



Exploring Features that Impact the Usability of Playgrounds

Introduction

Play is an essential part of a child's development, and playgrounds provide opportunities for children to develop physically, socially, and intellectually. However, if a child with a disability is unable to use a playground, then these opportunities will be limited. A qualitative research study was conducted with the objective of identifying the desired features of a playground from the perspectives of children and caregivers with a disability. Eleven interviews were completed with 19 participants including children with disabilities and their caregivers as well as caregivers with disabilities. The children ranged in age from 6 to 14 years; participants used a variety of mobility aids, including wheelchairs, scooters, walkers and braces.

Each of the informants participated in a semi-structured interview that lasted approximately one hour. Informants were given the option of creating a model playground to supplement the interview. While the interviews did not focus specifically on universal design or accessibility, ideas about this emerged. This report summarizes the findings from those interviews.

Research Findings

Access (refers to the means to approach, enter, or exit the playground)

Informants expressed that they would like to have the same access to the park, play structure, and washrooms, as all other users. It was suggested that this could be done by having ramps at every location instead of stairs, and that there be unimpeded access (i.e. no step up or step in) to the playground area. Many of the participants described the "railway ties" or "barn board" that surround most play spaces as a barrier to access. These structures often prevent a wheelchair or walker from getting within the play area. Informants also stated the importance of having wheelchair accessible parking in close proximity to the playground entrance, as well as a wheelchair-accessible pathway from the parking lot to each area of function within the park and playground.

Ground Surface

Concrete The majority of informants commented that concrete is the preferred surface when walking or using a mobility device (such as a wheelchair or walker). While respondents understood that concrete may not be suitable under the entire playground due to safety issues, they explained that it would be beneficial to provide a concrete lead-up to every play structure, and then use padding, gravel, or rubberized matting.

Grass The informants found that while grass was easy to walk on, it could get worn down over time. Also, they found that if a grassy area is uneven, navigating a wheelchair can be very difficult. On the other hand, some of the informants enjoyed grass in parks due to the fact that it is cooler than concrete, and suggested that it be used in all areas other than pathways.

Pea Gravel – The consensus of the informants was that pea gravel is very difficult to manoeuvre through with a mobility device. As previously stated, it was suggested that if gravel is necessary for safety, perhaps it could be put only directly under fall areas.

Sand – A few of the informants reported that sand prevented them from getting around in the playground area when using their wheeled mobility device.

Woodchips – While a few of the informants reported that woodchips were difficult to navigate a mobility device over, some found that woodchips were accessible with mobility aids; one informant suggested that woodchips were preferable to sand.

Rubberized Matting – Some informants reported positive experiences in playgrounds surfaced with rubberized matting made from recycled tires. They felt this material was safer than concrete, but still accessible for mobility devices.

Playground Ideas

Play structure – The informants reported several features that they would like to see on a play structure. As above, participants felt ramps were a necessity to allow wheelchair access onto the play structure but also emphasized it is just as important to ensure that the ramp leads to a large platform with an appropriate turning radius and various activity options. For example, if the ramp is directly followed by a swinging bridge or stairs that a child in a wheelchair would not be able to navigate, then children and caregivers are very limited to what areas of the structure they can access. Including games and toys that promote imaginative play such as a steering wheel, or X's and O's at wheelchair height would provide some options that all children could play with. The informants also suggested that they would like to see monkey bars and sliding bars that could be accessed by a person seated in a wheelchair.

Swings – The majority of the participants described the importance of swings in a playground, but many of the children were not able to sit and swing independently. Many of the informants suggested that playgrounds include a swing with supportive seating and straps.

Slides – Most informants were concerned with the safety of slides and suggested that slides be made wider (for two people to slide beside each other) with higher sides and a large platform at the top. Also, they requested that the slide be accessible with a ramp to the top rather than steps up as is often the case.

Tunnels – The majority of the interviewees mentioned the idea of a tunnel that is flat on the bottom and large enough to wheel or walk through. It was suggested that the tunnel have windows for safety.

Maze – A few of the informants had the idea for a wheelchair accessible maze. Caregivers suggested that the maze be made only of a half wall or hedges for safety, so that children could be seen clearly while within the maze.

Playhouse – Some of the participants suggested a large wheelchair accessible playhouse with windows and games at wheelchair height (Other ideas included having an ice cream store inside, story-telling area, making the playhouse into a shoe, etc).

Tetherball – A few of the informants mentioned tetherball as something they would like to have at the playground and suggested installing one at both a standardized height as well as a lower, wheelchair accessible tetherball pole. The lowered tetherball set could include a fixed seat so that even a child who doesn't use a mobility device would be sitting, thus evening the playing field. Also, if safety was a concern, the tetherball could be made out of a softer material.

