Inclusion

# Perceptions of Inclusion in an Informal Education Setting

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| **Corresponding Author:** | Nicole Marie Neil, PhD<br>University of Western Ontario Faculty of Education: Western University Faculty of Education<br>London, ON CANADA |
| **First Author:** | Nicole Marie Neil, PhD |
| **Order of Authors:** | Nicole Marie Neil, PhD |
| | Israa Ibrahim, BA |
| | Abigail Withers, MA |
| | Tatiana Dimos, BA |
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**Abstract**

Informal education settings are spaces where learning takes place outside of formal classrooms and include museums, zoos, and science centres. People with intellectual and developmental disabilities continue to experience barriers to inclusion in such community spaces. This study investigated stakeholder perspectives on inclusion at a children's museum. Thirteen stakeholders, including families with and without children with intellectual and developmental disabilities and staff members, were asked, 'What does inclusion at the children's museum look like?" Participants then engaged in group concept mapping and multidimensional scaling and hierarchical cluster analysis were used to analyze the data. A seven-cluster solution was obtained reflecting the themes of inclusive learning, representation and inclusion, physical accessibility, targeted accommodations, supportive staff, universal design, and functionality. Ideas from the concept map may support informal education settings in designing inclusive spaces and experiences for people with intellectual and developmental disabilities.

*Keywords:* informal education, autism, concept mapping, museum, accessibility

## Introduction

Informal education settings (IES), such as museums, zoos, and science centers, are those where learning takes place outside of formal education classrooms (Spencer & Maynard, 2014). IES provide opportunities to learn new skills, share experiences within families, and develop a sense of community belonging (Langa et al., 2013; Ryuh et al., 2019). IES must be inclusive and accessible. In the United States, the Americans with Disabilities Act (ADA, 1990) and in Canada, the Accessible Canada Act (Accessible Canada Act, 2019) seek to provide equal access to opportunities for people with disabilities and include legal obligations to reduce and/or prevent barriers that encumber full participation for individuals with disabilities. While IES have made improvements in accessibility and inclusion for people with disabilities, much of the efforts focus on physical inclusion rather than cognitive and social inclusion (Deng, 2015; Lussenhop et al., 2016; Poria et al., 2009; Reich et al., 2010).

Intellectual and developmental disabilities are defined as limitations in intellectual functioning as well as cognitive, social, or daily-living skills that present before the age of 18 (Sullivan et al., 2018). Intellectual and developmental disabilities include, but are not limited to, diagnoses such as autism spectrum disorder (ASD) and Down syndrome (Sullivan et al., 2018). Many individuals with intellectual and developmental disabilities face barriers to inclusion and they are among the most vulnerable populations experiencing social exclusion (Amado et al., 2013), with continued exclusion from informal education opportunities (Deng, 2015; Lussenhop et al., 2016; Poria et al., 2009).

Children's museums are increasingly relevant as informal education settings for young children. They are an open-ended environment, providing children with opportunities to explore different interests, and engage in learning using multiple senses (Coffey, 2018). They provide

opportunities for families to spend quality time through shared experiences and develop belonging in their communities (Mulligan et al., 2013). Parents and caregivers report that museum environments encourage physical activity, active methods of play, and support the development of skills such as curiosity and confidence (Taylor & Kervin, 2022). When designed to be inclusive, the positive effects of participating in informal education settings include opportunities to learn new skills, share experiences within families, and develop a sense of community belonging (Langa et al., 2013; Ryuh et al., 2019). IES may be especially valuable for children with disabilities. For example, children with neurodevelopmental disorders who attended an art museum were more likely to bond with peers, feel comfortable in large groups, and display increased social communication skills (Deng, 2015).

Children and adolescents with intellectual and developmental disabilities, however, experience unique barriers to inclusion in IES and fewer opportunities to participate relative to their neurotypical peers (Amado et al., 2013; Lussenhop et al., 2016; Solish et al., 2010). This results in missed educational opportunities and reduced feelings of belonging (Amado et al., 2013; Lussenhop et al., 2016; Solish et al., 2010). Parents of children with ASD report their children participate in museum activities much less than children without ASD, and that the parents have more negative emotions related to participation (Antonetti & Fletcher, 2016). Parents of children with intellectual and developmental disabilities are frequently asked to remove their children from IES as they are deemed disruptive or behave in ways that differ from neurotypical children (Langa et al., 2013). Parents of children with ASD report typical museum visits as uncomfortable and unpredictable, with a risk of judgment and criticism from other visitors (Kulik & Fletcher, 2016). Museum staff recognize the importance of children with intellectual and developmental disabilities learning at the museum but report difficulty in

identifying these children and providing an optimal experience due to inadequate training (Kulik & Fletcher, 2016). As a result, some museums have designed and implemented special hours or events for children with disabilities and their families, such as low sensory hours (Mulligan et al., 2013). While families may enjoy these special events, they still desire full inclusion, and many feel their options are limited to such specialized programs (Kulik & Fletcher, 2016). Given the barriers to inclusion children with intellectual and developmental disabilities face in IES, continued research is needed to understand inclusion in these settings.

