligible to be included in the study, participants needed to be a child or young person self-identifying as having a disability, or be the parent, guardian, or carer for a child or young person self-identifying as having a disability. Participants were children and young people (ranging in ages 10–14 years, $n = 5$) with disability and their parents/guardians (ranging in ages 29–45 years, $n = 4$). Of children and young people, impairments reported were physical ($n = 2$), sensory ($n = 3$), psychosocial (n = 3), and intellectual ($n = 1$). Three of the five children and young people identified as female, and two as male, while all parents and guardians identified as female. All participants were offered an AU$50 gift card as a gratuity.

2.4. Procedure

Prior to the workshop day, all participants were provided with an accessible visual schedule which described the tasks to be completed during the workshop using plain language and accompanied with images to support participants with limited literacy. The workshop took approximately 4 h, inclusive of 1 h for a lunch break. At the beginning of the workshop, participants were led through the process by the facilitator (JNR), who explained the aims of the project and revisited this document via an overhead presentation. The facilitator then introduced participants to the inner-city local government area through a purpose-built visual presentation guide (Myrnes-Hansen & Skeiseid, 2022), which was informed by disability advocates and people with lived experience of disability. A range of images were showcased, including a

map displaying the inner-city boundaries, iconic landmarks within the municipality and images which aimed to trigger broad conceptual thought around life domains: an image relating to a local university to represent 'education', an image of retail staff to represent 'employment', and a composite image of a tram, train, bus and car to represent 'transport'. Though not intended to be exhaustive, the visuals provided a starting point for workshop discussions.

Participants worked in one group of 'children and young people' and another group of 'parents and guardians'. All participants were located within the same room. One scribe was assigned to each table, and additional support people were available to address any individual accessibility requirements (e.g. literacy and/or communication supports to enable participation). The group was then presented with the following prompt: *"What are some ways that the City of Melbourne could be made more inclusive for kids, teenagers and young adults with disabilities?"* The facilitator then directed participants to work in their table groups to answer this question and indicated that there were 'no wrong answers'. The scribe from each table reported back to the whole group on the ideas that had been generated by each table group. All ideas were written down by a member of the research team on a projector screen for the participants to see. If new ideas were generated during the whole group discussion, these were noted and included at this time. Once completed, the facilitator then asked each participant to share their top three ideas. As ideas were shared by participants, a graphic illustrator drew a visual scene display, which grew in attributes upon each new participant's contribution. Rich pictures can be used to identify key features of services, perceived issues and possible improvements from a whole-system perspective (Crowe et al., 2017). Graphic illustrators have been used in previous work when eliciting data from child participants in qualitative approaches, including among children with disability (Hurt et al., 2019), and can be used to assist the research team in formulating actions arising from the research study (Albert et al., 2023). An audio-described and captioned video which summarised the method and findings was also developed after the workshop for public viewing.

2.5. Analytic approach

We followed the six phases described by Braun and Clarke (2019) to identify the main themes from the workshop:

Phase 1: Familiarizing oneself with the data. JNR and GB familiarised themselves with the transcribed data from the workshop.
Phase 2: Generating initial codes. Text from the transcripts was highlighted to identify ideas that related to the inclusion of children and young people with disabilities, which were discussed and an initial list of potential codes was generated.
Phase 3: Developing themes. The initial codes were grouped into potential themes and sorted using Microsoft Excel. We analysed the data in two ways, firstly, to identify themes that related to the inclusion of children and young people with disabilities according to children and young people with disabilities and parents and guardians, and secondly, to provide a cross-cutting high-level summary of themes. Considering that the amount of written data from the workshop was limited, the main aim with this part of the analysis was to generate insight into the unique and shared contributed ideas from both groups of participants.
Phase 4: Reviewing themes. Text and codes that informed each potential theme were reviewed to achieve a state of internal homogeneity, such that the data within each theme is logically interconnected, and at the same time, achieve a state of external heterogeneity, such that there is a distinct contrast between one theme and the next.
Phase 5: Defining and naming themes. The scope and content of each theme and sub-theme was defined and titles given to capture their essence.
Phase 6: Producing the report. A report was written of the analysis.

