Playground Accessibility and Usability for Children with Disabilities

Experiences of children, parents and professionals

Maria Prellwitz

Luleå University of Technology
Department of Human Work Sciences
PLAYGROUND ACCESSIBILITY AND USABILITY FOR CHILDREN WITH DISABILITIES

Experiences of children, parents and professionals

MARIA PRELLWITZ

2007
To my family
Why I'm Thankful

I am thankful for a playground where my disability doesn’t matter. I am thankful for the talk tube so my friend and I can chatter. I am thankful I can race my brother as he chooses a different way. I am thankful for a place where no one has to say, “You can’t play here – go away.”

I am thankful for the music panel where I can make new sounds. I am thankful for the tire swing where I can twirl round and round. I am thankful for the pathways that let me play with my friends. I am thankful for the many games where for the first time I can say, “I win!”

I am thankful for the seesaw with the high-back support. I am thankful I can use the slide and the accessible fort. I am thankful for the ramp that leads me to the highest spot. I am thankful for a playground where the fun never, ever stops.

I am thankful for the boat swing that makes me sway. I am thankful there is a place where I can finally play. I am thankful for sensory garden where I can feel and see. I am thankful for a place where everyone accepts me, for me.

Anonymous child

(Reprinted with the kind permission of Boundless playgrounds®)
<table>
<thead>
<tr>
<th>CONTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT .................................................................................................................... 1</td>
</tr>
<tr>
<td>ORIGINAL PAPERS ......................................................................................................... 3</td>
</tr>
<tr>
<td>BACKGROUND ............................................................................................................... 5</td>
</tr>
<tr>
<td>Playgrounds: historical background ............................................................................... 6</td>
</tr>
<tr>
<td>Traditional playgrounds .............................................................................................. 6</td>
</tr>
<tr>
<td>Contemporary playgrounds ............................................................................................ 7</td>
</tr>
<tr>
<td>Adventure playgrounds ................................................................................................. 9</td>
</tr>
<tr>
<td>The Swedish context .................................................................................................... 10</td>
</tr>
<tr>
<td>Play ............................................................................................................................ 10</td>
</tr>
<tr>
<td>Play - a child’s primary occupation ........................................................................... 10</td>
</tr>
<tr>
<td>Play and occupational therapy .................................................................................... 11</td>
</tr>
<tr>
<td>Participation in play ................................................................................................. 13</td>
</tr>
<tr>
<td>The playground environment ....................................................................................... 14</td>
</tr>
<tr>
<td>Accessibility and playgrounds .................................................................................... 16</td>
</tr>
<tr>
<td>Usability and playgrounds .......................................................................................... 16</td>
</tr>
<tr>
<td>The universal design concept ..................................................................................... 17</td>
</tr>
<tr>
<td>Legislations and conventions pertinent to accessibility and usability in playgrounds ... 17</td>
</tr>
<tr>
<td>THE AIM OF THIS THESIS .............................................................................................. 20</td>
</tr>
<tr>
<td>METHODS .................................................................................................................. 21</td>
</tr>
<tr>
<td>Participants and criteria for selection ......................................................................... 21</td>
</tr>
<tr>
<td>Data collection methods ............................................................................................. 23</td>
</tr>
<tr>
<td>Interviews ................................................................................................................ 23</td>
</tr>
<tr>
<td>Interviewing children ................................................................................................. 23</td>
</tr>
<tr>
<td>Questionnaire ............................................................................................................ 24</td>
</tr>
<tr>
<td>Data analysis methods ............................................................................................... 24</td>
</tr>
<tr>
<td>Qualitative content analysis ..................................................................................... 24</td>
</tr>
<tr>
<td>Phenomenography .................................................................................................... 25</td>
</tr>
<tr>
<td>Descriptive statistics ............................................................................................... 26</td>
</tr>
<tr>
<td>Ethical considerations ............................................................................................... 26</td>
</tr>
<tr>
<td>SUMMARY OF RESULTS ................................................................................................ 28</td>
</tr>
<tr>
<td>Study I .................................................................................................................... 28</td>
</tr>
<tr>
<td>Attitudes of key persons to accessibility problems in playgrounds for children with restricted mobility: A study in a medium-sized municipality in northern Sweden .... 28</td>
</tr>
<tr>
<td>Study II .................................................................................................................. 29</td>
</tr>
<tr>
<td>Are playgrounds in Norrland (northern Sweden) accessible to children with restricted mobility? ................................................. 29</td>
</tr>
<tr>
<td>Study III .................................................................................................................. 30</td>
</tr>
<tr>
<td>Usability of playgrounds for children with different abilities ..................................... 30</td>
</tr>
<tr>
<td>Study IV .................................................................................................................. 31</td>
</tr>
<tr>
<td>How playground designs influence children with disabilities - parental perceptions .... 31</td>
</tr>
<tr>
<td>METHODOLOGICAL CONSIDERATIONS ............................................................................ 33</td>
</tr>
<tr>
<td>GENERAL DISCUSSION ................................................................................................ 36</td>
</tr>
<tr>
<td>Playgrounds should enable and enhance social interaction ........................................ 36</td>
</tr>
<tr>
<td>Playgrounds can cause play deprivation, dependency, and stigmatization ................. 38</td>
</tr>
<tr>
<td>Lack of awareness of children’s rights ....................................................................... 40</td>
</tr>
<tr>
<td>Focus on the environment to enable play .................................................................. 41</td>
</tr>
<tr>
<td>Future research ...................................................................................................... 43</td>
</tr>
</tbody>
</table>
PLAYGROUND ACCESSIBILITY AND USABILITY FOR CHILDREN WITH DISABILITIES
Experiences of children, parents and professionals

Maria Prellwitz, Department of Human Work Sciences, Luleå University of Technology, Luleå, Sweden.