Few studies that investigate the inclusion of people with intellectual and developmental disabilities in IES. There remains a need to identify community members' perspectives on effective practices for inclusion (Amado et al., 2013) and understand the needs of families with intellectual and developmental disabilities to support the design of inclusive practices and environments (Lussenhop et al., 2016). Examining the perspectives of various stakeholders (e.g., parents, museum staff) can help provide valuable insight into how to promote inclusive IES and factors that promote or are barriers to inclusion. Understanding the perspectives within the familial and social context of the individual can contribute to understanding the best methods for increasing social connection and inclusion (Amado et al., 2013). The aim of this study, therefore, is to examine the perceptions of inclusion from multiple stakeholder perspectives.

We use Trochim's (1989) concept mapping method to gather stakeholder perspectives. Concept mapping is an effective research technique that employs qualitative techniques, multidimensional scaling, and cluster analysis. Concept mapping is a participatory approach to research where participants statements on a given topic are included and then participants also engage in the coding and analysis procedures. The method is defined by five stages: (1) preparation, (2) generation, (3) structuring, (4) representation, and (5) interpretation (Kane &

Trochim, 2007). Firstly, a research question and focus prompt are identified. Participants then generate responses to the question independently or through an interview. Statements are edited by researchers for redundancies and clarity. A final set of statements is presented back to the participants who sort them into meaningful groups and rate them on importance. Participants' sorting work is aggregated to create a concept map showing relationships among statements using multidimensional scaling and hierarchical cluster analysis. The generated conceptual groups/themes can then be further interpreted by the researcher. Concept mapping has been used to investigate a wide variety of topics and with various participant populations including adults and children with disabilities (Brown et al., 2017; Nowicki et al., 2014a, 2014b).

Thus far, limited research examines the perceptions of inclusion in informal education settings. Furthermore, no studies have used participatory approaches such as concept mapping in addressing the question. The current study aimed to address these limitations by exploring key stakeholder perspectives on inclusion at a children's museum obtained in interviews by asking, 'What does inclusion at the children's museum look like?" Interviews were followed by the opportunity for participants to partake in the analysis of the data by engaging in concept mapping methods.

## Methods

### Participants

Participants were stakeholders (staff and caregivers of children with and without intellectual and developmental disabilities) of a medium-sized Ontario city Children's Museum, specifically the London Children's Museum. Kane and Trochim (2007) recommend 10 to 20 participants for a concept mapping study and note that it is not a requirement that the same participants complete the sorting and rating tasks. The initial idea generation phase was

completed by 13 people. For the sorting and rating activity, the initial group of stakeholders were invited and 8 out of the 13 stakeholders completed the sorting and rating task. An additional two stakeholders were recruited via email for a total of 10 participants who completed both the sorting and rating activities. Table 1 shows participant demographic characteristics.

## Procedure

All procedures were approved by our University's Non-Medical Research Ethics Board. Participants were recruited through convenience, purposive sampling. Participants were recruited via e-mail and in person at the London Children's Museum. Emails with an informational poster were sent to local organizations and agencies supporting children and families with intellectual and developmental disabilities as well as the London Children's Museum email list. Participants were provided with an honorarium of a $25.00 gift card for their participation.

### *Interviews*

For parent and caregiver participants, a research assistant contacted all individuals who replied to the recruitment email to arrange a time to schedule a free visit to the London Children's Museum. Participants were free to direct their museum visit as they pleased. Immediately after the visit, participants were brought to a quiet room for an interview. For staff and volunteer participants, the research assistant contacted all individuals who replied to the recruitment email to schedule a time for an interview. Staff and volunteer participants did not have a preceding visit to the museum.

