THE UNIVERSAL ATTRACTIVENESS OF UNIVERSALLY ACCESSIBLE PLAY ENVIRONMENTS: A PILOT STUDY

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1 ABSTRACT

This informal systematic observation study was undertaken in spring 2012 exploring the hypothesis that playgrounds designed to higher universal accessibility standards, are more attractive to children of all abilities and to the general population, than are those designed simply meeting minimum ADA Standards. User counts were conducted in the playgrounds of seven parks in a single community. One park had a highly accessible playground, built using universally accessible concepts, having ramps and other features significantly exceeding ADA. The six comparison parks had playgrounds designed to meet ADA minimums. All seven parks were located in a suburban Dallas, Texas community with similar socio-demographics and similar park attributes such as size, amenities, and maintenance qualities. Findings showed the universally accessible playground had use ratios of children per play event being over three times the mean use ratios of the other playgrounds. These findings appeared supportive of the hypothesis that a playground built to the higher standards of universal accessibility, can attract more use by children and by all users than playgrounds meeting only minimum ADA standards. Despite the pilot nature of this study, it brings attention to the potential and understudied value universally accessible playgrounds may contribute to stimulating outdoor play activity and furthering the benefits of healthy active living for all children. Formal research is being developed using more rigorous protocols that combine analysis of physical conditions, user observations and user surveys to further test the hypothesis and support policies and guidelines encouraging the implementation of universally accessible play environments.

1.1 Keywords

accessibility, children, fitness, park, playground

2 BACKGROUND

A pilot study was conducted to explore the hypothesis that playgrounds designed to higher universal accessibility standards are more attractive to children of all abilities, and to the general population, than those designed simply meeting minimum accessibility standards. The study is an informal systematic observation study counting users of playgrounds in seven public parks within one community. It focuses on the issue of universal accessibility in playgrounds as a potentially important factor influencing play activities among children and families without special needs in addition to those having special needs.

Research has shown that outdoor play and active living can make a substantial contribution to the lives of children and adults alike. Frequent and regular physical activity can increase longevity, well-being, and reduce the risk of obesity and many other chronic health problems (Active Living Research, 2010). Play is a conduit for physical activity especially among children, and has been found to bring many additional benefits such as stress reduction and intellectual development (Active Living Research, 2010). Neighborhood parks, outdoor recreation facilities and playgrounds can help people of all backgrounds to include a more active lifestyle in their weekly routines (Active Living Research, 2010).

In 1991, the Americans with Disabilities Act (ADA) brought an increased awareness of designing for people with disabilities giving impetus to design for accessibility and play for children with special needs. Research has shown considerable support for the value of play promoting socialization in children of all abilities. However, there is little quantitative evidence regarding the general popularity of play environments designed with a focus on inclusion.

2.1 Play and Child Development

“Play is the child’s work. The world is his laboratory, and he is the scientist” (Friedberg,

1970). Good design creates a child's world where the child is at home and the adult is the outsider. Design should create the opportunity to steer a child's exploratory process toward creative thinking for imaginative experiences. Spatial elements of masses and voids and the equipment that defines them can be used to make a variety of links to further enhance the choices in play and increase the creative element of spontaneous choices for the child (Friedberg, 1970).

Childhood involves a tremendous amount of learning and growth. Play can be a medium for development as a child gains information about themselves, their bodies, their friends and the new world in which they live. At the fundamental level, growth revolves around the four dimensions of social, emotional, physical and cognitive development. Each of these dimensions contributes to the overall development of a child (Thompson, 1992).

Spontaneous, free play in children is one of the most important and most beneficial types of play (Frost, 2004). Free play has five dimensions identified by play scholars and researchers. It is primarily voluntary, allowing participants to enter or leave at will. Free play is spontaneous; at any time it can be changed by any of the players. It is imaginary, involving a pretend element that is different from everyday life. Free play is engaging; players are separated from other activities as they engage in the play activity. The fifth dimension is simply being fun, pleasant and enjoyed by the participants (Frost, 2004).