ABSTRACT
Studies have identified barriers in the physical environment causing restricted participation in play activities for children with disabilities. Therefore, was the overall aim of this thesis to identify and explore aspects of playground accessibility and usability for children with disabilities based on the experiences of children, parents and professionals. The design of the thesis includes four studies examining different aspects of playground accessibility and usability. Data were collected in Study I through interviews with creators of playgrounds (i.e., persons in a municipality responsible for playgrounds), and with users of playgrounds (i.e., children with restricted mobility, and adults that accompany the children to playgrounds). Data in Study II were collected using a questionnaire completed by persons responsible for playgrounds in 41 municipalities of northern Sweden. In Study III, data were collected through interviews of children with different abilities and in Study IV parents of children with disabilities were interviewed regarding playground design. Data from the interviews were analysed qualitatively while data from the questionnaire were analysed using descriptive statistics. Results of the studies showed that persons responsible for playgrounds have not always considered accessibility for children with disabilities. In fact, many of them had never thought about the issue and also expressed a lack of knowledge needed for building accessible playgrounds (I, II). Further, based on children’s experience, playgrounds are important environments for all children, but these are not accessible and usable for all (III). According to the parents, playgrounds do not support play or social interaction for children with disabilities and the design of most playgrounds made their children dependent on adult support. This in turn limited contact with peers and causing the children a sense of being different (IV). To conclude, the results showed that playgrounds are not an accessible or usable environment for many children with disabilities in Sweden. This has affected children with disabilities in negative ways that in turn can cause play deprivation, dependency and stigmatization. The results also indicated that there seems to be lack of awareness regarding children’s rights in society and legislation that governs playgrounds.
ORIGINAL PAPERS
This doctoral thesis is based upon the following original articles, which will be referred to in the text by their Roman numerals I-IV.


The original papers have been reprinted with the kind permission of the publishers.
Background

BACKGROUND

Playgrounds are important environments where many children play during their childhood. Playgrounds are designed for children, by adults, to be a place where they are able to perform many different activities¹. Playgrounds are not solely for physical activities. They are also an important place for children to meet and interact with other children. In this respect, playgrounds should be just as important for children with disabilities. However, a recent Swedish survey showed that only about 1% of the countries playgrounds are built with the intent to be accessible for children with disabilities (RBU, 2006). In other words, by not having access to playgrounds a child with a disability can be denied both the opportunity to be in the physical and the social environment that exists on a playground. The phrase “a child’s primary occupation is play” is a statement that has been used in several studies in occupational therapy (Bundy, 1997; CAOT, 1996; Parham & Primeau, 1997; Tanta, Deitz, White & Billingsley, 2005). If play is a child’s primary occupation enabling and enhancing this occupation must be a primary goal for occupational therapists. Therefore, with this goal in mind, occupational therapist should give prime consideration to the environment that can enable this occupation. Since play is the main occupation that takes place on playgrounds, accessibility and usability is a prerequisite if this occupation is to be performed. Why then are playgrounds lacking in accessibility? What are children’s experiences of using playgrounds? How do playground designs influence children with disabilities? These are some questions this thesis will try to answer with its focus on playgrounds accessibility and usability for children with disabilities.

My interest in playgrounds came from a study about children’s attitudes towards children in wheelchairs (Tamm & Prellwitz, 2001). In this study, we interviewed 48 children without disabilities, from 6 to 10 years of age, about what environmental changes that would be needed if a child in a wheelchair were to attend their school or pre-school. The children had different solutions to all potential problems such as ramps, automatic door openers or that they themselves would assist the child using a wheelchair. None of the children foresaw any problems in the indoor environment of their school or pre-school that they could not solve. However, all of the children interviewed, regardless of age, told us that the playground was extremely inaccessible for a child using a wheelchair. Snow in the winter, sand in the summer and a high perimeter around the playground combined to form an insurmountable obstacle for a child in a wheelchair. The results were something we took note of. In other words, the

¹ Both the term activity and occupation are used by occupational therapists to describe participation in life pursuits. However, the term activity refers to human actions that are goal directed but does not necessarily assume a place of central importance or meaning for the person (Pierce, 2001). Whereas, the term occupation is generally viewed as activities that have a unique meaning and purpose in a person’s life and influences how the person spends time and makes decisions (AOTA, 2002). In this thesis these terms will be used according to these definitions.
children interviewed were conscious of the physical obstacles that were present in their school or pre-school environment and understood that some obstacles would prohibit a child in a wheelchair from playing with the other children. While the children had thought up solutions for accessibility problems related to the classroom environment through the application of technology or by simply lending a hand, none of them had offered a solution to difficulties on the playground. One boy even said, “When we run to the playground they (children using wheelchairs) might as well roll on home”. The results indicated no negative attitudes toward or stigmatisation of children using wheelchairs. In other words, in the interviewed children’s views, only physical barriers prevented children using a wheelchair from playing on the playground and from participating in games with other children in this environment. While this was obvious for these children, it was something I had previously never thought about, which is why I decided to take a closer look at playgrounds and learn more about playgrounds accessibility and usability for children with disabilities.

**Playgrounds: historical background**

*Traditional playgrounds*

Playgrounds used to reflect theories about how children learn and why they play. One early theory by Spencer from 1873 regarding play expressed that play was an activity that uses up surplus energy. Some of the first playgrounds and even some of those existing today, were built on this theory, designed only as a place to run around and “blow of steam” lacking in provisions for creative activity (Hartle & Johnson, 1993). Another theory by G.T. Patrick from 1916 stated that children’s play was a behavior stemming from the need to relax, a way of rejuvenating after mentally stressful work and that it had no cognitive function (Case-Smith, 2005). On this basis, children were sent out by their teachers to playgrounds by the school to rejuvenate resulting in playgrounds in school yards. In the early 1900s, play was seen as a way of practicing for adulthood, and props used in play were “adult” tools, like tools for cooking, cleaning or hunting. The result of this theory paved the way for playhouses on playgrounds. Another popular theory of the late nineteenth and early twentieth century was that childhood play was a way of acting out the Darwinian evolutionary development (Hall, 1920). This theory gave playgrounds, for example; swing sets, “jungle gyms” and “monkey bars” allowing the children to play like primates. In nineteenth century Germany, physical fitness became a tradition, influencing 1920s playground design to include indoor exercise apparatuses, like different types of balancing beams and climbing structures, in the outdoors (Solomon, 2005).