All interviews were conducted by the research assistants. Before starting the interview, written consent was obtained from the participant. The interview began with the research assistant asking several demographic questions. Following this, participants were informed that the upcoming discussion would revolve around the participation and inclusion of children with

intellectual and developmental disabilities. A definition and examples of intellectual and developmental disabilities were provided. After establishing this context, participants were presented with the focus prompt, "What does being included at the children's museum look like?" Participants were instructed to think of as many ideas and statements as they could to answer the question. The focus prompt was developed via brainstorming between the researchers (Kane & Trochim 2007) and discussed with two staff members of the London Children's Museum before interviews. To evoke further detailed responses, the research assistant asked follow-up questions such as "Can you tell me more about that? Do you have any more thoughts on that?" Responses were audio recorded. The length of the interviews ranged from 7 to 22 minutes. Following the interviews, participants were thanked for their participation and informed that they would be contacted via email in the following two weeks with a link to perform a sorting and rating task online.

*Data Preparation*

Participants' interviews were transcribed verbatim by a research assistant who then extracted all participants' statements that answered the focus question. Compound ideas were split and broken into statements with one unique idea. One hundred and thirty-nine statements were generated. The list of statements was reviewed by two research assistants and the principal investigator who coded statements as unique or redundant. Responses were edited for simplicity and coherence, and ideas that were unclear, redundant, or did not directly answer the prompt were removed, resulting in 67 unique statements. Statements were then entered into the web-based Concept System® Global Max© software (Concept Systems Inc. 2019).

*Concept Mapping*

Participants were contacted via email and sent a link and login for the online concept mapping tool. Participants were instructed to sort the statements into categories in a way that made sense to them and to label each category they created. Participants were instructed not to sort statements according to priority or value, such as 'important', 'hard to do', or 'agree'. Participants completed the task by clicking on a statement to select it and dragging and dropping the statement into ‘on screen’ categories on a virtual desktop. Following the sorting activity, participants were asked to rate each statement based on its importance from 1 (not at all important) to 5 (very important).

**Analysis**

Concept System® Global Max© software (Concept Systems Inc., 2019) was used for data analyses. Multidimensional scaling and hierarchical cluster analysis were used to create a two-dimensional data point map representing the sorting results and to categorize statements into conceptual domains (Kane & Trochim, 2007). Statements were identified by separate points on a map where the distances between the statements were representative of the frequency that the participants sorted the statements together. Statements that are closer together indicate participants sorted the statements more often together (Kane & Trochim, 2007). A bridging index value between 0 and 1 is generated for each statement representing how often each statement was sorted with items nearby (i.e., lower bridging index) and further away on the map (i.e., higher bridging index). A stress index is calculated which indicates the fit of the multidimensional scaling solution. The stress index ranges from 0 (perfect fit) to 1 (poor fit) with acceptable values for group concept mapping ranging from .204 to 0.365 (Kane & Trochim, 2007). The final stress index for the was 0.275 after 10 iterations suggesting good fit and internal representational validity.

We conducted pairwise t-tests through GroupWisdom on the average importance rating generated based on the mean of the individual ratings of the items contained within. To minimize the likelihood of type 1 error, we compared the most (i.e., Inclusive Learning) and least important (i.e., Functionality) clusters to each other and a cluster of middle importance (i.e., Additional Targeted Accommodations) rather than comparing all possible combinations. These analyses were intended to provide a sense of whether there was diversity in importance ratings rather than to pinpoint exact differences among clusters.

### Interpretation

During interpretation, the researchers reviewed potential cluster solutions to select a final solution that made sense conceptually. Since there is no calculation to select the correct number of clusters for the final solution (Kane & Trochim, 2007), a selection was made by examining what clusters are combined or separated when moving from one cluster solution to another (e.g., moving from a 20-cluster solution to a 19-cluster solution) and determining conceptual fit. The first and second authors examined solutions and determined a seven-cluster solution provided the best conceptual fit for the data. The concept mapping software provides 'closest fit' labels for each cluster based on participants' suggestions. Once the final cluster solution was determined, the researchers reviewed the statements in each cluster as well as the participants' suggested labels to determine the cluster labels.

## Results

Figure 1 shows the final seven-cluster solution including the following concepts: Physical Accessibility (Cluster 1), Functionality (Cluster 2), Universal Design (Cluster 3), Inclusive Learning (Cluster 4), Targeted Accommodations (Cluster 5), Representation and Inclusion

(Cluster 6), and Supportive Staff (Cluster 7). Table 2 shows the cluster contents, their bridging values, and importance ratings.

