Creating an Inclusive Playground for Children of All Abilities: West Fork Playground in Cincinnati, Ohio

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Abstract
This field report discusses our experiences with the West Fork Park Playground built in Green Township, Ohio. When designing West Fork Playground, we strived for a playground that was versatile, exceeded accessibility guidelines, and was usable by all populations of children. Our overall goal was to develop a playground that meets the principles of universal design, where every child, regardless of ability or disability, is welcomed and benefits physically, developmentally, and socially from the playground environment. The field report describes our prior research, playground equipment specifics, and the overall experience.

Keywords: play, playground, children with disabilities, inclusion
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Introduction
In its publication, *International Classification of Functioning, Disability, and Health*, the World Health Organization (WHO) defines social participation as involvement in life situations or sharing an activity (WHO, 2001). Social participation typically involves an individual’s involvement in communication, mobility, self-care, interpersonal interactions, and relationships (Shikako-Thomas, Bogossian, Lach, Shevell, & Majnemer, 2013). Participation in recreational activity is often not considered in this definition of social participation (WHO, 2001). Children’s social participation in play may be influenced by a number of factors including age, gender, residential location (e.g., rural, urban, suburban), the presence of a disability, and socioeconomic status (King, Shields, Imms, Black, & Arderin, 2013). Social participation in play for children with disabilities is often thwarted as a result of physical barriers within the environmental setting and social exclusion by peers (WHO, 2008).

Previous research has identified personal and environmental barriers to social participation in play for children with disabilities. Personal barriers may include a limited number of peers for social interaction, deficits in motor skills impacting overall mobility, cognitive delays influencing processing abilities, and delays in social-emotional skills (Browder & Cooper, 1994; Solish, Perry, & Minnes, 2010). Environmental barriers such as architectural barriers, organizational policies and practices, discrimination, and social attitudes may also lead to a reduction in social participation (Rimmer, 2005). For example, legal mandates for accessibility on playgrounds (Architectural and Transportation Barriers Compliance Board, 2000; Canadian Coalition for Accessible Playspaces, 2014) tend to focus on the needs of children with physical disabilities (Institute for Human Centered Design, 2016). While the inclusion of ramps, accessible entrances, and barrier-free equipment are necessary components of an accessible playground, these changes alone do not promote socialization, do not meet children’s sensorimotor needs, and do not lead to social and imaginative play in *all* children with disabilities (Stanton-Chapman & Schmidt, in press).

Full social participation on playground settings is particularly important for children with disabilities as it helps to ensure their ability to relate to others and have a successful transition to adulthood. However, ensuring that children with disabilities benefit fully from the myriad of social opportunities and learning experiences available to them on a playground setting remains a substantial challenge for many families as a variety of disability categories are not considered when playgrounds are designed (Stanton-Chapman & Schmidt, 2016). Over the last five years, we have engaged in a series of research studies that have examined caregiver, professional, and children’s views of currently available playgrounds (e.g., Stanton-Chapman & Schmidt, 2016; 2017b; in press). The results from these studies informed the playground design discussed in this field report. Our overall goal was to provide *all* children a rich playground environment for play and quality social participation.

Playground Project Site
In early 2017, the Board of Trustees from Green Township, Ohio in the United
States issued a request for proposals for the West Fork Playground project. Green Township is best described as a middle-class community of 58,370 residents located in a suburb of Cincinnati, Ohio. The Board of Trustees allocated $425,000 for the project and requested that all proposals adhere to this budget including labor, material, installation, and equipment.

The purpose of the request for proposals was to hire qualified playground design-build teams to construct a new playground on the site of the existing Holiday Playland at West Fork Park (Figure 1). While Holiday Playland served the children of Green Township for 18 years, the Green Township Trustees determined that to fully comply with current safety and accessibility standards, it was not feasible or cost effective to renovate the existing play structure. Rather, they elected to build a new playground that would

(create an accessible and stimulating play environment that will facilitate meaningful interactions between children of different abilities that provides opportunities for challenge, healthy risk, and mastery for all children between the ages of 5 and 12 years (Green Township, 2017).

Additional consideration would be given to projects that incorporated children younger than five years.

Figure 1. Former Holiday Playland at West Fork Park
Our West Fork Playground Proposal
An important consideration of early childhood inclusion is the understanding that all children, regardless of ability, have the opportunity to fully participate in a broad range of activities and opportunities in the local community, including playground settings (Division of Early Childhood & NAEYC, 2009). This requires that playground developers, designers, and manufacturers understand and be responsive to the differences in children’s abilities, skills, and behaviors, and also be aware of the varying needs of families, especially those who have a child with a disability and a child who is typically developing (Stanton-Chapman & Schmidt, 2017a). When designing West Fork Playground, we strived for a playground that was versatile, exceeded accessibility guidelines, and was usable by all populations of children. Our overall goal was to develop a playground that meets the principles of universal design (UD), where every child, regardless of ability or disability, is welcomed and benefits physically, developmentally, and socially from the playground environment (Center for Universal Design, 1997).