Many health care professionals and educators consider play to make important contributions to a child's development. It is a process where children can develop through interaction with their physical and social environment on their own terms. In free play, children's reading readiness and sociometric status among their peers is readily seen through their play behaviors (Pellegrini, 1988).

Children aren't the only ones that exhibit the behaviors of play. Animals from mammals down through birds, reptiles and fish have been observed in play. Play has been shown to allow animals to prepare themselves for changing conditions in a continuously evolving environment by testing their abilities without threatening their own well-being. Individual animals that play have been found to have more brain development than those who don't (Brown, 2009). In animals that don't play, neural growth has been found to be in only one part of the brain as opposed the whole brain growth in those that play. Essentially, play has been shown to stimulate brain growth, add to intelligence, and improve survival through adaptability (Brown, 2009).

2.2 Accessibility and Playgrounds

Inclusion in all aspects of society is becoming recognized as the new standard of social integration in the developed world. Over the years, people with physical limitations in general and children specifically have lived in a socially restricted minority group that imposes restrictions on the activity and interactions of people with physical and/or cognitive impairments that result in an undermining of their psycho-emotional state of well-being. From this point of view, a disability is a socially imposed restriction based on a certain physical impairment significantly limiting a child's social interactions with their peers (Burke, 2012).

While the value of play has been demonstrated as a critical part of a child's life and development, it is important to recognize that playgrounds don't lead to positive outcomes for all children. In many environments children with physical disabilities have become marginalized and often their parents become marginalized as well. In an effort to recognize that people having physical impairments and disabilities are 'people first' before their disability, it is recommended that a 'person first' terminology and language be used when discussing children with different physical conditions such as autism or the need to use a mobility device such as a wheel chair (Jeanes, 2012).

An important element of play and the play environment is that it becomes a medium for communication and interaction with peers. Children of all abilities have reported the playground as a place where they can have privacy, especially from adults, and interact with their friends. Just sitting around and talking with peers has been reported as a valuable activity. Children express the importance of the conversations being private interactions among children without adult presence. In the mind of many children of all abilities, the playground is as much a social space as a place for activity (Prellwitz, 2007).

High quality inclusive play environments are needed to foster development in children of all abilities in an effort to reverse the trend of the disenfranchisement of those with different physical impairments. In response to the need for inclusion, the concept of universal design in play goes beyond the minimum statutory requirements of the ADA Standards for Accessible Design. The concept seeks to design environments that are usable for all people, of all abilities, without the need for adaption. The resulting universally designed environment has

the potential to encourage more use by people of all abilities to link children with peers and parents with parents in a recreational setting benefiting adults and children alike (Moore, 2007).

Some basic elements of providing play environments for people of all abilities include removing physical barriers by providing a good accessible route, making sure play features and site amenities are available to everyone. The effect of limiting accessible play elements to a single specially designed space simply reinforces the social segregation that universal design seeks to overcome (Jeannes, 2012). This discussion has focused on children with disabilities. There are many parents and care givers of able bodied children that need to use mobility devices and who would like to or need to be able to accompany their children to the playground. The inclusive environment seeks to include parents and caregivers who have physical disabilities as well as children (Goltsman, 2011).

2.3 Regulatory Framework for Accessible Playgrounds in the US

There has been much work done in the last ten years to develop accessibility standards around the world. In the United States, the Americans with Disabilities Act (ADA) was enacted in 1990. The original accessibility rules found in the 1991 Americans with Disabilities Act Accessibility Guidelines (ADAAG) recognized the need but did not include any specifications for recreation areas or playgrounds. The first rules for accessibility in playgrounds were adopted by the U.S. Access Board in October, 2000.