The beginning of the playground movement in America started in 1885 with an
idea imported from Germany; a pile of sand that was provided for a “sandgarten” became a play area for children living near a mission in Boston. This play area was well supervised by adults with the purpose of “Americanizing” the children of immigrants, by enticing them to a site where they would be subject to instruction or propaganda, and keeping them off the street (Bell, Fisher, Baum & Greene, 1990). By the early 1900s most major cities in America had playgrounds were the main purpose was crime prevention, i.e., a way to keep children off the street, build character and promote exercise. The role of playgrounds in America at that time stemmed from John Dewey’s theories that portrayed children as miniature adults and that a child’s work was play. Children that did not engage in their profession (play) were believed to stray into delinquency. Another assumption was that physical activities, especially muscle control, were thought to have a moral dimension that would create better citizens (Solomon, 2005). This is the background on how the so-called traditional playgrounds came about. Some of these types of playgrounds still exist in schools and public parks today.

Traditional playground

Contemporary playgrounds
Towards the middle of the twentieth century, new theorists, mostly in the area of psychology, like Sigmund Freud, Jean Piaget, and M.J. Ellis, discussed play as a behavior in its own right and viewed play as important for children’s social, cognitive and affective development. For example, according to Ellis, traditional playgrounds were no more than a combination of large playthings placed together in one location to provide opportunities for gross motor activities by
Background

simulating, in galvanized steel, some primitive jungle setting (Brown & Burger, 1984). The outcome of the criticism of traditional playgrounds resulted in the design and construction of what is now called contemporary playgrounds. These playgrounds are designed with novel forms, textures and different heights in aesthetically pleasing arrangements. In the contemporary playgrounds, color and texture, such as fiberglass and, later wood, became important features of playground design. During the 1950s and 1960s, these contemporary playgrounds became popular and had imaginative and artistic structures designed in different themes such as western or nautical, with playground equipment shaped to resemble animals or vehicles with the intention of pleasing stimulus-seeking children. One belief about play was that providing a stimulating environment could affect the amount of usage and type of play that took place in that environment. Children’s interest in playing on the playground should therefore increase if the playground had a creative design and complex materials that could be used in different ways (Hartle & Johnson, 1993). However, contemporary playgrounds still included much of the same kind of equipment, like jungle gyms and monkey bars, similar to traditional playgrounds but created with a different design and different materials. The new features of contemporary playgrounds was the inclusion of multifunctional equipment (i.e., one apparatus could have several play functions). An example is the slide that extends from a multileveled wooden structure shaped like a tower with a bridge to another structure with a ladder. Contemporary playgrounds are the most common playgrounds in the western world today (Solomon, 2005).

Contemporary playground
**Adventure playgrounds**

The first adventure playground was built in Copenhagen, Denmark during World War II. The idea came from C.Th. Sørensen, a landscape architect who had observed that children played everywhere except in the traditional playgrounds he had built (Solomon, 2005). These playgrounds were also called “junk playgrounds” because they started out with used material like scraps of wood and fragments of metal, making these playgrounds perfect solutions for countries at war. At these playgrounds, the children were encouraged to build structures but also given the opportunity to choose freely what they wanted to do. These playgrounds were usually in an enclosed area and had a supervisor or play leader making different activities possible, such as gardening and cooking in addition to digging and building (Bell, Fisher, Baum & Greene, 1990). Adventure playground became popular in Great Britain during the 1950s embodying the more progressive theories of psychologist Erik Homburger Eriksson on the sociability of play, and of Jean Piaget on play and cognitive development. Lady Allen of Hurtwood, co-founder of the World Organization for Early Childhood Education (OMEP) with Alva Myrdal, was the person that introduced Adventure playgrounds to Great Britain after World War II. In the 1970s, she also created an adventure playground for “handicapped children”. Currently there are about 1,000 adventure playgrounds in Europe, most of them are in Germany, England, the Netherlands, France, and Denmark. Germany alone has over 400 adventure playgrounds (Solomon, 2005). In Sweden today, there are four (IPA, 2007), and in the United States, there are two adventure playgrounds (Arieff, 2007).
Background

The Swedish context
In early twentieth century Sweden, a political awareness of children’s situation in cities started to grow, as people started to move in from the country into cities and traffic started to become a problem. In order to keep children off the streets and city parks, playgrounds were created. During the 1920s and 30s many playgrounds were built in larger cities (Lenniger & Olsson, 2006). In the 1970s, interest in the physical planning and research for playgrounds increased significantly, with the goal of creating innovative and creative playgrounds. Legislation became very specific about design details, such as suitable surface material, minimum size, and walking distances from front door to playground. The National Board of Health and Welfare (Socialstyrelsen) was made responsible for examining the playground equipment from a pedagogical and safety perspective. A special council within The National Board of Health and Welfare was formed in 1971 to work only with issues regarding play and play equipment. The council’s mandate was to promote play for children’s development and to work towards the construction of playgrounds and playground equipment of high quality. The council suggested supervised adventure playgrounds with movable equipment and during the 1970s Sweden had over 150 supervised adventure playgrounds. The council also wrote in a report that traditional playgrounds could be seen as a monument to how little designers and builders of playgrounds know about children and play (Handboken Bygg, 1981; Sveriges kommuner och landsting, 2006). However, during the reorganization of The National Board of Health and Welfare in the early 1980s the council was found to be redundant. Almost thirty years has passed since the council commented on playground designs, but according to Lenning and Olsson (2006), the playgrounds in Sweden still look the same. Only the color on some playground equipment has changed. This historical background implies that few changes on playgrounds actually have been made since the 1970s or even earlier, in Sweden.