Merry-go round – A couple of participants mentioned the idea of a wheelchair accessible merry-go round that a wheelchair could roll onto and then be secured. It was suggested that the merry-go round be recessed into the ground and slightly sloped. Spots could be included for children who use wheelchairs, as well as children who do not.

Others – The following playground equipment was also mentioned during the interviews: a train, a big climbing rock, a supportive teeter-totter or other spring-loaded rides, as well as a raised sand-box or sand-table.

Park features

Trees – Most of the informants said they like to see trees in a park, as they allow for privacy as well as shade.

Flowers – Some of the participants liked the idea of having a raised garden or flowerbed. It was highlighted that it is also important to make sure that the garden paths are wide enough for a wheelchair to pass through.

Benches – It was recognized that benches are important, especially close to the play structure, so that caregivers are able to watch their children play from a safe distance.

Washrooms – A couple of informants mentioned that it would be convenient if there were wheelchair accessible washrooms at the park.

Picnic Area – Some informants commented on the need for wheelchair accessible picnic tables. They also hoped that parks would include fire-pits and barbeques at wheelchair height.

Pathway – All of the informants mentioned the importance of pathways in a park. The ideal pathway would be wide, gently sloping, and made of concrete. The informants highlighted the fact that pathways should give access to each area of the park and playground.

Water – Several of the participants suggested having a wading pool or splash pool with a ramp or sloped entrance. An alternative option suggested was that there could be a water table or a fountain at wheelchair height.

Recommendations

It is evident that the City of Winnipeg is making great efforts to ensure their playgrounds are accessible for all users. The following recommendations are based on the most frequently mentioned design requests during the interviews:

1. **Accessible Surface** - Replacing pea gravel and sand with concrete or other hard surfaces would allow everyone unrestricted circulation around the playground (See Figure 1 in Appendix A). According to the U.S. Access Board, accessible surfaces which meet the Americans with Disabilities Act (ADA) guidelines can also include impact-attenuating tiles made of recycled rubber and stabilized engineered wood fibre. For more information on these products, please refer to the reference section of this report.
2. **Elevated Accessible Routes** - All of the informants in the study wanted access to the elevated play components of the play structure. A ramp can serve as an extension of the accessible route from the ground, allowing individuals who use mobility devices to access the play structure. This is supported by the first principle of “Universal Design”, Equitable Use, which states that the environment should provide the same means of use for all users and avoids segregation or stigmatization of users. Ensuring that the main route to the play structure is accessible will allow all children and caregivers to participate at the playground. When including a ramp on a play structure, it was also suggested that a large platform with an adequate turning radius be incorporated into the play structure. The ADA Accessibility Guideline states that landings must be: (1) as wide as the ramp they connect to; (2) a minimum length of 60 inches; and (3) if ramps change direction, the minimum landing size must be 60 inches wide to accommodate a turn. Including manipulatives and activities on the accessible portion of the play structure will provide options for children who use mobility aids (See Figure 2).
3. **Accessible Pathways** - All of the informants identified accessible pathways as a necessity when increasing the usability of playgrounds. They believed that there should be a pathway from the parking lot to the playground, as well a pathway connecting each area of function within the park. As previously mentioned, concrete was the pathway material of choice. The informants also suggested that all pathways be wide with a gentle slope.
4. **Tunnels/Playhouse/Maze** - Almost all of the informants had the idea of creating an enclosed or partially enclosed space large enough for a wheelchair to wheel in and through. By making the space large enough for a wheeled mobility device, the second principle of “Universal Design”, Flexibility in Use, could also be achieved as the design would accommodate a wide variety of individual preferences and abilities. For instance, one child may choose to use their mobility device in a tunnel or maze, while another may walk or crawl through it.
5. **Supportive Swing** - Almost all of the participants mentioned swinging as one of their favourite activities, yet many of them were unable to sit on a standard swing independently. It was suggested that a large supportive swing with a back and straps be included as an alternative to the traditional swing. This way, children of all abilities will have a chance to use the swing (See Figure 3 & 4).

References

National Center on Accessibility (2007). *Designing for Inclusive Play: Applying the Principles of Universal Design to the Playground*. Retrieved from:
<http://www.ncaonline.org/index.php?q=node/331>

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Appendix A



Figure 1: Example of rubber matting as ground surface



Figure 2: Example of activities at wheelchair height



Figure 3: Example of base for supportive swing (Strathmillan school)



Figure 2: Example of Supportive Swing in Winkler (Front View)