### *Physical Accessibility*

This cluster was one of two clusters with the largest number of statements ($n$ =15) and statements within this cluster were focused on making the children's museum accessible to visitors with diverse needs ($M$ = 4.42, $SD$ = 0.41, bridging value = 0.24). Statements highlighted the need for the museum to be physically accessible to all ages and abilities (e.g., ramps, elevators, height), include accessible formats for people with visual impairment, and use accessible language in exhibits. This cluster also had the two highest rated statements, "Physical accessibility [so] they can access everything (e.g., having ramps and elevators)" and "Things are hands on and are to the level of a child" ($M$ = 5.0).

### *Functionality*

The Functionality cluster included five statements and the lowest average importance rating ($M$ = 3.54, $SD$ = 0.71, bridging = 0.39). Statements focused on enhancing the usability of the museum including functioning exhibits (e.g., sound working) and usable space. This cluster contained the lowest rated item, "A video playing on loop...or just some different types of infographic like brochures" ($M$ = 2.3). Importance ratings for this cluster were significantly lower ($M$ = 3.54, $SD$ = 0.71) than the cluster with the highest importance ratings (Inclusive Learning; $M$ = 4.48, $SD$ = 0.05), $t(12) = 2.44$, $p < 0.05$, however, ratings were not significantly lower than the cluster with the midpoint importance ratings (i.e., Additional Targeted Accommodations; $M$ = 4.12, $SD$ = 0.05), $t(8) = 1.50$, $p = 0.173$.

### *Universal Design*

In the Universal Design cluster, statements focused on creating a welcoming environment for visitors of all abilities represented through the museum's design ($M$ = 3.81, $SD$ = 0.39, bridging value = 0.69). Statements covered a variety of recommendations including sensory rooms, chairs, and an easy-to-navigate layout. This cluster had the highest average bridging index, indicating less agreement regarding sorting among stakeholders compared to the other clusters (e.g., statements were often sorted with items in other clusters). It also had the second-lowest average importance rating. One statement, "don't have to be asking for signage," had the highest bridging index at 1, indicating it was related to all other statements and suggesting participants had difficulty sorting it.

### *Inclusive Learning*

The statements in the Inclusive Learning cluster highlighted the need to provide opportunities for all visitors to learn and participate in activities regardless of their abilities. It was viewed as the most important component of inclusion at the museum ($M$ = 4.48, $SD$ = 0.53, bridging value = 0.40). Overall, this cluster emphasized the importance of providing inclusive learning experiences that allow visitors to participate at their own pace and in their way, while also providing enough activities to keep everyone interested. Importance ratings for this cluster were significantly higher ($M$ = 4.48, $SD$ = 0.05) than the cluster with the lowest importance ratings (Functionality; $M$ = 3.54, $SD$ = 0.71), t(12) = 2.44, $p < 0.05$, and the cluster with the midpoint of importance ratings (i.e., Additional Targeted Accommodations; $M$ = 4.12, $SD$ = 0.05), $t(12) = 2.92$, $p = 0.0128$.

### *Additional Targeted Accommodations*

Cluster five emphasized providing targeted accommodations to visitors with diverse needs ($M$ = 4.12, $SD$ = 0.21, bridging value = 0.30) including having gender-fluid bathrooms,

having events specific to children with special needs, and auditory support for children with dyslexia. Importance ratings for this cluster were significantly lower than the cluster with the highest importance ratings (Inclusive Education Accommodations; $M = 4.48$, $SD = 0.05$), $t(12) = 2.92$, $p = 0.0128$ but not significantly higher than the cluster with the lowest importance ratings (i.e., Functionality; $M = 3.54$, $SD =$ $t(8) = 1.50$, $p = 0.173$.

### *Representation & Inclusion*

The Representation & Inclusion cluster contained eight statements related to creating an inclusive and welcoming environment for all visitors through diverse representation ($M = 4.45$, $SD = 0.35$, bridging value 0.29). For example, “Do they see images and things that...represent people that...look like them, sound like them, have similar backgrounds as them” and through attitudes of understanding and acceptance. Another example includes, ‘That you belong but that you don't have to be asking to belong.”

### *Supportive Staff*

Finally, the Supportive Staff cluster addressed the importance of creating an inclusive environment through the actions and behaviours of staff members at the children’s museum. The cluster was tied for the largest number of statements ($n = 15$) and had the lowest bridging value ($M = 4.00$, $SD = 0.57$, bridging value = 0.22), indicating statements in this cluster were generally sorted together. However, some statements had higher bridging values, indicating less cohesion to the cluster's focus, including “reminders to look & listen for kids with ADHD kind of like an infographic” and “labelling in both English and French” with values of 0.51 and 0.61, respectively.