Play

Play - a child’s primary occupation
According to United Nations (1989) Convention on the Rights of a Child, play is a central feature of children’s everyday life. An essential part of play is the child’s interaction with peers and the environment. Play is more than being a recreational activity that children engage in, it is an occupation with a range of potential benefits (Sandberg, Björck-Åkesson, & Granlund, 2004). Theories regarding play can be divided into classical theories and modern theories of play. Classical theories try to explain the existence and purpose of play while modern theories attempt to explain the role of play in child development (Mellou, 1994). Modern theories include Mead’s (1934) sociocultural theory, which states that children learn social norms and values through play with other
children and Bateson’s (1955) theory, which states that play is a key element of learning. Psychodynamic theorists (Freud, 1961; Erikson, 1985) explain the role of play as a way for children to achieve a level of wish-fulfillment or master traumatic experiences. For cognitive developmental theorists like Piaget and Vygotsky (Piaget, 1962; Vygotsky, 1966) play is a cognitive process and a voluntary activity that contributes to cognitive development such as problem solving and creative thought. According to the arousal modulation theory (Ellis, 1973) play is intrinsically motivated and a stimuli seeking behavior. After looking at play from different theoretical perspectives Barnett (1991) concluded, that play is central to cognitive, social, and emotional development in children. The outdoor environment, like the school or neighborhood playground, is an especially important location for play for most children. It is a domain that is less parent-dominated than the indoor environment, an environment to explore, a source of novelty, and most of all, a venue for interaction with peers (Betsy, 2001). In outdoor activities, play is also viewed as a way for a child to experience a feeling of competence and a sense of control over the environment (Moore, Goltsman, & Iacafano, 1987).

Play is complex, and the complexity lies in the many different ways in which children play. It is also a natural part of a child’s life, with many opportunities to engage in play and interact with peers (Zinger, 2002). A child with disabilities, on the other hand, may not have as many opportunities to engage in play activities, especially outdoors. Research has shown that a child with disabilities have a difficult time finding peers to play with, and, that relationships to friends of the same age are limited or non existing (Segal, Mandich, Polatajko & Cook, 2002a; Skär, 2002). In playgrounds children with disabilities are observed playing alone or with an adult more often than children without disabilities (Nabors & Baldawi, 1997). In Sweden, approximately 225,000 children and youth (up to 17 years of age), or 13% of all children and youths in that age group, have some kind of disability (Hjälpmedelsinstitutet, 2002). This indicates a need for more knowledge about how the possibilities are for children with disabilities to engage in play on the playground and how they perceive play in this setting.

Play and occupational therapy

Occupational therapists direct their expertise to a range of human occupations (AOTA, 2002; Kielhofner, 2002). Play is one area of human occupation that occupational therapists work with to promote an individual, group or population to engage in (AOTA, 2002). The importance of play and ways to view play within occupational therapy has changed through the years (Case-Smith, 2005; Stagnetti, 2004). Already in the early years of occupational therapy, play had an important role in the profession (Parham & Primeau, 1997). In the early 1920s
Adolph Meyer wrote about the big four, referring to work, play, rest and sleep. These four areas were considered important for people to be able to handle the activities and demands of life. Another occupational therapist, Eleanor Slage, wrote in 1922 how play was essential for living. During this time occupational therapists used play for a variety of reasons such as diversion, development of skills, or for remedial reason. However, towards the 1950s play became viewed as secondary to learning and as an “unscientific” approach. Play per se lost importance for occupational therapists, and greater emphasis was given to more “scientific” approaches like measuring motor skills or adapting equipment. To be referred to as “play ladies” as they had previously been was now something occupational therapists found embarrassing (Couch, Deitz & Kanny, 1997). According to Kielhofner and Burke (1977), this change of focus was due to external pressure on the profession to adopt a more scientific approach.

Mary Reilly brought play back into the forefront of occupational therapy for children, with her occupational behavior frame of reference (Parham & Primeau, 1997). According to her, play was important for the development of skills needed in adulthood and in the human struggle for mastery, achievement and adaptation. The struggle for mastery within one’s environment was seen as especially important for people with disabilities (Reilly, 1974). Reilly was inspired by the arousal modulation theories that emerged in the 1960s and 70s, which proposed that play was a stimulus seeking behavior associated with exploration and that it was through play that children prepared for becoming adults (Case-Smith, 2005; Stagnetti, 2004). These arousal modulation theories also gave rise to the contemporary playground design. One of the more recent theories regarding play within occupational therapy is “the model of playfulness” (Bundy, 1997) which states that play should be understood as a process or attitude that a child brings to a situation and the attitude of play (playfulness) is determined by the presence of intrinsic motivation, internal control, the freedom to suspend reality and social play cues. However, regardless of model, play is theorized and viewed by occupational therapists as an area of occupation and the primary occupation of childhood.

Play as an occupation relates to different kinds of activities and an occupational therapist can offer assessments to identify a child’s strengths and limitations in an activity, as well as interventions to enable engagement in activities. An occupational therapist can also assess how the environment influences the performance of an activity (CAOT, 1996; Rogers & Ziviani, 1999). Adaptation of activities is another part of occupational therapy interventions and requires an understanding of the child’s abilities and of the environment where the occupation takes place (Rast, 1986; Rogers & Ziviani, 1999). However, studies within occupational therapy focus for the most part on children with disabilities limitations brought about by the child’s physical disabilities. And that these
disabilities limit the children’s ability to explore, interact with, and master their environment and may consequently deprive them of a normal childhood (Blanche, 1997; Case-Smith, 2005; Knox 1999). Fewer studies focus on how the environment influence or limits performance of activities, for example play, for children with disabilities. Considering this, occupational therapists needs to explore environmental aspects more in detail in order to enhance occupational performance.

Over time, the focus of every profession changes and evolves, along with society. To remain viable, a profession needs to develop and adapt to meet the needs of society. This is also true for occupational therapy, which has traditionally dealt mostly with the need of individual clients. With its previous orientation towards the “medical” way of practice, occupational therapists have worked more with health care professionals than with people interested in planning enabling environments. However, by the later half of the 1990s focus has moved towards natural settings and towards community-based services (Heah, Case, McGuire & Law, 2007). New legislation, like the Americans with Disability Act (ADA, 2000) or the Swedish Government bill (Regeringens proposition, 1999/2000:79) that required a national action plan for disability politics, has resulted in a change within occupational therapy toward a community focus. Also the focus on play seems to have shifted to support children’s intrapersonal skills and environmental factors more, in order to improve the children’s performance in play. This shift can be of importance for the profession's future and for what type of service occupational therapists can offer in the future. This indicates a greater need of knowledge, of environmental factors as well as children with disabilities subjective experiences of this environment as a group if a community focus is part of the future of the profession.