3. Results

Overall, participants, both children and young people with a disability and their parents, provided substantial insight into the intersection of age and disability. It was evidence that the presence of disability added layers of complexity to the participants' experiences of childhood, which was likely further complicated when intersected with other aspects of their identities such as race, gender, and socioeconomic status (Crenshaw, 1989). There is still much more work needed towards giving a voice to children and young people with a disability. Following the workshop, it was clear that cities are central places where progress can be made towards improving the lives of children and young people with a disability, and that this project enabled self-advocacy in this space. Local government staff and the research team left the workshops with a sense of satisfaction on the progress made towards facilitating inclusion in the city.

The following sections present themes pertaining to ideas for promoting inclusion for children and young people with a disability, as well as from their parents and guardians.

3.1. Suggestions by children and young people with a disability

The children and young people group included five participants. We identified seven themes relating to: accessible public spaces, assistance, communication, pedestrian infrastructure, public good, public transport, and safety. A full list of ideas is available in Supplementary Table 1.

3.1.1. Public spaces

Many of the ideas in this theme related to creating spaces that were quiet and calm, including in libraries, and other learning spaces *"Make calm spaces for people with disability (e.g. computers, educational games, learning space, TV room, library, young adult room, toy room)"* and *"Provide special rooms that are disability-friendly"*. Separate leisure spaces, such as a 'calm rooms' have been seen as an important characteristic of disability-inclusion (Tiefenbacher, 2023). Other ideas related to making public spaces more amenable, such as reducing rubbish and waste *"Reduce rubbish and waste and use more sustainable packaging"*, while others asserted the need for more places to rest *"More resting benches and places to sit in parks on the streets"*. The ideas raised by participants in the current study are consistent with a study of disabling barriers among children and young people with a disability in New Zealand (Smith et al., 2021), which identified the need for places to rest as an enabler of mobility. However, it is also a possibility that affordances have been made when planning public spaces: in this example, in the form of informal places to pause or rest such as ledges, interactive sculptures, or natural features such as large rocks (Maier et al., 2009).

3.1.2. Assistance

Ideas in this category related to the provision of assistance and equipment, for example *"supply wheelchairs for those who need them"* and *"provide helpers around the city"*. Another participant commented on the need for schools made for people with specific disabilities, for example for children with a vision impairment. There is a longstanding debate on the role of special schools, though it is interesting to note that, in line with the view put forward in the current study, research that listens to learners' perspectives leads to the conclusion that there is indeed an ongoing role for special schools in special education (Shaw, 2017). It is also worth noting that that several of these specialist schools already exist in Victoria.

3.1.3. Communication

Ideas in this theme focused on both the provision of communication devices and technology. One participant expressed the need for computers with Braille. While continuing on the use of Braille, another participant raised the use of Braille in libraries *"More libraries including books with bigger fonts, books entirely in Braille, and covers that have texture*

(to make the image 'pop'/more appealing)". However, another participant argued the usefulness of text-to-speech. These were followed by ideas relating to awareness of communicating with people with a disability, for example *"Instruct staff on how to speak to and help people with disabilities"*. Building on this idea, another participant raised the need for an awareness campaign *"Awareness campaign educating people about vision impairment – e.g. not to pat assistance dogs and give people with canes more space"*.

3.1.4. Pedestrian infrastructure

Pedestrian crossings were a major point of discussion, with participants raising sound quality of traffic lights at pedestrian crossings, coloured and lightened tactile cues, vibrating cues *"Vibrating cues at pedestrian crossings when it is time to cross"*, and streetlights at eye-level *"More streetlights at crossings, particularly at eye-level and on the ground"*. Ideas also related to physical infrastructure including yellow lines on escalators *"Make yellow lines on escalators clearer for people with vision impairment"*, railings on ramps, and the height of bollards *"Change the design of low-level bollards so that they are more visible and don't become a tripping hazard"*.