## Discussion

The study aimed to evaluate stakeholders' perceptions of inclusion in one informal education setting, a children's museum. The study involved multiple stakeholders, including families with and without a child with an intellectual or developmental disability diagnosis and staff members at the Children's Museum. Following semi-structured interviews, the participants engaged in analysis using group concept mapping. A seven-cluster solution was obtained that included themes of Physical Accessibility, Functionality, Universal Design, Inclusive Learning, Targeted Accommodations, Representation and Inclusion, and Supportive Staff. The findings from this study can aid in developing more inclusive policies and practices for children with intellectual and developmental disabilities in IES.

Our findings align with previous work investigating inclusion in informal education settings. Highly rated items in the Supportive Staff cluster including, "Openness and kindness from staff" and "[Staff making] the child feel included" support previous findings that staff members play a significant role in creating feelings of inclusion within IES (Kulik & Fletcher, 2016; Lussenhop et al., 2016). Staff have the potential to act as both a facilitator and a barrier to inclusion. In some instances, parents of children with intellectual and developmental disabilities express frustration, discomfort, judgment, and a lack of accommodation from museum staff during typical visits to museums (Kulik & Fletcher, 2016). Conversely, supportive staff facilitate the inclusion of families with a child with an intellectual or developmental disability making them feel welcome (Lussenhop et al., 2016). Staff training has been identified as important to both families and staff members in increasing their ability to provide inclusive programming (Kulik & Fletcher, 2016). Given the importance of staff in facilitating inclusion, IES should invest in training programs for staff to ensure they have the knowledge and skills to provide support to people with disabilities.

The current study also revealed that visitors appreciated exhibits that were interactive and engaging for all cognitive abilities and ages. One of the two highest-rated statements in this study was “Things are hands-on and are to the level of a child”. Previous researchers highlight the importance of hands-on activities in museums for children as facilitators of social participation in IES (Lussenhop et al., 2016), especially those with intellectual and developmental disabilities (Martin & Vidiksis, 2019; Melber & Brown, 2008). Providing hands-on learning opportunities helps to create an interaction between the child and their environment to facilitate the child’s learning and exploration in museums (Andre et al., 2017). Furthermore, creating hands-on, structured activities and opportunities in museums for children with ASD (e.g., art studios, block building) can help to increase focus and direct sensory input (Coffey, 2018). Participants in the current study agreed on the importance of multiple ways to engage with exhibits, such as tactile elements, audio descriptions, or simplified language. Multisensory and multimodal activities have been suggested by others as a means to include people with disabilities, including those who have dyslexia, are deaf, or are blind, in addition to intellectual and developmental disabilities (Reich et al., 2010). IES which focus on features that are accessible to people with disabilities have the added benefit of supporting learning for a much broader audience (e.g., people whose first language is not English).

Several statements in this study indicated a desire for spaces or dedicated hours to meet the needs of individuals with sensory needs. Previous studies have indicated the benefits of exclusive events or times for people with intellectual and developmental disabilities and the need for a quiet room or space (Kulik & Fletcher, 2016; Langa et al., 2013). Bright lights, loud noises, and crowded spaces act as barriers to inclusion for some individuals with intellectual and developmental disabilities (Langa et al., 2013; Lussenhop et al., 2016). Exclusive times or spaces

allow parents to feel understood, welcomed, and less overwhelmed, as well as stay for longer periods (Kulik & Fletcher, 2016; Silverman & Tyszka, 2017). While exclusive events and spaces benefit families in some ways, parents also indicate they feel that their options are limited to specialized programs (Kulik & Fletcher, 2016). Specialty events such as low sensory times should not be relied upon as the sole solution for accessibility. Instead, the museum should strive for inclusion from the outset, making physical and sensory accessibility a priority in its everyday operations and design. Other ways to provide support during typical hours 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).

In this study, the Inclusive Learning cluster had the highest average importance rating. This might suggest that learning, and particularly the availability of inclusive learning opportunities, may be a critical motivator for families visiting the museum. Items in this cluster emphasized opportunities to learn in different ways, at different paces, with or without others. Previous research shows mixed motivations for attending IES. Lussenhop and colleagues (2016) found families were motivated to visit museums to engage with learning content that aligned with their child's interests, experience hands-on learning, and have novel and challenging experiences. In contrast, Kulik and Fletcher (2016) found parents of children with ASD did not view exploring and learning as a primary motivator for visiting the museum with their child. Rather, the sense of community and belonging offered more. When at IES, Antonetti and Fletcher (2016) found that children with ASD participated in more art, leisure, and entertainment activities, whereas children without ASD tended to participate in educational activities. The current study and previous research suggest mixed motivators for families attending museums

and IES, Staff at IES need to consider how programming can be structured to respond to differences in family interests and needs for individuals with and without disabilities.