**Participation in play**

The ability to participate in meaningful occupations is believed to have a big influence on a person’s health (CAOT, 1996). Occupational therapists recognize that health is supported and maintained when people are able to engage in occupations and perform activities that allow for participation in the home, school and society (AOTA, 2002). Participation in activities is also considered to be a vital part of children’s development (de Winter, Baerveldt & Kooistra, 1999; King, Law, King, Rosenbaum, Kertoy & Young, 2003). Children with disabilities are likely to have limited participation in activities (Heah, Case, McGuire & Law, 2007). According to Simeonsson, Carlsson, Huntington, Sturtz-McMillan and Brent (2001) increased participation for children without disabilities correlates with a number of positive physical, psychological, and social outcomes. Therefore, it is important that children with disabilities are
Background

presented with the same opportunities to benefit from the same potential positive outcomes.

In recent years, research have shown that disability status only has minor impact on a child’s participation in occupation, while the environmental factor has a stronger influence on children with disabilities participation (Baker & Donnelly, 2002; Bedell, Haley, Coster & Smith, 2002; Law, Finkelman, Hurley, Rosenbaum, King, King & Hanna, 2004; Sloper, Turner, Knussen, & Cunningham, 1990). Other studies (Heah, McGuire & Law, 2007; Simoensson, Leonardi, Lollar, Bjorck-Akesson, Hollenweger & Martinuzzi, 2003) have concluded that it is not a child’s diagnosis that mainly affects his or her participation. It is instead because of barriers in the environment. Therefore, according to these studies, more focus should be given on environmental factors.

The concept of participation is central in the International Classification of Functioning, Disability, and Health [ICF] (World Health Organization, 2001), which provides an international and inter-professional scientific basis for understanding and studying health that may in turn increase cooperation between health care professionals, client organizations, and other sectors in society (Hemmingsson & Jonsson, 2005). In the ICF, the environment is especially addressed where environmental factors can enable or hinder participation. The central role of the environment in the ICF stems from the social model of disability that was presented by the disability rights movement. The social model focuses on the environment as the main reason for a disability, arguing that disability is not a condition within the person instead it is something created by society (Barnes, Mercer & Shakespeare, 1999; Imre, 1997; Oliver, 1996). An aspect seldom discussed within the disability rights movement, nevertheless something the social model is being critiqued for, is if a change in the physical environment can completely compensate for all performance limitations, since some impairment will continue to exclude people with disabilities from some activities even when barriers are removed (French, 1994). Using occupational therapy models that address the person and the occupation as well as the environment might therefore be a broader way to view how to enable occupational performance and participation.

The playground environment

In the theory formation of occupational therapy, the relation between person and environment is by tradition of central significance as a strategy to promote occupational performance (Law, Cooper, Strong, Stewart, Rigby & Letts, 1996). Models in occupational therapy (Christiansen & Baum, 2005; Hagedorn, 2000; Kielhofner, 2002; Law et al, 1996) describe occupational performance as a result of a complex interaction among people, environment, and occupation. All occupations, including play, are carried out in an environment that provides a
context that is external to the person. Environments consist of physical elements, both built and natural, and social influences. Therefore, is the environment, the context for all performance, and depending on how the environment influences a person it can enable or hinder occupational performance.

In the 1950s, O’Reilly (1954) wrote about the interaction between person and environment, and stated that one of the most important tasks of occupational therapists is adapting a person to a suitable environment in order to improve the person’s health and minimize stress. However, the environment was not emphasized in occupational therapy literature until the 1970s and 1980s (Law et al, 1996). The interaction between the environment and a living system and how the environment could provide an optimal level of stimulation for clients were central issues in the Model of Human Occupation [MOHO] from 1980 (Kielhofner & Burke, 1980). Since then, occupational therapy theories and research has moved from a biomedical model to a transactive model of occupational performance. In recent years, a number of occupational therapy models have been developed (CAOT, 1997; Christiansen & Baum, 2005; Hagedorn, 2000). Each model has unique features, but they all emphasize the understanding of occupational performance through the identification and analysis of elements or conditions in the environment (Letts, Rigby & Stewart, 2003). One of these models, the Person-Environment-Occupation [PEO] model (Law et al, 1996) stems from a theoretical model that was presented by the environmental psychologist Lawton (1980) that states that there should be a balance between the capacity of the individual and the demands of the environment in order to create a harmonious relationship between person and environment. This balance, according to Lawton’s docility hypothesis, can be achieved in one of two ways – by adapting human capacity to the demands of the environment, or by adapting the environment to human capacity. Lawton considers further that people with lower capacity than normal are considerably more sensitive to the demands of the environment than individuals with higher capacity, and that there should therefore be a balance between the capacity of the person and the demands of the environment.

What makes occupational therapy models different from Lawton and other environmental behavior models is the inclusion of occupation as essential to understanding the person–environment relationship. Various models in occupational therapy view the environment broadly, including cultural, social, physical and temporal dimensions, and propose that the environment can either enable or hinder occupational performance (Christiansen & Baum, 2005). When occupational therapists apply any of these models, they can assess how the environment influences occupational performance and consider how the environment can be used or modified to enable occupational performance. Necessarily, in planning of enabling environments, these models link
occupational therapy with other professions that have parallel person-environment interests, such as social scientists, architects and interior designers (Letts, Rigby & Stewart, 2003). If for example, the PEO model is to be applied to children with disabilities and play on playgrounds, more knowledge regarding the occupation play is needed.

**Accessibility and playgrounds**

Accessibility can be seen as representing the person-environment interaction and can be defined as the encounter between the functional capacity of a person or group and the demands of the physical environment. By this definition accessibility refers to compliance with official norms and standards and should be viewed objectively (Iwarsson & Ståhl, 2003). However, in the context of playgrounds, accessibility has been mainly focused on the addition of ramps and transfer stations. According to the accessibility guidelines of the Americans with Disabilities Act (ADA, 2000), at least one of each type of play equipment must be on an accessible route and at least 50% of the equipment on the playground should be accessible. Nevertheless, research shows that fewer than 10% of children with disabilities can use the ramps and transfer stations that were added to make playgrounds more accessible (Christensen & Morgan, 2003). In Sweden, the law regulating playgrounds only states that playgrounds should be accessible (SFS 1987:10). This is an indication that the efforts of building accessible playgrounds in the U.S. have not been successful. In Sweden there is a lack of research done regarding playgrounds accessibility.

