Inclusion

Inclusion of Individuals with Intellectual and Developmental Disabilities at Museums, Aquariums, Zoos, and Science Centers in Canada

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Abstract

This study explored the facilitators and barriers individuals with intellectual and developmental disabilities (IDD) encounter at museums, aquariums, zoos, and science centers (MAZSC). Ten staff members from MAZSC across Canada participated in semi-structured interviews. Eighteen facilitators and 15 barriers to participation and inclusion in MAZSC were identified at the administrative, staff, environmental, and visitor levels. Environmental factors were most frequently identified as facilitators of inclusion, whereas administrative factors were most frequently identified as barriers. The interviews revealed that while progress has been made to improve opportunities for inclusion and participation for individuals with IDD, barriers to participation and inclusion continue to exist. Findings from this study can inform the continued development of inclusive practices and policies in MAZSC.

Key Words: Barriers, facilitators, inclusion, informal educational settings, intellectual disabilities, museum

Facilitators and Barriers to Inclusion of Individuals with Intellectual and Developmental Disabilities at Museums, Aquariums, Zoos, and Science Centers in Canada

Intellectual and developmental disabilities (IDDs) are a group of conditions that begin in the developmental period and affect intellectual and adaptive functioning from an early age (American Psychiatric Association, 2022; National Institute of Child Health and Human Development, 2021). IDDs include intellectual disability as well as other lifelong conditions such as autism spectrum disorder and Down syndrome (American Psychiatric Association, 2022; National Institute of Child Health and Human Development, 2021). IDD prevalence estimates range from 3.7 to 7.0 (per 1,000) (Friedman et al., 2018). Social inclusion, characterized by meaningful social connections and participation in community activities such as employment, education, and recreation, is a critical determinant of quality of life (Amado et al., 2013; Schalock, 2004). However, significant barriers continue to hinder the inclusion of individuals with IDD in community settings, including museums, aquariums, zoos, and science centers (MAZSC) (Chaidemenaki & Kolokytha, 2024; Kyprianos & Koniari, 2024; Mastrogiuseppe et al., 2021; Ranieri et al., 2024). These settings hold significant potential for fostering inclusion through free choice, experiential learning, and social interaction (Deng, 2017; Falk & Storksdieck, 2005; Melber & Brown, 2008; Ranieri et al., 2024).

An increasing amount of research has characterized the social inclusion of people with IDD in community settings (Amado et al., 2013; Edwards et al., 2022; Taheri et al., 2017; Tint et al., 2017). Social inclusion involves more than just physical presence; it requires meaningful participation and reciprocal relationships in socially valued settings. Simplican et al.'s (2015) ecological model of social inclusion highlights the relationship between interpersonal relationships and community participation, emphasizing that inclusion is shaped by individual,

interpersonal, organizational, and systemic factors. Accessibility plays a crucial role in enabling this participation, as it reduces or eliminates barriers that hinder individuals' ability to engage fully (Rieger et al., 2022).

Within the context of inclusion in education, individuals with IDD and other disabilities may be more likely to engage and access learning material through informal learning experiences (Melber & Brown, 2008). The positive impacts for individuals with and without IDD in informal education settings can be numerous, including increased positive self-concept, increased adaptive behaviour, improved quality of life, and greater opportunity for play and friendship formation (Ranieri et al., 2024). MAZSCs are important aspects of the community that provide a space for play and social interaction among family and friends to experience hands-on learning, provide new and challenging experiences, and foster a sense of belonging (Henderson & Atencio, 2007; Langa et al., 2013; Lussenhop et al., 2016). Emerging research has also revealed the positive effects of participating at MAZSCs for individuals with IDD. For example, children with autism who visited an art museum felt more comfortable with large groups, bonded with peers, and exhibited improved social communication skills (Deng, 2017). When designed to be inclusive, children and their families report active engagement, enjoyable experiences, feelings of empowerment, and a sense of community (Doody & Patti, 2017; Mulligan et al., 2013).