In 2010, the Justice Department adopted a set of standards for accessibility, the "2010 Standards for Accessible Design". The new Standards generally follow the Access Board rules, devoting two full chapters to play areas themselves, defining minimum requirements for accessibility of play area ground surfacing, play structure accessibility, and accessibility requirements for play elements. The new Standards became a statutory requirement for all facility design March 15, 2012 (U.S. Department of Justice, 2010).

The first step to providing accessible facilities, including playgrounds, is the need for an accessible route to the facility, and within the facility to the play events. To access play structures in smaller playgrounds, the Standards allow a transfer platform. A child with mobility impairments who has some ambulatory capability but uses a wheelchair, can challenge their abilities by transferring from the wheel chair to the platform and onto the structure. The Standards also define elevated play and ground level play, the need for 50% of elevated play being on an accessible route, required numbers of ground level events, accessible play surfacing, and when ramps onto the play structure are needed (U.S. Department of Justice, 2010).

The concept of universal design goes beyond the minimums of ADA. The minimum standards only require one-half of the play elements to meet accessibility requirements, transfer platforms are allowed in smaller playgrounds and accessible loose fill surfacing is allowed. Loose fill surfacing can shift to form humps and rolls if not frequently maintained thereby limiting accessibility. Going beyond the minimum standards includes making all or nearly all play features accessible, providing ramps to the majority of play features, and using highly accessible unitary surfacing on the ground level. Universally designed playgrounds should be designed to give children and people of all abilities access to all elements in a play environment offering play opportunities for those of all abilities (Goltsman, 2011).

2.4 Case Study

The case study of Kids Together Playground in Maria Dorrel Park in Cary, North Carolina provides a theoretical foundation for the pilot study. The methodology used a mixed-method design that combines user observations in behavior mapping with tracking the activities of individual families having a child with a disability, and interviews with the families. The strength of the methodology was the use of behavior mapping to identify and graphically locate the numbers of children using different elements of the play environment including the play equipment, pathways and gathering areas (Moore, 2007).

The playground opened in 2000 as a destination facility occupying approximately 2 acres having a reported construction cost of approximately $1M. The park is characterized by three large circular pathways that intersect with each other to form the framework of the playground. The research divides the play environment into seven functional use zones that are further subdivided into 12 setting types. A total of 40 settings are identified, including play areas having different types of manufactured equipment, circulatory spaces, gathering spaces, open lawn areas, and a large ground level sculptural dragon (Moore, 2007).

Being a destination facility and much larger than the playgrounds in University Park, Kids Together Park is a good example of a best practices facility. Among the seven functional use zones, the most popular zone was the one having the

horizontal play structure that was ramp accessible. This most popular zone also had the most setting types within it. The study considered the number and combination of play settings along with the higher level of accessibility as contributors to the higher attraction. The research identifies the promise of quantitative analysis and more extensive data sets as a future contribution to understanding the dynamics of behavior in the built environment (Moore, 2007).

3 PURPOSE

The goal of the study was to explore a hypothesis that a playground built to the highest standards of accessibility in terms of the standards of ADA and professional practice will attract more use by all children than playgrounds designed to only meet minimum ADA standards. There is a growing body of evidence reflecting the impact outdoor open space and public parks have in facilitating active living and increased levels of physical activity, with a potential benefit of improving health, reducing obesity, and reducing the cost of public healthcare (Active Living Research, 2010).

There is little research that has examined the contribution of specific amenities to public park use or promotion of physical activity (Kaczynski, 2008). Along with this lack of research is a reciprocal lack of research using direct observation and detailed park evaluations to investigate associations between amenities, use, and physical activity (Colabianchi, 2011). Along with these expressed research needs, no research was found that addressed the value universally accessible facilities or play environments provide to the general public.

The pilot study has sought to fill these gaps and provide a foundation for further research. Support for the hypothesis is thought to benefit both the able bodied and people having disabilities by showing the value universal accessibility has beyond the population of the physically challenged. This has the potential of validating expanded funding for universally accessible facilities by showing benefit to all people in the community beyond those with physical challenges while benefiting the physically challenged as well.