Physical Accessibility was the second-highest-rated cluster and the second-lowest bridging value (0.24) indicating statements were frequently sorted together. Statements in this cluster related to the space being physically accessible as well as cognitively accessible for children and non-native English speakers. This cluster contained the highest rated statement, "Physical accessibility [so] they can access everything (e.g., having ramps and elevators)." Inclusion efforts in IES have primarily focused on physical accessibility and the movement towards accessibility is typically framed around compliance with physical access (Coffey, 2018; Reich et al., 2010). Participants in this study may also have framed inclusion in terms of physical accessibility, considering not all stakeholders may have experienced cognitive or social exclusion to the same extent. Physically accessibility may have also been top of mind for participants in this study due to the particular environment of the Children's Museum under study. The Children's Museum in this study is in an older building with physical accessibility concerns, and at the time of writing has a plan to move to a more physically accessible modern building.

**Limitations**

The current study is not without limitations. We included several stakeholder groups (e.g., families with and without children with disabilities and staff) in the generation and analysis. Although the methodology allowed for differences of opinion during the statement generation step, the analysis did not explore variability across participants. Future studies might consider generating concept maps for each stakeholder group to compare maps and ratings across the groups. Second, although concept mapping attempts to minimize researcher bias by

engaging participants in data analysis, it is not without limitations. For example, the statement "Don't have to be asking for signage" had a high bridging value (1.00) which may have been because participants understood it's meaning differently. It may be beneficial to have a panel of review statements before sorting to ensure perspectives are accurately represented. Finally, the size of the current sample and the focus on the case of a single children's museum limits generalization to other populations and IES.

## Conclusions and Implications

Despite the limitations, the present study highlights the voices of key stakeholders using group concept mapping, while promoting active participant involvement and collaboration. By engaging in the data analysis process, stakeholders are empowered to provide recommendations that are grounded in their experiences and perspectives. Participants produced an expansive list of ideas for increasing accessibility and inclusion for individuals with intellectual and developmental disabilities and their families who may otherwise be unable to access informal education opportunities, as well as aid in developing future programming and accessibility policies. Overall, this study highlights the importance of actively involving key stakeholders in the design and implementation of inclusive practices in children's museums. By doing so, IES can create more welcoming and inclusive spaces that cater to the needs and preferences of all visitors.

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Table 1 Participant Demographics

| | Generation (n = 13) | Sorting and Rating (n = 10) |
|---|---|---|
| Age (years) Mean (Standard Deviation) | 35.85 (8.20) | 39.2 (7.05) |
| Gender | | |
| Female | 11 | 9 |
| Male | 2 | 1 |
| Stakeholder Group | | |
| Staff | 3 | 1 |
| Parent/Caregiver of child with intellectual/developmental disability | 4 | 5 |
| Parent/Caregiver | 6 | 4 |
| Diagnoses | | |
| Autism Spectrum Disorder | 2 | 1 |
| Learning disability | 1 | 1 |
| Down syndrome | 3 | 3 |
| Complex post-traumatic stress disorder | | 1 |
| Attention-deficit/hyperactivity disorder | | 2 |

Table 2.