Despite legal mandates for accessibility (Accessible Canada Act, 2019; Americans with Disabilities Act, 1990), barriers to inclusion persist for individuals with IDD in MAZSC (Amado et al., 2013; Kulik & Fletcher, 2016; Leahy & Ferri, 2022). Parent reports of art museum experiences revealed that neurotypical children were three times more likely to participate in activities than autistic children (Antonetti & Fletcher, 2016). In contrast, parents of autistic children were three times more likely to experience negative emotions about their visit than

parents of neurotypical children (Antonetti & Fletcher, 2016). Physical barriers may include inaccessible exhibits or facilities, while cognitive barriers often arise from the complexity of information and communication methods that do not accommodate diverse learning needs (Chaidemenaki & Kolokytha, 2024; Mastrogiuseppe et al., 2021; Zakaria, 2020). Negative attitudes, limited awareness among staff and other visitors, and sensory barriers such as noise and crowds are all sources of discomfort and impede participation (Kulik & Fletcher, 2016; Langa et al., 2013). For example, parents of children with IDD report visits to MAZSCs to be frustrating, uncomfortable, and unpredictable (Kulik & Fletcher, 2016) and have sometimes been asked to leave with their children due to disruptive behaviour (Langa et al., 2013). Consequently, individuals with IDD miss out on learning opportunities and report reduced feelings of community belonging (Amado et al., 2013; Solish et al., 2010).

Research has shown that efforts to improve accessibility in MAZSC have a greater emphasis on physical accessibility rather than social and cognitive inclusion, resulting in missed opportunities for individuals with IDD to engage fully (Chaidemenaki & Kolokytha, 2024; Deng, 2015; Lussenhop et al., 2016; Reich et al., 2010; Zakaria, 2020). To address these barriers, MAZSCs are encouraged to use strategies that enhance accessibility and facilitate participation and engagement (Neil et al., 2024; Ranieri et al., 2024). Facilitators include family support, peer involvement, availability of skilled staff, options for reducing sensory stimuli, improved access to information suitable for varying cognitive abilities, attitudes of acceptance and inclusion from staff and visitors, and comprehensive information on websites (Langa et al., 2013; Mastrogiuseppe et al., 2021; Neil et al., 2024; Ranieri et al., 2024). Lussenhop et al. (2016) found that individuals with IDD are likely to benefit from inclusive experiences in informal settings such as sensory-reduced evenings where individuals with sensory challenges can also

participate. Through these facilitators of inclusion and participation, individuals with IDD can fully experience and engage at MAZSC. These recommendations suggest that a comprehensive and multifaceted strategy is required to improve the accessibility and inclusivity of MAZSC experiences. These strategies should be done in collaboration with community experts, including people with IDD and their families (Edelstein, 2022; Hladik et al., 2022; Mastrogiuseppe et al., 2021)

Fewer studies have been conducted to understand the viewpoints of museum managers, employees and volunteers. Studies primarily focus on children with autism being included in museum spaces. For example, Kulik & Fletcher (2016) surveyed volunteers and museum staff on museum participation for children with autism. They indicated museum participation was important, but also a high level of difficulty with having children with autism participate at the museum. While 80% of participant expressed a desire for training, only 60% had received any training about working with children with autism or special needs (Kulik & Fletcher, 2016). Leichtman et al. (2014) found similar sentiments, with staff wanting more training about how to interact with children with autism to create an optimal experience. Kyprianos & Koniari (2024) found most personnel were aware of autism and thought inclusion was extremely important in their survey of museums in Attica, Greece. At the same time, the majority of staff (85.7%) stated there was no trained staff available at their museum, and 87.%% indicated no one is responsible for autism-related activities or programs at their museum (Kyprianos & Koniari, 2024). Results from studies of staff indicate a general willingness to adopt practices to enhance accessibility of their spaces for children with autism, but there is a lack of training or resources required to actualize this (Kulik & Fletcher, 2016; Kyprianos & Koniari, 2024).

Despite the potential of MAZSCs to foster social inclusion, research on the perspectives of staff in supporting individuals with IDD remains limited in scope. Existing studies predominantly focus on children with autism in a museum context (Kulik & Fletcher, 2016; Kyprianos & Koniari, 2024; Leichtman et al., 2014). The objective of this study was to expand on this research by exploring staff perspectives of the facilitators and barriers to inclusion for visitors with IDD at MAZSCs across Canada via a qualitative descriptive approach. By identifying effective strategies and persistent challenges, this research aims to inform practices that promote meaningful participation and enhance the quality of life for individuals with IDD in informal education settings.