4 METHODS

An informal systematic observation study was undertaken in spring 2012 exploring the hypothesis that playgrounds designed to higher universal accessibility standards, going beyond the minimum standards of ADA, are more attractive to children of all abilities and to the general population, than are those designed simply meeting minimum ADA Standards. User counts were conducted in the playgrounds of seven parks. One had a highly accessible playground with ramps and other features significantly exceeding ADA, the six other playgrounds were designed to meet statutory ADA minimums.

4.1 Study Setting

This study involved one case and six comparison playgrounds located in the City of University Park, Texas. University Park is a small, 3.8 square mile city, founded in what was rural Dallas County in 1915 and formally incorporated in 1924 (University Park, 2013). It is a bedroom suburb, built around a major private university, approximately five miles north of downtown Dallas, dominated by single family housing of approximately 8,600 homes with a population of 23,500 residents. It is one of the most highly educated communities in the country with 72% of the residents over 25 years of age having college or advanced degrees and property values in the city are among the highest in the nation (University Park, 2013).

The City Parks and Recreation Department operates and maintains eight neighborhood parks in residential areas of the community. Seven of the parks have playgrounds, all built to meet the ADA standards. During an informal interview, the director of parks and recreation had stated that the playground at Coffee Park built in 2009 to the highest standards of ADA accessibility, was reported to have unusually high user traffic. Figure 1 shows the play environment in Coffee Park which is the *case* playground in this study, with the six *comparison* playgrounds built to meet the minimum ADA requirements.

The figure also illustrates the similar qualities of the seven playground environments. While they vary in age, each meet current playground safety and ADA standards, they are well maintained, and are kept in good repair. The playgrounds are all built using equipment from the same playground manufacturer being of the same line and specifications using the post and platform style. Of the playgrounds, six use transfer accessibility and meet the basic ADA standards while the case playground at Coffee Park is designed to significantly exceed ADA standards.

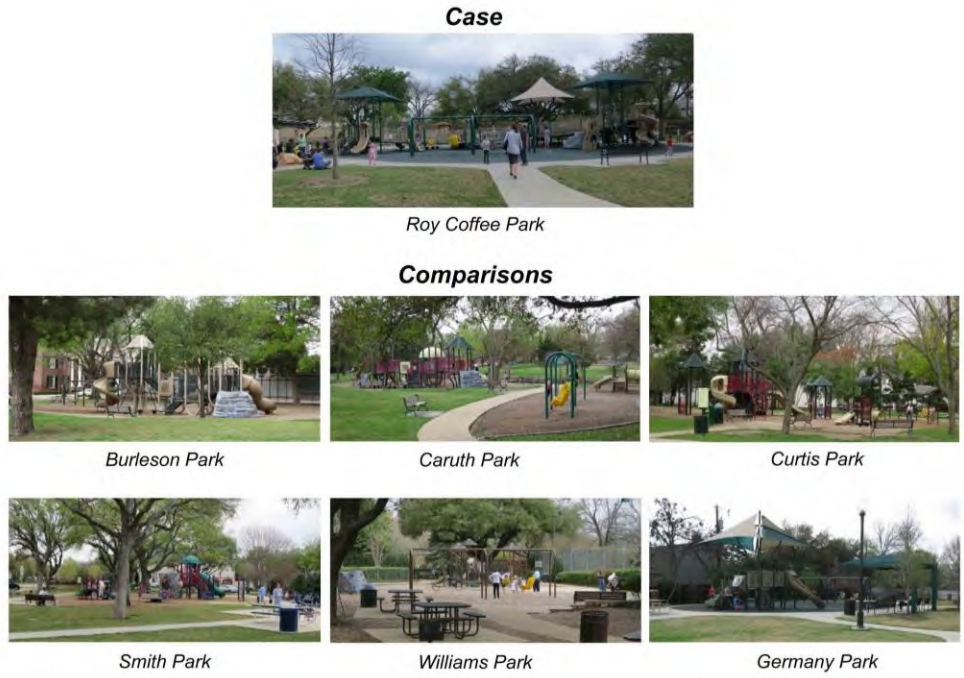

Figure 1. Coffee Park Playground (Case) and Six Comparison Playgrounds, Photos by First Author