Results from Our Prior Research
In three research studies (Stanton-Chapman & Schmidt, 2016; 2017b; in press), we surveyed and interviewed caregivers who had a child with a disability in their family and educational professionals (i.e., special education teachers, general education teachers, early interventionists, special education school directors, public school principals) to: determine if all of the children in their family or school could fully socially participate on playgrounds in their school or community, gain insight into the experiences children with disabilities have on school and community playgrounds, and to gather their ideas about ideal inclusive playgrounds that meet the needs of all children.

Through these studies, we learned that caregivers and educational professionals were not satisfied with currently available school and community playgrounds and believed children with disabilities could not fully socially participate on them due to the playgrounds’ inappropriateness for a given disability, the children’s lack of interest in the playground equipment, safety concerns, and worries about possible bullying or teasing by peers. When asked how an inclusive playground for children with disabilities should be designed, respondents indicated that playground equipment should meet the needs of children with sensorimotor concerns, and that the playground should hold the interest of children both with and without disabilities. Our observational studies of children playing on inclusive playgrounds confirmed these findings (Stanton-Chapman, Toraman, Morrison, Dariotis, & Schmidt, revise & resubmit; in review).

Playground Design
The results from our studies were collated to inform the design we proposed for West Fork Playground. The resulting design focused on children with varying disabilities including autism, hearing impairments, deafness, visual impairments, and physical impairments. In fact, 80 percent of the overall playground facility is accessible to all individuals including those who require the use of mobility devices (see drawing of the design in Figure 2). We also designed the playground to meet the needs of many families by incorporating playground equipment that was
developmentally appropriate for children ages 6 months to 12 years. We also ensured that grandparents and caregivers with disabilities could be in close proximity to their children.

**Figure 2. Computer drawing of West Fork Playground**

The overall size of our West Fork Playground design is 11,000 square feet. Our major goal was to design a playground that would meet the needs of children across varying abilities and ages, hold children’s interest for a minimum of 30 minutes, and be designed in such a way that it would not appear to be a playground for children with disabilities.

The playground encompasses seven play zones. Zone 1 is an infant and toddler play area for children ages 6 through 24 months (Figure 3). Two house structures are in this play area. One house was specifically designed for children who are developing their crawling and pulling-up skills. The second house was appropriate for children who are perfecting their walking skills and climbing skills.

Zone 2 is a musical instrument area. The instrument collection was designed by musicians for children’s outdoor musical play and they are perfectly tuned for musical exploration. The musical zone serves three purposes. First, it was designed for children with sensory disabilities. For example, the chimes in the musical ensemble vibrate so loud and with great force that deaf children are able to experience the music. Second, the musical area serves as a natural barrier to separate the play areas for smaller children from the play areas for older children. Third, the physical arrangement of the instruments in a u-shape encourages social
participation as children can orchestrate their musical play with one another, similar

to the way a u-shaped classroom seating arrangement encourages discussion and
group participation.

**Figure 3. Zone 1: Infant and toddler play area for children ages 6**
**through 24 months; Zone 2, the musical instrument section**
**appears behind the orange house**

A unique feature in our West Fork Playground design is a sensory maze specially
created by the authors (Zone 3; Figures 4 and 5). The sensory maze is comprised
of tactile panels representing the colors of the rainbow and placed on off-white
pour-in-place surfacing. This is a rubber playground surfacing material that allows
mobility devices to access the play area. The pour-in-place surfacing also provides
for a colorful reflection of the panel colors when the sun is directly shining on the
maze. The colorful panels have raised textures that allow children with sensory
disabilities to “feel” their way through the maze and socially participate with other
children within the maze to locate the exit. The height of the maze permits
caregivers to see where their children are within the maze, but it also allows
children to feel as if they are hidden from individuals outside of the sensory maze.
Figure 4. Zone 3: Sensory maze

Figure 5. Hand drawing of sensory maze
Zone 4 (Figure 6) is a turf hill that has two metal slides and two circular tunnels. The metal slides were specifically designed for children with cochlear implants who are not able to experience plastic slides due to static concerns, but still wish to slide. The tunnels are for children who become overstimulated from the sensory experiences and need an enclosure to decompress. The tunnels provide ample enclosure for children who need it, but are large enough for an adult to crawl through if a safety concern arises. Additionally, children can gather within the tunnels for social participation purposes.