Method

Design

This study employed a qualitative approach to understand the complex social phenomena occurring within MAZSC in Canada. Semi-structured interviews were conducted with a mid to senior-level staff member at each of the ten MAZSC sites. The interview questions were piloted, modified, and then edited for clarity by a classroom schoolteacher, a faculty member, and a graduate student, all of whom have considerable experience working with children with IDD and their families. Piloting the interview allowed for revisions based on the feedback received and increased the relevancy and validity of the interview questions (Vogt et al., 2014).

Participants

Participants were recruited using purposive sampling. Participants were staff members working for MAZSC in cities with populations greater than 300,000 who possessed knowledge of their organization's day-to-day and longer-term public-facing programming matters. Cities with a population greater than 300,000 were chosen to access major Canadian centers more

likely to have policies, procedures, and practices to support individuals with IDD and their families visiting their sites. Thirty-two MAZSC sites in total were invited to participate via e-mail.

Ten staff participants representing ten different MAZSCs agreed to participate in the study. No previous relationships existed between the researchers and participants, and the participants were informed that the interviewer was a doctoral candidate under the supervision of the principal investigator. The participants identified their positions within MAZSC as curators, program coordinators, educational directors (n = 7), visitor/customer service coordinators (n = 2), and a chief executive officer (*n* = 1). Of the ten sites, six were museums, two were science centres, one was a zoo, and one was an aquarium. Of the three museums, two were children's museums. Additionally, half of the sites were in Ontario (*n* = 5), with one site each in British Columbia, Alberta, Saskatchewan, Manitoba, and Nova Scotia.

Procedure

Institutional Review Board approval for the study was obtained. Interviews with the 10 participants took place in the spring of 2021 and lasted from 30-60 minutes. Eight interviews were conducted via video conference (Zoom), and two were conducted by telephone. Interviews were either video or audio recorded as appropriate. A semi-structured interview protocol was developed to explore the facilitators and barriers to participation and inclusion of individuals with IDD at MAZSC in Canada, including questions related to the site (e.g., what aspects of your organization/services can create barriers for the individual?), staff understanding (e.g., what is your understanding of intellectual and developmental disabilities?), and staff experiences of facilitators and barriers within the informal education setting (e.g., Tell me about an experience

you thought was successful in terms of including a visitor with an intellectual or developmental disability – what elements contributed to the success of the experience?).

Data Analysis

Participant interview data were deidentified by assigning each participant a unique identification number. Identification numbers were used while transcribing the interviews, then were converted to pseudonyms once all transcriptions were complete. Two interviews were transcribed manually, and eight interviews were transcribed with the aid of transcription software. Transcripts were then uploaded to QDA Miner software (v.3.0.2) for data analysis and analyzed using descriptive coding. The International Classification of Functioning, Disability and Health Children and Youth Version (ICF-CY) coding system of personal body structures and function, activity and participation, and environmental factors was used to establish overarching categories for sources of facilitators and barriers before coding began (WHO, 2007).

After coding the first two transcripts, the personal body structures and function category was redefined as visitor factors, and the activity and participation categories were divided into staff factors and administrative factors categories. The environmental factors category remained the same throughout the coding process. Meaningful units of the transcribed text (paragraphs, sentences, and words) were highlighted to create codes within each overarching category. For example, the text segments “they bring a whole other perspective to something they are learning about and it’s really neat to see what kinds of questions they have” and “there’s always multiple educational outcomes in our mind when we design the exhibits, but the kids always surprise us with how they use the exhibits” were both highlighted and coded under the name “unique perspective”, which was sorted into the “visitor facilitators” category.

To ensure credibility and trustworthiness, two research team members (GG and NN) collaboratively developed the data analysis strategy through multiple meetings, focusing particularly on refining the coding scheme. New codes and the combination of codes were discussed until a consensus was reached. Upon completion of the interviews and data analysis, the interview transcripts were re-examined to ensure the accuracy of the codes and confirm data saturation.

Results

Participant interviews identified eighteen unique facilitators and fifteen unique barriers to the inclusion of individuals with IDD. The number of participants who identified each facilitator and barrier are presented in Table 1.

[Insert Table 1]

Facilitators to Inclusion

Of the 18 facilitators identified, four were categorized as administrative factors, five as staff factors, six as environmental factors, and three as visitor factors.