The setting presents advantages for this empirical study because the parks are all located in predominantly single family neighborhoods with apparent homogeneous populations allowing to at least partially control for the influence of demographic variables. Functionally, they all have accessible routes to the playgrounds, drinking fountains and toilets, and are within a couple miles of each other. Park features include large mature trees, and a variety of attractive amenities such as water features, tennis courts, picnic areas, and active sports fields. For an informal study, this provides a setting where there is reasonable similarity between a number of environmental variables. Figure 2 shows the location of the parks illustrating their close proximity to one another.

To begin quantifying the differences and similarities between the parks and the playgrounds, some of the basic physical characteristics and demographics have been compiled. Table 1 shows the number of play events, playground square footages, park acreages, surfacing type and demographics within a ¼ mile radius of each park. Data is shown for Coffee Park and each comparison park. Averages are reported for the for the six comparison parks excluding Coffee Park.

All of the parks are under 10 acres and within the size of a neighborhood park. They range from Curtis Park being the largest park at 9.5 acres to Smith Park being the smallest at 1.9 acres. Coffee Park, at 4.3 acres is slightly below the mean of 5.8 acres. Demographically, the neighborhood area within ¼ mile of Coffee Park is above the mean of the comparison parks in the number of households and total population but nearly the same in terms of child population as reported by the Esri Community Analyst GIS mapping software (ESRI, 2013). Racial composition of the neighborhoods is very consistent having a mean of 95.5 percent white, with the Coffee Park neighborhood being 95.4 percent white.

The range of numbers of play events in each of the seven playgrounds was a high of 40 at Coffee Park and a low of 16 at Smith Park and Germany Park. The average or mean number of play events was 26 including all seven parks and a mean of 24 in the six comparison parks. Among the seven study parks, the playgrounds at Curtis Park, Caruth Park and Coffee Park, had play event counts above the mean, and were the most comparable in terms of size and numbers of play events.

The square footage (s.f.) of the play areas range from a high of 7,900 s.f. at Caruth Park to a low of 2,900 s.f. at Germany Park with a mean square footage for all the parks of 5,833. This places Coffee Park, at 6,400 s.f., about 10% above the mean. Surfacing used on the playgrounds consisted of five having loose fill engineered wood fiber (EWF) surfacing and two with unitary poured in place (PIP) surfacing.

Figure 2: Coffee Park and Six Comparison Parks

Table 1. Physical and demographic conditions

	Play Events	Playground S. F.	Play Surface*	Park Acres	House-holds	¼ Mi. DEMOGRAPHICS Children Under 10	TOTAL Population	% White
CASE PLAYGROUND (n=1)								
Coffee Park	40	6,400	PIP	4.3	567	155	1,147	95.4
COMPARISON PLAYGROUNDS (n=6)								
Mean	24	5,833		5.8	337	152	1,034	95.5
COMPARISON PLAYGROUNDS: Individual counts								
Burleson Park	24	6,500	EWF	5.0	463	216	1,749	91.5
Curtis Park	32	5,700	EWF	9.5	428	177	1,173	96.2
Caruth Park	37	7,900	EWF	7.1	352	190	1,106	97.6
Smith Park	16	5,500	EWF	1.9	308	158	958	97.4
Williams Park	19	6,500	EWF	4.8	68	18	178	94.9
Germany Park	16	2,900	PIP	6.5	404	151	1,039	95.1

* PIP: Poured in place unitary surface; EWF: Engineered wood fiber loose fill surface
** 2012 Estimate from ESRI

The EWF meets the basic requirements of ADA while the PIP goes beyond the standards for a higher degree of accessibility. Parks with PIP surfacing are Coffee Park and Germany Park.