**Usability and playgrounds**

In recent years occupational therapy research has focused not only on environmental accessibility but also on usability (Carlsson, 2004; Fänge & Iwarsson, 2005a; Fänge & Iwarsson, 2005b; Iwarsson & Ståhl, 2003; Reid, 2004). According to Iwarsson and Ståhls definition is usability more subjective then accessibility and implies that a person should be able to use i.e., to move around, be in and use an environment on equal terms with others. Usability does not focus on official standards and guidelines, instead it takes users’ subjective evaluation of performing an activity into account. Usability in a specific environment must be based on the functional capacity of an individual or group, the environment based on user evaluation, and the activities to be performed by an individual or group in the environment (Iwarsson & Ståhl, 2003). These factors of usability must be analyzed together to determine the extent of occupational performance in the environment. This illuminates the importance of the children’s experience of this environment, however, more research about children with disabilities experiences of performing activities on playgrounds is needed in order to evaluate playgrounds usability. Experiences that could give occupational therapists an indication on how to enable play in playgrounds for children with disabilities.
**The universal design concept**

Environmental interventions on a societal level have recently gained increased attention within occupational therapy research in an effort to promote the integration of persons with disabilities into society (Dahlin Ivanoff, Iwarsson & Sonn, 2006). In this light, the concept of universal design has gained increased interest within occupational therapy (CAOT, 2003). Universal design is defined as the design of products and environments to be usable by all people; to the greatest extent possible, without adaptation or specialized design (Christophersen, 2002; Preiser & Ostroff, 2001). The concept was developed by a group of architects, product designers, engineers, and environmental design researchers in America and is linked to a set of seven principles that offers guidance for designers to better combine features that meet the needs of as many users as possible. The seven principles are: (1) Equitable use; (2) Flexibility in use; (3) Simple and intuitive use; (4) Perceptible information; (5) Tolerance for error; (6) Low physical effort; and (7) Size and space for approach and use.

Even before the concept of Universal Design, there have been a variety of related concepts like “barrier-free design”, “accessible design”, “design for all”, and “inclusive design”. The first two concepts precede the universal design concept and carry a negative connotation due to their focus on accessibility for disabled people. The “design for all” concept, according to Ostroff (2001) is the preferred concept in Europe while “inclusive design” is preferred in the United Kingdom. According to Hansson (2006), the two latter concepts are synonymous to universal design, but the choice of one concept over the other is usually based on tradition or area of work. In Canada occupational therapists collaborate with developers in designing homes based on universal design (Ringaert, 2002). Universal design supports the occupational performance of many people regardless of ability and could therefore be seen as an emerging field for occupational therapists since it enables the creation of environments that are usable to more people regardless of ability without the need for adaptation (CAOT, 2003).

**Legislations and conventions pertinent to accessibility and usability in playgrounds**

In Sweden, the National Board of Housing, Building, and Planning (Boverket) is responsible for building regulations and supporting the development of accessible public places. The legislation that governs the building of playgrounds is the Planning and Building Act (SFS, 1987:10). Section 15 of the legislation on public spaces states: “that the site can be used by persons with limited mobility or orientation capacity, unless the terrain and other circumstances makes it unnecessary”. In 2001, an amendment to this legislation
that reinforced section 15 from “that a site can be used by…” to “that a site shall be used by…” was added. This new amendment also added to the Planning and Building Act of 1987 a new section, section 21a, that states “easily eliminated obstacles to the accessibility and usefulness of the premises and the places for persons with limited mobility or orientation capacity shall be removed to the extent required by provisions issued under law” (SFS 2001:146). With this new section added to the legislation, the National Board of Housing, Building, and Planning issued policy and general recommendations (BFS 2003:19) on what is termed as “easily eliminated obstacles” in outdoor public spaces. The general recommendations issued regarding easily eliminated obstacles in playgrounds include changing of the groundcover, replacing existing playground equipment that is difficult to access and adding signs or symbols. The goal of the policy and general recommendations in the BFS 2003:19 is that, by the end of 2010, all easily eliminated obstacles in public spaces outdoors should be eliminated so that the goal of Sweden’s National Action Plan on Handicap Politics (Regeringens proposition, 1999/2000:79) will have been met. Shortly after the issuing of BFS 2003:19, the National Board of Housing, Building, and Planning issued another policy and general recommendation (BFS 2004:15) regarding public spaces other then buildings. This policy is directed towards new constructions and is more precise regarding accessibility and usability for persons with limited mobility or orientation capacity in public spaces other than buildings. Therefore, regardless of whether a playground is old or new, there are laws and legislation stating that this environment should be accessible and usable for all children.

Three United Nations conventions include principles of accessibility in their statements. The Standard Rules on the Equalization of Opportunities for Persons with Disabilities (United Nations, 1993), accessibility to the physical environment being one of its target areas, states that “for persons with disabilities of any kind, States should introduce programs of action to make the physical environment accessible”, and that “accessibility requirements should be included in the design and construction of the physical environment from the beginning of the design process”. In the Convention on the Rights of the Child, (United Nation, 1989) article 2 states that a child should be protected against any form of discrimination, and article 23 states that a child with disabilities shall be ensured access to recreational opportunities in a manner conducive to the child’s achieving the fullest possible social integration and individual development. In the Convention on the Right of Persons with Disabilities (United Nation, 2006), article 2 includes universal design in its definitions, and, in article 3, accessibility, “respect for the evolving capacities of children with disabilities and respect for the right of children with disabilities to preserve their identities” are presented as general principles. Despite these laws and conventions, research indicate that playgrounds accessibility and usability has not been successfully
implemented as of yet. Why these laws, legislations and conventions have not been followed to a greater extent is a question that needs to be studied more.

To sum up, the background describes why we build playgrounds and how designs of playgrounds change depending on our understanding of why children play. The background also points to the importance of play for children’s development. However, children with disabilities have a difficult time playing on equal terms since playgrounds seem to be inaccessible, despite legislations and conventions. Why few playgrounds are built with the intent to be accessible and how lack of accessibility and usability in playgrounds affects children with disabilities are questions scarcely studied. Occupational therapists and other professionals could help to support the occupational performance of play in playgrounds for children with disabilities if these questions were answered. By identifying and exploring aspects important to make playgrounds accessible and usable, experiences from children, parents and professionals could help the occupational therapists promote play and participation of children with disabilities in playgrounds.
THE AIM OF THIS THESIS
The overarching aim of this thesis was to identify and explore aspects of playgrounds accessibility and usability for children with disabilities.