Administrative Facilitators

We defined administrative factors as MAZSCs' organizational policies, practices and resources that facilitate the inclusion of individuals with intellectual and developmental disabilities in programs or services. Administrative factors that facilitated the inclusion of visitors with IDD were the following: staff training in inclusion (in-person or virtual); an organizational goal of establishing more inclusive practices, free or reduced admission for visitors with IDD and/or their support persons; and having extra staff to assist either in the delivery of program content or providing one-to-one support. The majority of participants indicated that their organizations are currently in the process of adopting inclusive practices and

are optimistic about how it will benefit visitors with IDD: “We’re sort of in the middle of some of these things which is great because it’s a good time to learn about new things and to include people who maybe have traditionally been excluded” (Jude, visitor service coordinator). Moreover, most participants believed that learning through hands-on work and interacting with various stakeholders were the most effective ways for them to be trained in inclusive practices:

> It's often a lot of shadowing other educators, we've tried to improve over time, not just with the shadow training since it's just one way of learning… We recognize that everyone has a little bit to give, so we try and do a lot of sharing scenarios and brainstorming and talking through different ways we could do things. (Pat, educational director)

Staff Facilitators

Staff factors referred to the skills, attitudes, and practices of MAZSC staff members that enable the effective inclusion of visitors with intellectual and developmental disabilities. These factors included emphasis on the importance of awareness, flexibility, communication, and collaboration in creating inclusive environments. Staff factors that facilitated the inclusion of visitors with IDD were the following: Delivering content flexibly based on visitor needs or interests; openly communicating with staff and visitors regarding visitor needs; assigning visitors an active role when engaging with program content; being aware of the barriers faced by visitors; and having knowledge or prior experience with IDD. Several participants in this study made a point of interacting with visitors to determine what could be done to improve their experience: “I'd ask specifically what you were looking for and what you might be needing. Because just because somebody has an intellectual disability doesn't mean that it's a one-size-fits-all, right?” (Sam, program coordinator). Of these participants, most mentioned relying on visitors providing feedback after their visit to identify barriers and improve their practices:

> We are very open about the fact that we are not experts in the field. So, we do ask facilitators of groups and parents to help us with the matter and to bring forward any issues, then we work on an individual case-by-case basis. (Glen, educational director)

Familiarity with program content was also suggested to have aided participants in making modifications to suit visitor needs and overcome barriers: “We offer the same thing over and over which means we can change something quickly. If we find a class that’s done a few times but a specific activity didn’t work, that’s fine, let’s change it, let’s adapt” (Glen, educational director).

Environmental Facilitators

Environmental factors referred to the physical, informational (onsite, virtual, media), and programmatic elements of an environment that supports the inclusion of individuals with intellectual and developmental disabilities and aim to create spaces and experiences that are welcoming, accessible, and accommodating. Environmental factors that facilitated the inclusion of visitors with IDD were the following: Providing sensory items, a sensory room, or a designated quiet space/time; alternative exhibits or programs (not always specific to visitors with IDD); easily accessible information resources on IDD-specific practices/programming (in-person or online); hands-on/interactive content; content that is accessible to visitors of all developmental levels; and providing social stories. Of note, one participant voiced their concern regarding the use of inclusive language when advertising exhibits and programs intended for visitors with higher support needs:

> We've got different exhibits that would relate to different people at different times in their lives… I've been trying to get our front desk to not say “toddler area” anymore and more

> of "this is [exhibit name] where you can learn about farms and groceries" because not everybody who goes up there is a toddler. (Kim, customer service coordinator)

Visitor Facilitators

We defined visitor factors as individual characteristics, behaviors, and supports brought by visitors with intellectual and developmental disabilities that enhance their inclusion and engagement in programs and experiences. These factors emphasized visitors' active role in shaping their experiences and fostering inclusivity. Visitor factors that were identified as facilitators of their inclusion were the following: A strong interest or enthusiasm towards the subject matter of the content, bringing a designated support person, and having a unique perspective on the contents of exhibits and programs. Some participants noted how internal characteristics typically associated with IDD positively contributed to the visitor's experience: "Whenever I've met kids that have any sort of challenge, their strength tends to be that they're incredibly passionate and they connect very strongly… They may not connect to me directly, but they connect to the environment" (Sam, program coordinator). Others remarked how these visitor factors facilitated inclusion not only through their own motivation to engage with content, but also by motivating staff:

> I find it's just a breath of fresh air that they have different questions; they challenge our staff to think outside the box to capture their interests and respond to their needs as visitors and their curiosities. It is really something, I'm always blown away by some of the questions that people come up with. (Alex, educational director)

Barriers to Inclusion

Of the 15 barriers identified, five were administrative factors, one was a staff factor, five were environmental factors, and four were visitor factors.