3.1.5. Public good

Participants devised ideas relating to people without a disability, including helping people who are homeless *"Help the poor and homeless people with food, shelter and employment"*. Other ideas related to animals. One participant wanted animals in the city *"More animals in the city – e.g. farm animals"*, while another wanted less hunting *"Less hunting animals and more protecting our oceans"*. Discussions about the welfare of others raises the possibility that participants' disability status, or being around others with disability, has made them more aware of others city users' needs; human or animal. Recent research has found that siblings of children with disabilities may have greater cognitive empathy, that is, having a greater understanding of the thoughts and feelings of others (Rum et al., 2022).

3.1.6. Public transport

This topic occupied much of the discussion among children and young people. Participants stressed the need for a greater number of, and more explicit announcements. For example *"More announcements on public transport to alert passengers of upcoming stops"* and *"Announcement on trams altering passengers which side to exit the tram"*. Participants raised issues around awareness of people with disabilities among staff *"Raise awareness amongst public transport workers that service pets (e.g. guide dogs, therapy companions) are allowed on public transport"*. However, another participant debated that an awareness campaign among passengers may be more important. The discussion about accessible seating continued, with one participant raising the need for more accessible seating altogether *"More accessible seating on public transport, including spaces for people with disability and guide dogs, where families can use this space too"*.

3.1.7. Safety

Safety was a constant theme, often raised during discussions about other topics. For example, when discussing pedestrian infrastructure, the importance of footpath maintenance was raised, including for pavements that have cracks or bumps and vandalised tactile paving. Other ideas related to safety included those related to vehicles *"Prevent oversized parked vehicles from encroaching onto footpaths"*, and distraction *"Reduce distraction from technology for people walking around the city"*. When discussing the public good, participants discussed pollution *"Stop dumping toxic dirt from infrastructure projects"*, and *"Reduce use of petrol and bad poisonous smells"*. Finally, participants addressed safety directly, including surveillance cameras and police presence. The safety for children with disability is not a new notion. For example, UNICEF's Toolkit on Accessibility for programme-related buildings expresses the need for facilities and built environments that can be accessed with safety, comfort and dignity (Stassen, 2022). Moreover, safety for children more generally is regarded as key to designing child-friendly urban environments (ARUP, 2017; Global Designing Cities Initiative and National Association of City Transportation Officials, 2020). However, it is worth noting that, in contrast to the presence of authority, surveillance cameras have not been shown to improve safety, but rather, have been more useful as a means of capturing evidence to prosecute perpetrators (Jonescu, 2016).

3.2. Suggestions by parents and guardians

The parents and guardians group included four participants. We identified six themes related to: amenities, awareness, communication, pedestrian infrastructure, public spaces, and public transport. A full list of ideas is available in Supplementary Table 2.

3.2.1. Amenities

Many of the ideas in this cluster related to assisting children and young people with a disability in getting around the city. This included ideas around maps, such as *"Provide a map with the location of bathrooms with social stories"* and *"Easier to read maps with bathrooms and social services on them that are kid friendly (e.g. an app)"*. The discussion on bathrooms continued, with one participant raising the issue of the number of bathrooms *"Increase the number of bathrooms"*, while another added the need for cleanliness *"More changing places and more change tables that are clean"*. Finally, participants discussed improving experiences at landmarks around the city *"Many landmarks in the city (e.g. zoo, museum etc.) are not a fun place for people with vision impairment – hands-on workshops are good but just visiting the buildings is not fun"*.