The specific aims were:
- To explore the attitudes to accessibility problems in playgrounds among two groups of key persons: "creators" and "users of playgrounds" in a medium-sized municipality in northern Sweden. (Paper I)

- To investigate the accessibility of playgrounds to children with restricted mobility in the northern half of Sweden. (Paper II)

- To better understand how children with different abilities use playgrounds to engage in creative play and interact socially with their peers. (Paper III)

- To describe parent’s perception of how playground designs influence their children with disabilities. (Paper IV)
METHODS

The overall design of this thesis was emergent, i.e., different strategies were used depending on the research questions being asked and the questions asked were derived from the results of the preceding study (Lincoln & Guba, 1985). The four studies in this thesis can be described as both explorative and descriptive. The aim of the explorative studies (Studies I and II) was to gather as much information as possible on the specific problem area about which little is known. In Study I, the research question was a way to find out more about this specific area from one municipality. The results from this study were used to form the questionnaire in Study II to determine if the results from Study I were applicable outside the investigated municipality. The aim of the descriptive studies (Studies III and IV) was to enable a more comprehensive examination of the problem area taken from different perspectives. In Study III the aim was to better understand the subjective experience of children with different abilities on usability of playgrounds. The results from this study led to a further exploration of how children with disabilities were influenced by the playground designs by interviewing parents in Study IV. The purpose of using different designs and methods in the thesis is according to both Lincoln and Guba, (1985) and Denzin and Lincoln’s (1994) triangulation strategy. Using multiple sources of information or points of view (i.e., triangulation) reflects an attempt to secure an in-depth understanding of the phenomenon in question.

Participants and criteria for selection

In total 90 persons participated in these studies. The selection of participants was done by using different inclusion criteria depending on the aim of each study. Table I shows an overview of the number of participants for each study.

Table 1: Participants, data collection methods and data analysis methods in study I-IV

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Data collection methods</th>
<th>Data analysis methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study I</td>
<td>n=11 key persons (5 creators of playgrounds and 6 users of playgrounds)</td>
<td>Semi-structured interviews</td>
<td>Content analysis</td>
</tr>
<tr>
<td>Study II</td>
<td>n=41 persons responsible for playgrounds</td>
<td>Questionnaire</td>
<td>Descriptive statistical analysis</td>
</tr>
<tr>
<td>Study III</td>
<td>n=20 children, with different abilities, (5 with restricted mobility, 5 with severe visual impairment, 5 with moderate developmental disabilities and 5 without disabilities).</td>
<td>Semi-structured interviews</td>
<td>Content analysis</td>
</tr>
<tr>
<td>Study IV</td>
<td>n=18 parents of children with restricted mobility or sever visual impairment or moderate developmental disabilities.</td>
<td>Semi-structured interviews</td>
<td>Phenomenographic analysis</td>
</tr>
</tbody>
</table>

21
Methods

**Study I:** In this study, the method for selecting the participants was done by a convenience sampling method called snowball sampling (Polit & Hungler, 1999). The five creators of playgrounds were chosen through the first informant who was asked to identify four other participants that met the criteria (i.e., persons within the municipality who created playgrounds). In such a way, the creators of playgrounds were selected to participate in the study. The six users of playgrounds were known through a previous research project (Tamm, Skär & Prellwitz, 1999) and were contacted directly, since they had previously given the author permission to contact them at a later date. The participants were three children with restricted mobility, (age between 7 and 11 years), one parent, one personal assistant and one school assistant. All of them lived in the municipality.

**Study II:** In this study, the 54 municipalities that constitute the region of Norrland were contacted for participation, and a questionnaire was sent to the person responsible for playgrounds in each municipality. The response rate was 76%, or 41 municipalities, replied to the questionnaire. Thirteen municipalities did not participate in the study. Two municipalities replied that they could not answer the questionnaire since they had handed over responsibility for playgrounds to road or residents’ associations. In two municipalities the person in charge of playgrounds had recently been appointment and did not consider him/herself to have sufficient information to be able to reply to the questionnaire. Nine municipalities did not respond to the questionnaire despite reminders.

**Study III:** Twenty children, 9 girls and 11 boys, from 7 to 12 years of age, with different abilities (5 children with restricted mobility, 5 children with severe visual impairment, 5 children with moderate developmental disabilities, and 5 children without disabilities) participated in the study. The children included in the study had good communicative abilities and the children with restricted mobility, used an assistive device. The children with restricted mobility and moderate developmental disabilities were selected with the assistance of two occupational therapists and psychologists from two Children’s Rehabilitation Clinics in northern Sweden. The children with severe visual impairment were selected with the assistance from the regional coordinator of the Swedish Association of Visually Impaired Youth. The children without disabilities were randomly chosen with the assistance of an elementary school teacher who requested permission from their parents by sending a letter asking for permission to have their children participate in the study.

**Study IV:** Eighteen parents of children with disabilities from 7 to 12 years of age participated in the study. Six parents had a child with moderate developmental disabilities, six parents had a child with restricted mobility where the use of assistive device was necessary, and six parents had a child with severe
Methods

visual impairment. The parents of children with restricted mobility and moderate
developmental delays were selected with the assistance of two occupational
therapists and psychologists from two children's rehabilitation clinics in
northern Sweden. The parents of children with visual impairment were selected
with the assistance from the Swedish Association of Visually Impaired Youth.
Fifteen of the 18 parents also had their children partake in Study III.

Data collection methods

Interviews were conducted for Studies I, III and IV while, in Study II, a
questionnaire was used.

Interviews

The purpose of research interviews is to obtain descriptions of the lifeworld of
the subject with respect to interpretation of their meaning. Semi-structured
interviews have a sequence of themes to be covered that allow for follow up
questions to answers and stories given. The interview can be seen as a
conversation between two persons about a topic of mutual interest (Kvale,
1996). In Studies I, III and IV, semi-structured interviews using an interview
guide with an outline of topics to be covered were used in order to capture the
respondent’s experiences and perceptions of the topics under study and in order
to collect comparable data (Holloway & Wheeler, 2002).