Administrative Barriers

Administrative factors that were barriers to the inclusion of visitors with IDD were the following: limited funding for extra staff, new programs, and/or equipment; a lack of staff training in inclusive practices; lacking a way for visitors to communicate their needs before or after visiting; restrictions on environmental modifications; and having designated one-to-one support staff. Notably, although having extra staff available to be one-to-ones was identified as a facilitator by some, one participant considered it as a barrier:

> In the older age groups when they become a bit more independent and especially where it becomes a bit less "cool" to "hang out" with an adult, having that staff "assigned" to a child can sometimes be a barrier to them participating more than a helpful support. (Alex, educational director)

Oftentimes, participants emphasized how restrictions imposed on them by administrative processes and budgeting limited their ability to successfully facilitate the inclusion of visitors with IDD: "We try to think of ways we can make a fun and unique experience for them. It's just a hard thing to do on a day to day because of the money and the resources that go into that" (Sam, program coordinator). For example, several participants attributed their lack of training in inclusive practices to administrative decision-making regarding costs: "It would be considered professional development even though it should just be mandatory training. It's so specific and not required… the city is not interested in setting that up or spending money on that" (Jude, visitor service coordinator).

Staff Barriers

The only staff factor that was identified as a barrier to the inclusion of visitors with IDD was a lack of knowledge or prior experience working with individuals with IDD. Some

participants stated that despite their good intent and best efforts, a lack of knowledge ultimately prevented them from creating a fully inclusive experience:

> There was one girl in particular… the activities that we had didn't work for her a lot of times, but staff didn't really have the time or background knowledge to try and adapt things for her. They mainly focused on managing her behaviour. I think in the end it was still a good experience for this girl, but it wasn't ideal. (Charlie, educational director)

Others believed that even with general knowledge of IDD, a lack of life experience prevents them from grasping the nuances of IDD that are necessary to understand for effective practice:

> I know that there's a spectrum of experiences that people have. But I don't really know a lot about the specifics and the consequences of that. I have no life experience with this. There's a lot of second-hand stories and experiences that I've heard, but in terms putting together content and the technical side of stuff… I rely heavily on experts. (Jude, visitor service coordinator)

Environmental Barriers

Environmental factors that were barriers to the inclusion of visitors with IDD were the following: being overstimulating visually, auditorily, and/or tactilely; lacking in information resources; a limited amount of physical space; insufficient signage; and having content that is too complex for visitors to engage with. Multiple participants noted that overstimulation was not always a consequence of specific exhibits or programs; oftentimes, it was caused by the volume of visitors, which was something that could not be easily controlled. A couple of participants also remarked that neurotypical visitors and staff would also become overstimulated by crowds and other aspects of the environment, attesting to how overwhelming environmental stimuli can be:

> The areas that do get busy tend to be the ones with the loud exhibits because those are the fun activities to do. They get really busy with people and very loud and very intense because you've got people running everywhere. It's a lot, even for our staff as well. (Kim, customer service coordinator)

Visitor Barriers

Visitor factors that were considered barriers to their inclusion were the following: exhibiting disruptive behaviour (e.g. aggression, self-injury, stubbornness); a lack of interest in the exhibit or program content; not providing information about their needs; and having unclear role boundaries. Some participants indicated feeling caught off-guard when visitors exhibited disruptive behaviour and were unsure of how to include them while also ensuring programs ran smoothly for the other visitors: "At least half the class was sitting on exercise balls as a sensory thing. And that was new to me. And I was terrified to give them the objects because they were like, bouncing, like pretty physical" (Jude, visitor service coordinator). However, more participants were aware of how disruptive behaviour can result from environmental or staff factors and were able to adapt accordingly:

> I think that being flexible in your expectations of kids sitting still or putting their hand up or interrupting (is important). I think that we should be providing a comfortable environment in which the kids feel comfortable participating. And sometimes participating in a way that's most comfortable for them. (Charlie, educational director)

Nevertheless, despite staff inclusivity efforts, a few participants found that visitors were choosing not to disclose their or their child's disability out of fear of staff responses to disruptive behaviour:

> We keep on saying we want to integrate, and we asked for details ahead of time. We're very careful in how we ask for details, but we had many cases where kids had disabilities, and the parents wouldn't tell us because they were afraid they would be kicked out. (Glen, educational director)

Discussion

Interviews with staff at MAZSC across Canada revealed several perceived facilitators and barriers to the inclusion of individuals with IDD at the administrative, staff, environmental, and visitor levels. These facilitators and barriers align with existing literature, including availability of skilled staff, access to information and its dissemination, attitudes toward acceptance and inclusion, adaptable and accessible sites, and inclusion training opportunities (Kulik & Fletcher, 2016; Kyprianos & Koniari, 2024; Mastrogiuseppe et al., 2021).