4.2 Data Collection

The principal investigator (PI) undertook a non-random visual count of the users of the playgrounds at each of the seven parks in 2012. Each of the parks was visited on a six mile driving circuit where all of the seven parks could be checked individually within an hour's time. Users of the playground environment were counted at each facility and recorded as either children or adults. Teenagers (children over 12 years) were only observed in a few instances congregating separately and were reported as adults. The playground environment was considered to include everyone in the direct vicinity of the playground, including those using surrounding grounds and picnic tables. There was no formal definition of distance from the play area but it was clear who was in the area specifically to use the playground facility. These people were generally within 50 to 100 feet of the playground border. As a result, people of all ages who were on the playground and in the playground environment were counted as shown in Table 2.

Table 2. User counts of case and comparison playgrounds from six observations

Observation	1	2	3	4	5	6	Mean
Date	3/13/2012	3/14/2012	3/16/2012	3/16/2012	3/16/2012	3/18/2012	
Time	11:00-12:00	1:30-2:30	10:30-11:30	11:30-12:30	1:30-2:30	1:00-2:00	
Weather	68° Overcast	75° Overcast	70° Overcast	74° Overcast	75° Overcast	75° Overcast	
CASE PLAYGROUND (n=1): Coffee Park							
Children	70	47	43	50	26	18	42.3
Total Users	105	78	69	80	48	35	69.2
Children %	66.7%	60.3%	62.3%	62.5%	54.2%	51.4%	61.1%
COMPARISON PLAYGROUNDS (n=6): Mean of the six parks							
Children	11.7	6.8	8.0	7.2	6.3	3.3	7.2
Total Users	18.8	13.0	13.7	12.8	11.3	6.0	12.6
Children %	61.9%	52.6%	58.5%	55.8%	55.9%	55.6%	57.1%
COMPARISON PLAYGROUNDS: Individual counts							
Burleson Park							
Children	5	4	2	4	2	5	3.7
Total Users	10	9	3	8	4	7	6.8
Children %	50.0%	44.4%	66.7%	50.0%	50.0%	71.4%	54.4%
Curtis Park							
Children	21	12	9	14	16	1	12.2
Total Users	33	21	16	26	27	2	20.8
Children %	63.6%	57.1%	56.3%	53.8%	59.3%	50.0%	58.7%
Caruth Park							
Children	11	15	7	12	7	5	9.5
Total Users	18	27	14	22	14	11	17.7
Children %	61.1%	55.6%	50.0%	54.5%	50.0%	45.5%	53.7%
Smith Park							
Children	9	6	16	10	4	4	8.2
Total Users	17	12	24	15	7	7	13.7
Children %	52.9%	50.0%	66.7%	66.7%	57.1%	57.1%	59.9%
Williams Park							
Children	14	2	7	3	8	5	6.5
Total Users	20	4	11	5	14	9	10.5
Children %	70.0%	50.0%	63.6%	60.0%	57.1%	55.6%	61.9%
Germany Park							
Children	10	2	7	0	1	0	3.3
Total Users	15	5	14	1	2	0	6.2
Children %	66.7%	40.0%	50.0%	0.0%	50.0%	n/a	53.2%

Six rounds of user counts were performed during the spring break week in March of 2012. Observations were conducted on four separate days with a single observation on three of the days and three observations on one day. Three of the four days were weekdays and the fourth was a weekend day. The weather on all days was overcast and humid with the temperatures being between 68 and 75 degrees Fahrenheit. In all of the observations, there were 514 children and 355 adults observed in the play environments totaling 869 persons observed.