Cluster Statements with Bridging and Rating Values

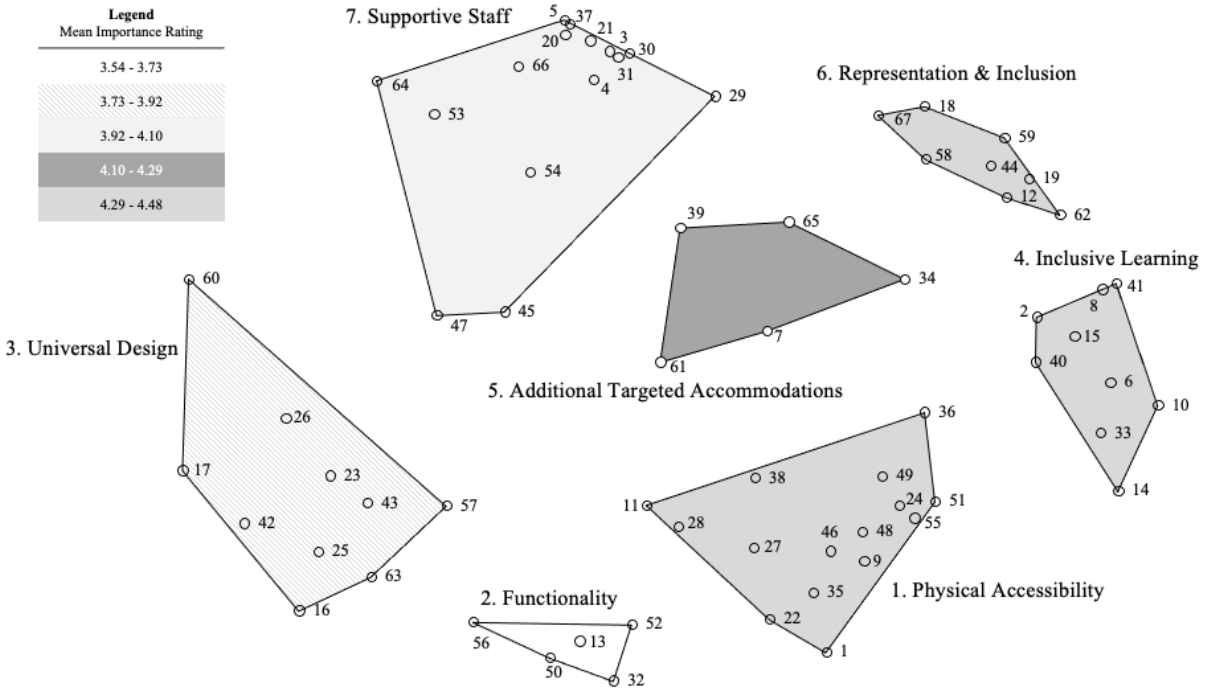
| Statement # | Concept and Statement | Bridging Value | Mean Importance Rating |
|---|---|---|---|
| **Cluster 1. Physical Accessibility** | | **0.24** | **4.42** |
| 1 | Different entry points into things [and] exhibits (e.g., crawling, standing, visually, tactile) | 0.36 | 3.40 |
| 9 | Closed captions for individuals who may have visual impairments | 0.16 | 4.20 |
| 11 | Certain hours or days...for kids who have a hard time with sensory overload...to come and participate | 0.27 | 4.40 |
| 22 | Having different activities...set up in different stages so that there's also some quieter spots | 0.32 | 4.40 |
| 24 | Options where everybody going into the museum could be accommodated...based on their needs | 0.17 | 4.80 |
| 27 | Physical accessibility [so] they can access everything (e.g., having ramps and elevators) | 0.22 | 5.00 |
| 28 | Offer headphones...for kids who have trouble with all that noise | 0.23 | 4.00 |
| 35 | Activities at the right height for different age groups and reachable for one in a wheelchair | 0.24 | 4.70 |
| 36 | Having a variety of activities that allow for different abilities & allow every age and ability to participate | 0.29 | 4.80 |
| 38 | Have spaces that can function for kids who have special needs | 0.21 | 4.50 |
| 46 | Language that children can easily understand and is accessible if you don't read English reasonably well | 0.19 | 4.50 |
| 48 | More accessible, more approachability in the text itself; visually as well (fonts, colours, blocks, and sizes) | 0.19 | 4.20 |
| 49 | There is sound & those types of integrations [for] an individual [who] is not able to see | 0.20 | 4.10 |
| 51 | Things are hands-on and are to the level of a child | 0.28 | 5.00 |
| 55 | Subtitles, especially for kids also who cannot hear | 0.26 | 4.30 |
| **Cluster 2. Functionality** | | **0.39** | **3.54** |
| 13 | A video playing on loop…or just some different types of infographic like brochures | 0.41 | 2.30 |
| 32 | Stairs to be manageable and the bathrooms to be manageable...just so everybody can get around properly | 0.36 | 4.90 |
| 50 | Information more distilled...more chunked piece[s] of information | 0.43 | 3.20 |
| 52 | That there isn't too much in one space... or too little...there is a little bit more balance | 0.31 | 3.60 |
| 56 | Sound working | 0.43 | 3.70 |
| **Cluster 3. Universal Design** | | **0.69** | **3.81** |
| 16 | At least maybe one big area that has [an] auditory piece involved | 0.73 | 4.00 |
| 17 | Clear direction of where and how people should be moving | 0.76 | 2.60 |
| 23 | Change things up so there's different [activities] | 0.70 | 3.70 |