Staff training emerged as a significant facilitator and barrier to inclusion in MAZSC . Although participants in this study and previous studies (Kulik & Fletcher, 2016; Leichtman et al., 2014) highlight the importance of training and a desire for training; many had not received specific preparation for working with individuals with IDD. A lack of training and knowledge on the needs of people with IDD and effective support limits the staff's ability to create inclusive program experiences and make visitors feel welcome (Cerdan Chiscano & Jiménez-Zarco, 2021; Kulik & Fletcher, 2016; Lussenhop et al., 2016). Given the importance of staff in facilitating inclusion, MAZSC should prioritize training programs for staff to ensure they have the knowledge and skills required to support visitors with IDD.

Participants also noted the need for additional support staff at sites to enhance opportunities for the inclusion of visitors with IDD. Administrative processes and budget constraints often hindered such efforts, pushing visitors to rely on their own resources, such as

bringing a designated support person to be a facilitator to their inclusion. While these individuals can facilitate inclusion, one participant reported that having designated one-to-one support staff impeded some visitors' ability to engage with exhibits and program content independently. Previous studies have shown that individuals with assigned support staff may be less likely to engage with their peers because having the support staff present marks them as different (Humphrey & Lewis, 2008; Kasari et al., 2011). Training MAZSC staff to collaborate with the support staff of visitors with IDD can help ensure that visitors and their support staff receive equitable, inclusive experiences.

Active engagement and dialogue between staff and visitors were identified as key to fostering inclusion. Cerdan Chiscano & Jiménez-Zarco (2021) state that the staff-visitor relationship could act as a barrier to participation, as staff may not consider access and communication needs or may treat people with disabilities differently. Most participants in this study understood the importance of visitor interactions in identifying barriers to inclusion and addressing specific areas of need. However, either due to a lack of an established communication system between visitors and staff or visitors' fear of facing exclusion, participants in this study occasionally found themselves unable to acquire information from visitors regarding their needs before visits. Therefore, establishing an environment where visitors are comfortable and able to communicate their needs to staff while visiting is vital for the effective inclusion and participation of visitors with IDD.

Approaches to support visitors with IDD included individualized strategies such as breaks, visual schedules, social stories, and choices. Additionally, sensory supports, including noise-cancelling headphones, weighted blankets, tinted glasses and quiet spaces, were used to address sensory challenges. Some sites provide pre-visit tours for families to help them

determine if the site is suitable for visitors with IDD. Sensory-friendly programming, like reduced sensory hours (e.g., designated low sensory or quiet times) were also offered to facilitate inclusion by reducing overwhelming stimuli. Exclusive events and quiet times have their benefits, helping visitors with IDD feel understood, welcomed, and less overwhelmed, as well as have longer visits (Kulik & Fletcher, 2016; Silverman & Tyszka, 2017). However, some visitors indicate they feel that their options are limited to these alternative activities and are not fully included as a result (Kulik & Fletcher, 2016). Therefore, providing support during regular programming is important to avoid segregation and ensure broad accessibility. These supports might include providing quiet spaces, pre-visit information about the space, signage, and sensory-related information to visitors (Langa et al., 2013; Lussenhop et al., 2016). Lastly, to continue supporting individuals with IDD, numerous sites were undergoing or had undergone renovations to improve accessibility and had received input from accessibility committees and families of individuals with IDD to increase inclusion. These collective efforts demonstrate some meaningful progress toward creating more inclusive MAZSCs by addressing the diverse needs of visitors with IDD, ensuring they feel welcomed, supported, and integrated into both specialized and regular programming.

However, the focus on sensory-friendly nights and accommodations further illustrates a gap in understanding the needs of individuals with IDD. While these efforts address sensory challenges, they often fail to consider the diverse cognitive and social support requirements of this population. This narrow approach suggests limited knowledge about IDD, where accommodations for sensory sensitivities are mistaken for comprehensive inclusion. Expanding training to educate staff about the broader range of needs—including communication styles, behavioral differences, and support strategies—is necessary to foster genuine inclusivity.