Permission to do user counts was obtained from the Director of Parks and Recreation of the City of University Park. At the time of the study, the PI had no affiliation with any university restricting the ability to analyze confounding variables. With current university affiliation, Institutional Review Board (IRB) review has been obtained and the existing research has been given exempt status by the Texas A&M University IRB.

Generalizability of this study is limited based on the cross sectional design, the numbers of observations, and the single city setting in which it was conducted. Being a pilot study, quantification of other physical and environmental factors was limited. Users were only counted in the playground environments and not in the parks as a whole. No attention was given to recording gender or race for this pilot phase of the research. No contact was made with the playground users to find out their preferences in play, travel choices or any other

attitudinal or perceptual issues. Collection of this data and its analysis will be the subject of future research.

5 FINDINGS

In an effort to create a common denominator between playgrounds of different sizes, user counts were translated into ratios of both children per play event and of all users per play event. Play events include individual elevated and ground level play elements in the playground. Overall, children made up 61.1% of total users in the case park, compared to 57.1% on average for the comparison parks, revealing that more than one in three playground users were adult. This illustrates the need to design for parents accompanying children to the play environment and parents with special needs as well. Table 3 shows the number of play events and use ratios for children and total users in each playground of the study.

The range of numbers of play events in each of the seven playgrounds was a high of 40 at Coffee Park and a low of 16 at Smith Park and Germany Park. The average or mean number of play events was 26 including all the parks and 24 for the six comparison parks. Among the seven study parks, the playgrounds at Curtis Park, Caruth Park and Coffee Park, had play event counts well above the mean, and were the most comparable in terms of size and numbers of play events. In terms of total play events, Curtis Park has 32 play events, Caruth Park has 37 play events and there are 40 play events at Coffee Park.

Of the parks in the study, Coffee Park and Germany Park had unitary poured in place surfacing. While observations show Coffee Park had the highest mean use ratio of 1.06 children per play event, Germany Park which is also the newest park in the system had a child per play event ratio of 0.21 that was among the lowest of the comparison parks in the city and was about one fifth the use at Coffee Park. Further analysis of other park elements may shed light on this relationship but the observation ratios in this study would tend to discount surfacing alone as contributing to higher use levels.

Figure 3 shows the ratios of mean numbers of children observed at each of the playgrounds per play event on the specific playground. The observations showed the playground facility at the case playground in Coffee Park, had a use ratio of 1.06 children per play event. This is higher than other parks by over three times the average of 0.30 children per play event in the six comparison parks. Of the individual parks, the two most comparable to Coffee Park in size and facility amenities, Curtis Park with 0.38 children per play event and Caruth Park with 0.26 children per play event, showed about one-third and one-quarter the Coffee Park child user ratio respectively. Among the comparison parks, Smith Park, the smallest, showed the highest user ratios of 0.51 children per play event but was still less than half that of Coffee Park. Use ratios at the remaining parks were less than one quarter of those at Coffee Park.

Table 3. Analysis

CASE PLAYGROUND (n=1)			
Total	40	1.06	1.73
COMPARISON PLAYGROUNDS (n=6)			
Total	144		
Average	24	0.30	0.53
COMPARISON PLAYGROUNDS: Individual counts			
Burleson Park	24	0.15	0.28
Curtis Park	32	0.38	0.65
Caruth Park	37	0.26	0.48
Smith Park	16	0.51	0.85
Williams Park	19	0.21	0.55
Germany Park	16	0.21	0.39

* Mean number of observed users in the play environment per observation, per play event.