3.2.2. Awareness

Ideas focused on improving awareness about disability and different disability types. Improving awareness was expressed through advertisements *"More advertisements increasing awareness of autism"*, display boards *"Provide display boards that provide educational information about different disabilities"*, and training *"Increase front-of-house and customer service people trained in mental health and disability awareness"*. Training on awareness extended to discussions about education, including *"Provide community education that it's OK to offer help"* and *"Educate people about children with vision impairment touching things"*. These findings suggest a need to explore disability awareness campaigns that are sensitive towards intersectional complexities (i.e. the experiences of children and youth with disabilities), which disrupt conventional, universalised views on what it means to be disabled.

3.2.3. Communication

Participants devised ideas related to audio guides, 3D models that can be touched, and real-time live information around the city, particularly for emergencies *"Real-time live information around the city – particularly if there is an emergency in the city (e.g. exit routes)"*. Another point of discussion was the way that staff and volunteers communicate with children and young people with a disability. One participant suggested *"As a first point, customer service staff could ask "how can I help?""*, while another suggested training.

3.2.4. Pedestrian infrastructure

Parents and guardians discussed ideas relating to street signs that are at eye-level and can be touched *"Include street signs on the street posts at eye level and that people can touch"*, which was extended to suggest the need for street names *"Street signs that say which side of the street you are on"*. Maps were again raised *"Maps around the city that say 'you are here' with audio capability"*, as well as locations to rest. The height and visibility of signage was raised by both groups, and highlights a particular intersectional need relevant for children and young people specifically who have disabilities. Despite this, this recommendation is absent from guides intended to facilitate child-friendly cities (ARUP, 2017; Global Designing Cities Initiative and National Association of City

Transportation Officials, 2020), but in contrast, is present in building codes such as the Building Code of Australia, which specifies that Braille and tactile components of a sign much be between 120 cm and 160 cm from the floor or ground surface (Australian Building Codes Board, 2021), roughly the height of a child or adolescent. It may be that navigation as an issue holds more importance for children with a disability, though lower-level signage was not identified in a study of mobility among children and young people with a disability in New Zealand (Smith et al., 2021).

3.2.5. Public spaces

Public spaces were raised throughout discussions. Ideas related to creating spaces that were safe *"Create safe spaces for children with disability"*, and low-sensory *"Increase the number of calm, low sensory spaces throughout the city"*. One participant raised the proposition of including quiet time at popular locations, while another raised the provision of seating and 'stations' for people with special needs.

3.2.6. Public transport

Public transport was a dominant discussion topic among the parents and guardians group. Participants stressed the importance of communication on public transport. This included suggestions around announcements that are clear and informative *"Improve clarity of announcements by tram drivers on public transport (e.g. clearer, slower, stop numbers, stop name, nearest street or landmark)"*, how information is displayed *"Increase the size and clarity of display information (e.g. at train stations)"* and information about the provision of low floor trams *"Increase the number of low floor trams, advertise which trams are low floor, and have consistent timetabling for when these trams are available"*. Other ideas related to the provision of uniformed assistance staff *"More volunteer staff in clearly defined uniforms that can assist people with where they want to go at train stations"*, and improving safety on public transport.

The ideas from both the children and young people and the parents and guardians groups were presented visually by the graphic illustrator in Fig. 1.

4. Discussion

This research aimed to gather and integrate perspectives from both children and young people with disabilities, as well as their parents and guardians, with the goal of enhancing inclusivity for this population in the inner-city of Melbourne, Australia. Despite the UN Convention on the Rights of the Child emphasising the importance of involving children and young people in decisions that affect their lives (Article 12), their voices are often not heard. To address this, this project actively engaged with children and young people with disabilities, promoting self-advocacy by directly consulting with them. Three common themes were identified from both groups: adequate and disability-appropriate communication, the provision of pedestrian infrastructure and accessible public transport. These three themes are now discussed and explored in further detail.

Fig. 1. Graphic representation of the ideas from children and young people with a disability and their parents and guardians on making the City of Melbourne more inclusive for children and young people with a disability. Accompanying public-access video that explains this visual graphic can be viewed online (City of Melbourne, 2020c).