Administrative barriers, such as a lack of policies addressing cognitive and social accessibility, emerged as significant impediments. Policies that did exist often centred around physical accessibility, which did not address the social inclusion and cognitive accessibility needs of visitors with IDD. The lack of policies on inclusion and participation for visitors with unique social and cognitive needs led to administrative barriers when staff sought to seek changes to support individuals with IDD in accessing MAZSC. For example, some staff members at sites who desired to implement specific sensory-reduced hours received pushback from administrative staff due to concerns regarding the costs of changes in programming to accommodate these needs and a lack of policy on implementing such changes. This is consistent with the literature, which suggests that administrative attitudes may impede progress toward inclusive spaces by hindering decisions regarding approaches beneficial for reducing barriers (Walters, 2009; Zakaria, 2020).

Some MAZSCs sites demonstrate progress by providing cognitively accessible content, such as through hands-on interactive activities that cater to diverse developmental levels. Research has demonstrated that hands-on activities in MAZSC are a significant facilitator of social inclusion and participation (Lussenhop et al., 2016), especially among those with IDD (Martin & Vidiksis, 2019; Melber & Brown, 2008). MAZSCs which focus on the cognitive accessibility of content have the added benefit of supporting learning for a much broader audience, including people who are English language learners. Museum staff can work with individuals with IDD to identify and modify content to be cognitively accessible and improve inclusion for all (Mastrogiuseppe et al., 2021).

Despite the barriers present at MAZSC across Canada, staff expressed the desire for learning and change to create MAZSC sites which are fully inclusive and accessible for children

with IDD. Participants spoke of hopes for the future, including improved communication strategies through audio, video, or digital signage, staff hiring, increased physical spaces for improved programming, and the development of more available quiet spaces to support children and families with IDD.

Limitations and Future Directions

Findings from this study should be interpreted in light of several limitations. First, this study centred on MAZSC at provincial and national capitals and cities with more than 300,000 individuals. Additionally, data were collected from one staff member per site, limiting the depth of insights into organizational and administrative barriers. Future research should incorporate perspectives from multiple staff members, in addition to visitors with IDD and their families to consider a more holistic view (Neil et al., 2024). Further, site visits by researchers could validate findings and identify additional facilitators and barriers to inclusion. Finally, this study was conducted including only Canadian sites; international studies could also offer valuable comparative insights.

Conclusion

This study highlights the complex interplay of administrative, staff, environmental, and visitor-level factors affecting the inclusion of people with IDD at MAZSCs. Environmental factors were commonly identified as facilitators of inclusion (such as sensory items and quiet spaces), however, efforts should be made to facilitate the inclusion of visitors with IDD by implementing facilitators at the administrative level (e.g. through staff training), staff level (e.g. through flexibility in content delivery), and visitor level as well (e.g. ensuring they are interested and supported). Identifying and understanding facilitators and barriers to inclusion not only provides a platform for continued research into providing individuals with IDD with the right to

access informal educational opportunities fully but also allows people working in MAZSC to make informed decisions about their organizational policies and practices, ultimately better supporting the inclusion of individuals with IDD during their visits.

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Table 1

Facilitators and Barriers to Inclusion Identified by Participants

Category	Facilitator	*n*	Barrier	*n*
Administrative Factors	Inclusion staff training	8	Limited funding	8
	Inclusive practice goal	8	Lack of staff training	6
	Free/reduced admission for visitors with IDD	5	No way for visitors to communicate their needs	3
	Extra staff	4	Environmental modification restrictions	2
			Designated support staff	2
Staff Factors	Flexible content delivery	6	IDD knowledge/experience	5
	Open communication	6		
	Give visitors an active role	4		
	Awareness of barriers	4		
	IDD knowledge/experience	3		
Environmental Factors	Sensory items/quiet space	10	Overstimulation	7
	Alternative exhibits/programs	9	Lack of info resources	4
	Easily accessible information	7	Limited space	3
	Hands-on/interactive content	6	Insufficient signage	2
	Cognitively accessible content	5	Content is too complex	1
	Social stories	4		
Visitor Factors	Interest/enthusiasm	6	Disruptive behaviour	6
	Designated support person	6	Lack of interest	3
	Unique perspective	4	No info provided about needs	2
			Unclear role boundaries	1