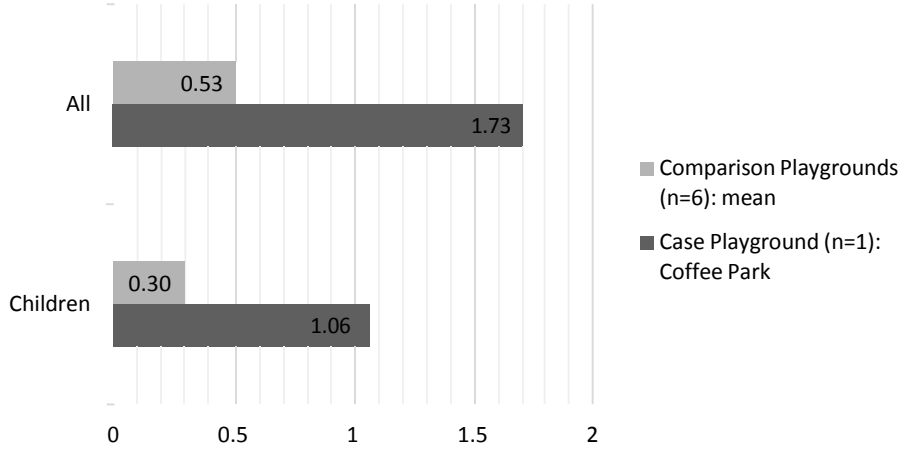

Figure 3. All Users versus Child Users per Play Event in Case and Control Playgrounds

To check the strength of the data, statistical power analysis was done using STATA version 12 with both a priori and a posteriori statistical methods. Analysis was done on the pilot study data using an alpha of 0.05 and power of 0.90. The a priori analysis returned a minimum need for 5 observations of each the case and the control parks to achieve a power of 0.90. The a posteriori analysis of the pilot study data also using an alpha of 0.05 returned statistical power of 0.9734, where a power of 0.80 is considered a large effect (Acock, 2012).

With this being a pilot study having limited numbers of observations, only simple descriptive statistics were applied. Even with the relatively low numbers of observations, the statistical power analysis shows significant strength based on the large spread between the user ratios of the case and control. The magnitude of the spread between use ratios found at Coffee Park in relation with the six comparison parks would give support to the hypothesis that highly accessible play environments have higher popularity among the general population than do play environments built only meeting statutory ADA standards.

6 CONCLUSION

These findings are consistent with one aspect of the case study findings by Moore and Cosco at Kids Together Playground in Cary, North Carolina. Among the seven functional use zones of the study, findings showed the zone having the universally accessible play structure, with ramp accessibility, was the most highly used area in the playground accounting for nearly 40% of the observed use (Moore, 2007). The higher levels of use on the universally accessible play structure is consistent with the observations in this study.

For the purposes of this article, there are two primary differences between the case study and this pilot study. The first is that Kids Together Playground, covering approximately 2 acres, is considerably larger than any of the playgrounds in University Park. It is a playground that would be considered a destination facility of proportions that are beyond that of the ordinary neighborhood or community park. In contrast, the playground at Coffee Park is of more common proportions, built in a neighborhood park setting. The second difference is that the findings at Kids Together Playground are comparing different areas of the same facility (Moore, 2007), where Coffee Park is a separate park on its own, being compared to other parks within the same metropolitan park system.

As a pilot study conducted in a single setting with limited number observations, findings from this study offer only some exploratory insights about the playgrounds' accessibility and use levels. Due to the small sample size and the lack of other available variables, only descriptive statistics are reported in this paper. Although efforts were made to carefully select the study parks to help control for other confounding factors, it is likely that factors other than the playground's ADA characteristics have some influence on the differences in the user count ratios found between the case and comparison parks. Despite these limitations, this pilot study brings attention to the potential and understudied values of highly accessible playgrounds in promoting play activities among all children, which can bring many health, developmental, and social benefits.

Further research that includes a designed research process, combining more structured observational methodologies with demographic and environmental variables, and user attitude

surveys, would be valuable to strengthen the findings. Support found in the user observations for the prime hypothesis would also tend to give support to the thought that accessible design has positive benefits to the general population as a whole. The findings have the potential of contributing to support many inclusive policies and projects in the physical environment as they relate to accessibility, benefiting everybody in the community.

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