The need for adequate, and disability-appropriate communication was expressed throughout the study across a number of themes by both children and young people with disability, as well as their parents and guardians. Many of the ideas related to providing clear and accurate information on public transport, the provision of 3D models that can be touched, the use of technology, and awareness and training for relevant staff and the community. These findings echo the findings of related research which has investigated the communication accessibility of public transport facilities in Melbourne, Victoria. A qualitative exploration by Bigby et al. (2019) found similarly that the inaccessibility of information, inability to navigate a large and complex service system, and a non-inclusive service culture are all prominent communication barriers that must be overcome by addressing communication accessibility. The Australian Communication Access Symbol has been introduced to support councils and other mainstream services to improve their level of communication accessibility for community members with communication disability (Solarsh & Johnson, 2017). Use of the symbol has already begun in Melbourne, Victoria, with several public transport providers (Bigby et al., 2023) as well as its primary law-enforcement agency (Burn et al., 2019) gaining accreditation.

The provision of pedestrian infrastructure that can facilitate movement throughout the city was prominent in discussions and in the development of ideas. Many of these ideas related to safety at crossings, the use of technology, signage at eye-level for children that communicates information, and safety, such as on ramps and escalators. It is notable that many of the ideas for disability-inclusive improvements to the inner-city were about safety. Safety concerns for how youth with disability navigate cities is in agreement with previous literature showing that children with intellectual disability have shown an insufficient sense of danger, inability to pay attention to cars, traffic lights, and generally lack practice; and interventions have been designed to address these concerns (Chang et al., 2016). The identification of safety to create disability-inclusive urban environments for children is unsurprising: safety has been found to be a key aspect determining child-friendly cities in general (Krishnamurthy, 2019).

Ideas around accessible public transport were developed across both the children and young people with a disability group and the parents and guardian group. These ideas related to communication, including detailed and clear announcements, those pertaining to within carriages such as the use of tactile cues, buttons that beep and vibrate, awareness of accessible seating, and also those pertaining to platforms, including clear display information. Some ideas, such as crowding and the provision of uniformed assistance staff, were relevant for both within carriages and on platforms. Our findings are mixed when compared to a similar study by Lindsay (2020), which focused specifically on accessible and inclusive transportation for young people with disabilities. Similar themes to the study by Lindsay (2020) include the provision of more accessible stops and vehicles, and training (for increased awareness in the current study). The study by Lindsay (2020) also identified the need for further funding (e.g. for more accessible public transport and vehicle modifications), and a more efficient public transport system. Interestingly, participants in the current study did not identify potential interventions aimed at training youth with disability to navigate the inner-city as pedestrians or for using public transport. A plethora of literature exists in this space: a recent systematic review identified 29

studies across 10 countries reporting training for youth with disability in at least one of pedestrian and general navigation skills, pedestrian safety, landmark recognition, route knowledge, and public transportation skills (Lindsay & Lamptey, 2019).

Among the strengths of this study was its ability to include children and young people with a range of different impairment types. This study revealed that the experiences and requirements of individuals within the category of children and young people with disabilities are far from monolithic; rather, they exhibit significant variation. This awareness allowed us to explore the diverse types of accessibility barriers in depth and bring about the creation of ideas that facilitate inclusion for a range of children and young people with disability. This study also had several limitations. The research term were unable to obtain the number of participants that had been originally planned (approximately 15–20 participants per group), and worked with data that allowed mostly "small q" analysis (Braun & Clarke, 2023). A careful approach to recruitment was undertaken whereby visiting sites where it was likely that children with a disability would be encountered (e.g. special schools and play groups) was avoided. This approach was to reduce coercion to participate, to avoid bias towards children with a certain impairment type (i.e. a deaf children's play group), and to avoid disruption during these sites' operating hours. It should be noted that although the number of participants recruited was less than desired, the workshop was held on a Saturday and at a central locale (Melbourne Town Hall) – which was the same study site that was successful in a previous study among adults with disability (Rachele et al., 2019; Rachele et al., 2020). The workshop was held in February 2020. It followed recent natural disasters in the area including bushfires (Australian Associated Press, 2020), floods (Schelle, 2020), then the start of the COVID-19 global pandemic (Cunningham & McCauley, 2020). It should be noted that, although this was in the beginnings of the COVID-19 pandemic, this was not a topic of conversation in the workshops. Several of the ideas related to crowding were regarding the general context of making it easier for children and young people to get around the city, rather than improving safety through social distancing. Last, a purpose-built presentation guide was used, including a map displaying the inner-city boundaries, iconic landmarks within the municipality and images which aimed to trigger broad conceptual thought around life domains. It is worth considering that a different choice of visual material might have led to somewhat different responses.