Figure 6. Zone 4: Turf Hill that has two metal slides and two circular tunnels

Zone 5 is a 14-foot mega tower for climbing and sliding (Figure 7). The structure’s purpose is to provide children with a play experience that will keep them entertained for an extended period of time. While the mega tower meets the needed guidelines for accessibility purposes, our intention was to provide children, especially adolescents and children who are developing typically, an attraction that meets their needs. The same is true of the zipline that appears in Zone 6. Our prior research indicated that families who had a child with a disability and a child who was typically developing wanted a playground that would hold the interest of all of their children. Our goal was for the play equipment in Zones 5 and 6 to meet this family need. Additionally in Zone 5, we incorporated a Biba interactive digital game system for children who have access to a smartphone. Once the Biba app is downloaded, children can use the app to play interactive games while using the playground equipment. For example, there is a virtual dinosaur bone game where virtual bones are “hidden” throughout the playground and children must locate the
bones within a specified amount of time. All of the app games require the children to do physical activity (i.e., running, climbing) as they play. The *Biba* app can only be played while at the playground.

**Figure 7. Zone 5: 14-foot mega tower for climbing and sliding**

A traditional swing set and an accelerator swing appear in Zones 7 and 8 (Figure 8). The traditional swing set includes a toddler swing and a therapeutic swing for children with disabilities who lack core strength. The accelerator swing allows a child with a physical disability to either sit in the center of the swing (if he or she has adequate core strength) or lie down. Moreover, the accelerator swing is large enough for other children to climb aboard to join in on the swinging experience, building social relationships with children with a disability.
Selection Process and Build
Overall, Green Township received 19 playground proposals from a variety of playground designers and manufacturers. Of these 19 proposals, three were considered for further review, including our proposal. The writers of the three proposals presented their proposed design to the Green Township review committee and answered their questions. Ultimately, our design was selected for the playground build. According to the review committee, our design was chosen because the playground design was informed by years of research, covered a wide range of ages and abilities, permitted all children to socially participate, and allowed the playground to grow with the community.

We planned for the playground construction to take place over eight weeks and we met this goal. However, unforeseen circumstances, rainy weather, and issues with obtaining materials prevented a straightforward construction process. First, several
rainy days delayed the laying of the pour-in-place surfacing. Second, the zipline equipment was shipped from the manufacturer in Poland to the United States without the pulley system that operates the zipline. The construction crew was able to install the zipline’s main structure minus the pulley system. The Green Township Board of Trustees made the executive decision to hold the grand opening of West Fork Park without the zipline in operation, not wanting to make the residents wait an additional three weeks for the pulley system to arrive.

**Grand Opening of West Fork Park and Research Plans**
On October 27, 2017 at 10:00 am, the Green Township Board of Trustees held a grand opening of West Fork Park. In attendance were the Green Township Board of Trustees, Green Township administrative employees, an Ohio Government State Representative, the principal and teachers from a nearby elementary school, 25 elementary school students with disabilities, local media, university professors, early childhood education university students, the authors, the playground’s construction crew, community members, local park districts, and surrounding community leaders. Attendees were in awe of the playground, especially the sensory maze.

Green Township’s administrative team estimated that over 15,000 children and their families visited West Fork Park within three weeks of the grand opening. Preliminary discussions with community members indicate that the playground has improved the community by increasing social interactions between children with disabilities and their peers. Specifically, Green Township reports that more individuals with disabilities, including adults, are utilizing West Fork Park.

Survey and interview research with caregivers, educational professionals, and community members will begin in December 2017. Anonymous observational research of children and families socially participating on West Fork Playground will commence in spring 2018. Observational, survey, and interview research of children with disabilities socially interacting on West Fork Playground will also begin in spring 2018. Together, the results of these studies will explore whether West Fork Park allows all children to socially participate to their fullest ability.

**Conclusion**
The design of West Fork Park’s new playground was informed by the results from several research studies informed. We sought to go beyond the accessibility guidelines; be responsive to the needs of children, families, and special education professionals; and wanted to ensure the social participation of all children.

Moving forward, playground developers should find ways for community members’ voices to be heard when designing future playgrounds. Instead of looking at playground equipment catalogs and listening to sales people looking to make a profit, community officials should consult their residents and research findings to develop the best playground for all children in their community.
Tina Stanton-Chapman, Ph.D. is currently the Associate Director and an Associate Professor in the Early Childhood Education and Human Development program at the University of Cincinnati. Tina holds a Ph.D. in Special Education from Vanderbilt University. Tina’s research agenda focuses on developing social-emotional interventions for children with disabilities and their families. Specifically, she works with young children with disabilities to improve their peer relationships in the classroom and on playground settings. One area of this research agenda is designing and building inclusive playgrounds that are appropriate for children of all abilities.

Eric Schmidt is the owner and chief executive officer of Playground Services, an all-inclusive playground and safety surface and installation company providing site development and installations throughout the United States. He is also a nationally certified playground safety inspector and has over 20 years’ experience in the playground industry.

References