| | | | |
|---|---|---|---|
| 25 | Spatial accessibility without it having to be addressed | 0.56 | 4.00 |
| 26 | Things that [don't] get overwhelming | 0.93 | 4.10 |
| 42 | A room that is a sensory room...or just a quiet space | 0.73 | 4.30 |
| 43 | Having chairs for the parents | 0.54 | 2.80 |
| 57 | Signs for braille | 0.48 | 4.20 |
| 60 | Don't have to be asking for signage | 1.00 | 3.70 |
| 63 | A layout that is easy for all abilities to navigate | 0.52 | 4.70 |
| **Cluster 4. Inclusive Learning** | | **0.40** | **4.48** |
| 2 | Everybody learning at the ability that they can | 0.28 | 4.50 |
| 6 | Not structured learning | 0.46 | 4.00 |
| 8 | Allow kids to interact or to be by themselves, depending on their ability | 0.41 | 4.60 |
| 10 | Having different types of exhibits for different types of learning | 0.46 | 4.70 |
| 14 | Having the opportunity to participate in activities, whether that's physically participating or at least being able to integrate, watch and visibly participate | 0.47 | 4.60 |
| 15 | Opportunity for kids to participate... at their own pace | 0.33 | 4.80 |
| 33 | Having enough activities to...keep everybody interested | 0.43 | 4.30 |
| 40 | That they can touch everything...for kids with ADHD because they want to just push every button and touch everything | 0.34 | 4.50 |
| 41 | [Adopting] a Montessori approach that kids can touch, they can look... and pretend play | 0.45 | 4.30 |
| **Cluster 5. Additional Targeted Accommodations** | | **0.30** | **4.12** |
| 7 | Gender fluid bathrooms | 0.26 | 3.80 |
| 34 | [Doing] specialty events for special needs | 0.27 | 4.10 |
| 39 | Giving [kids with ADHD] permission to be silly | 0.35 | 4.40 |
| 61 | For kids with dyslexia...having trouble reading...a button for them to listen | 0.31 | 4.30 |
| 65 | Signs about being inclusive [towards individuals with] special needs | 0.30 | 4.00 |
| **Cluster 6. Representation & Inclusion** | | **0.29** | **4.45** |
| 12 | [Trying] to be more open to different communities (e.g., LGBTQ) | 0.25 | 4.40 |
| 18 | Everybody [is] accepting | 0.289 | 4.70 |
| 19 | No one is excluded | 0.29 | 4.80 |
| 44 | Do they see images and things that...represent people that...look like them, sound like them, have similar backgrounds as them | 0.29 | 4.70 |
| 58 | Not over-focusing on one group over the other (e.g., gender, religion, disability) | 0.26 | 3.90 |
| 59 | That you belong but that you don't have to be asking to belong | 0.27 | 4.10 |
| 62 | Everything easily accessible...and engaging for the kids | 0.37 | 4.90 |
| 67 | No one would be rude or tell us to be quiet | 0.23 | 4.10 |
| **Cluster 7. Supportive Staff** | | **0.22** | **4.00** |
| 3 | Staff [going] above and beyond | 0.10 | 4.00 |

| | | | |
|---|---|---|---|
| 4 | [Staff being] receptive to who is in the room and how [children] are learning at the time | 0.10 | 4.10 |
| 5 | [Staff listening] to a lot of the directive from parents | 0.00 | 3.10 |
| 20 | [Staff] not excluding, [being] open-minded | 0.02 | 4.80 |
| 21 | Openness and kindness from staff | 0.06 | 4.90 |
| 29 | [Staff making] the child feel included | 0.25 | 4.80 |
| 30 | [Staff] always making sure [a child] is having fun | 0.08 | 3.20 |
| 31 | [Staff] building connections with [families] regardless of disability or whatever challenge | 0.04 | 4.40 |
| 37 | Just staff treating everybody exactly the same | 0.03 | 3.90 |
| 45 | Reminders to look & listen...for kids with ADHD...kind of like an infographic | 0.50 | 3.40 |
| 47 | Labeling [in] both English and French | 0.61 | 4.00 |
| 53 | Staff saying do you need... (e.g., sign language, someone to guide you) | 0.36 | 3.30 |
| 54 | Staff that will have sign language | 0.43 | 3.80 |
| 64 | Everybody is pretty nice | 0.55 | 4.40 |
| 66 | [Staff] are available for questions | 0.23 | 3.90 |

**Figure 1**

*Concept Map Displaying Stakeholders Concepts of Inclusion*




*Note.* The cluster map depicts seven clusters identified in the study. Each statement is represented by a numbered point (listed in Table 2).