There are substantial gaps in the literature regarding improving urban accessibility for children and young people with a disability. It is important to build a global knowledge base of city-specific insights, allowing a more nuanced understanding to inform both further research and policy development. This study's findings were part of a suite of research that informed the City of Melbourne's Disability Access Plan (City of Melbourne, 2020a), which at the time of writing is in its draft form. The Disability Access Plan forms part of the larger Australian Government Action Plan under the National Disability Strategy 2010–2020. The National Disability Strategy (2010−20), National Framework for Protecting Australia's Children (2009–20), Disability Discrimination Act (1992) and Victorian Equal Opportunity Act (2010) are among key documents which aim to protect and enhance the rights of children and youth with disabilities, and enable Australia to uphold its commitment to the United Nations Convention on the Rights of the Child (United Nations General Assembly, 1989), through articulating provisions for the protection of children and youth, and access to a community that is safe and supportive (Council of Australian Governments, 2011). Last, given that large portions of discussion focused on public transport, both in the design of infrastructure and the delivery of services, the findings of this study are likely to prove useful for public transport operators. It is noteworthy that in Victoria in particular, many services do not meet legislated accessibility standards: in 2018–19, only 15 % of tram services delivered a fully accessibility service of a low-floor tram at a level-access stop (Victorian Auditor-General, 2020).

5. Conclusion

Given the direct policy implications of the current study, future work should endeavour to monitor and evaluate the implementation of any disability-inclusive ideas generated from this study. It is worth noting that many of the ideas proposed by participants, such as staff and volunteer training or public transport announcements, would appear feasible to implement with relatively short lead times, in contrast seemingly larger changes such as ideas relating to new trams. Continued partnerships with the local government in Melbourne, Australia on the progress of any such implementation, coupled with data on inclusion, for example local government consultations (City of Melbourne, 2020b), the Australian Bureau of Statistics census (Australia Bureau of Statistics, 2017) (which contains data on where people live and work and whether they have a disability), as well as future targeted research studies should occur. Further observational work examining accessibility and inclusion for children and young people with a disability, such as various approaches adopted to operationalise frameworks developed by Jan Gehl (Castillo et al., 2022; Cerrone et al., 2021; Silvennoinen et al., 2022), are likely to add value as complementary to the current study. Major themes common across all consulted identified the need for adequate, and disability-appropriate communication, the provision of pedestrian infrastructure and accessible public transport. Addressing these three factors are likely to hold significance for comparable cities globally. This study also highlights the value of partnerships between researchers, policymakers and people with lived experience as they provide an opportunity to draw upon a range of perspectives to identify and address local challenges, while also informing larger-scale projects and initiatives in other cities. These collaborations enable tailored infrastructure and accessibility improvements to the specific needs of local communities, resulting in more effective, equal and equitable policy outcomes.

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CRediT authorship contribution statement

Jerome N. Rachele: Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Georgia Burn:** Writing – review & editing, Formal analysis, Data curation. **Kate Burke:** Writing – review & editing, Methodology, Investigation, Data curation. **Eva Alisic:** Writing – review & editing, Supervision, Methodology, Funding acquisition, Conceptualization.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cities.2024.105103.

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