Interviewing children

Interviewing children either formally or informally is an extremely difficult
procedure. One problem is that children have been known to be compliant to
what they interpret as being required of them. They also have a problem
resisting suggestibility, in that they tend to act on what they perceive others are
suggesting (Krähenbuhl & Blades, 2006; Zajac & Hayne, 2003). Several
researchers have found that when an interview situation starts with a broad
opening question, it gives the children opportunity to choose what they want to
tell. If the interview is followed by open questions this will improve the
accuracy and reliability of the children’s answers. Open questions starting with
‘who’, ‘what’, ‘when’, ‘why’, etc. is advocated (Holliday, 2003; Holliday &
Albon 2004; Krähenbuhl & Blades 2006; Peterson & Biggs, 1997). For children
with developmental delays free recall questions and open ended questions have
proven even more important since probing and closed questions have shown to
give lower levels of accuracy (Henry & Gudjonsson, 2003).

In Studies I and III, children from 7 to 12 years of age were interviewed. In both
studies, a broad opening question with follow up questions started the
interviews. These follow up questions were one way to see if the child keeps the
same opinion or perception of a situation (Doverborg & Pramling 2000). The
Methods

children where interviewed in a quiet and familiar setting, either at home or at their school, so that they would feel secure, could concentrate, and would not lose interest.

Questionnaire

The data collection method used in Study II, was a self-administrated questionnaire. Using questionnaires is advantageous in that it is an inexpensive way of collecting data. A questionnaire also gives the opportunity to cover a total population (Polit & Beck, 2004). A questionnaire was sent to all the municipalities of the five counties that constitute the region of Norrland. The questions were formulated on the basis of Study I and were short and easy to understand. The questionnaire contained 8 questions with fixed answer alternatives and 5 open ended questions. The response rate can be considered relatively high (76%) and gives a good indication of the situation in all the municipalities in Norrland.

Data analysis methods

In this thesis, qualitative content analyses (Studies I and III) and a phenomenographic interpretation (Study IV) were used to analyse the interviews. The answers to the questionnaire (Study II) were analysed using descriptive statistics. The choice of analysis method was based on the aim of the studies. In Studies I and III, the aim was to describe the content of the interviews. In Study II, the aim was to investigate how many playgrounds in Norrland were accessible and in Study IV, the aim was to describe the parents’ different perceptions of the phenomenon.

Qualitative content analysis

Content analysis is a method for analysing data that can be traced back to before World War II when it was mainly a way to critique journalistic endeavours. During World War II, content analysis was used to analyze propaganda (Krippendorff, 1980). Content analysis has no particular methodological roots or disciplinary traditions (Polit & Beck, 2004), but it is often referred to as a way of identifying core consistencies and meaning in qualitative data. This is done by finding patterns or themes within the data (Patton, 2002). Content analysis of the interviews was used in Studies I and III. In Study I, interviews with the creators and the users were analysed separately. In Study III, interviews with the children, regardless of ability, were analysed together. The goal of the analysis was to identify primary patterns in the data, and the purpose for choosing this method was to gain an increased understanding and knowledge of the chosen perspective of this study.
Methods

The processes of analysing the two studies were similar. In content analysis, the first step is to reduce data using a perspective or conceptual framework (Catanzaro, 1988, Downe-Wamboldt, 1992). In Study I, “accessibility problems” was the focus of the data analysis. In Study III, the concept usability defined by Iwarsson and Ståhl (2003) formed the basis for the analysis. First, transcribed interviews were read several times to obtain a sense of the whole. After that, units comprising word or phrases relevant to the study were extracted and each unit was given a code. This process was done independently by the two authors. The codes that emerged were inductively generated from the data reflecting patterns that related to the perspective of the two studies. Similar codes were then placed into a category. After this, both authors compared codes and categories and agreed on the content of the categories after some discussion that resulted in minor adjustments. The categories were then reviewed and deemed significant and meaningful according to Catanzaro’s (1988) criteria for categories within content analysis. These criteria intend for the data placed in the categories to fit together in a meaningful way and for the differences among categories to be clear. This review was done by both authors and is an important part of the analysis, since a qualitative researcher may erroneously deny or attribute significance to particular data (Catanzaro, 1988). After this, a sample of the original interview text was tested against the categories that had emerged in the analysis.

Phenomenography

Phenomenography was originally developed by a research group in the Department of Education at the University of Gothenburg in the early 1970s. The word phenomenography first appears in the work of Marton (1981).

Phenomenography rests on a non-dualistic ontology, i.e., on the assumption that the only world that we can communicate about is the world as experienced. The epistemological assumption is that people differ on how they experience the world, but these differences can be described and understood by others (Sjöström & Dahlgren, 2002). Phenomenography, as a research approach, is designed to answer questions how people make sense of their experiences with the aim of discovering the structural framework within which various categories of understanding exist. These structural frameworks or categories of descriptions are useful in understanding other people’s understanding (Marton, 1994). The emphasis is on how things appear to people in their world, the way in which people explain to themselves and others what goes on around them, and how these explanations change (Barnard, McCosker & Gerber, 1999).

With phenomenographic data analysis, the intention is to identify the meaning content of perceptions and to present it in descriptive categories (Barnard,
Methods

McCosker & Gerber, 1999). The transcripts of the interviews in Study IV were read through several times in order to get a sense of the whole. After this, the interviews were analyzed for relevant statements that contained perceptions of how the parents thought their child was influenced by playground designs. The analysis focused on comparing the statements to find similarities and differences. Perceptions that described different aspects of the same issue were then grouped together into patterns. These patterns emerged into four descriptive categories. Throughout the data analysis, the statements and perceptions were compared to the whole interview. The co-author’s assignment was to classify each statement from the interviews into one of the eleven perceptions and then assign the perceptions to one of the four descriptive categories to verify the extent to which the categories were consistent with the first author’s interpretation of the interviews.

Descriptive statistics

Descriptive statistics were used to analyse the data in Study II. Results from the questionnaire were interpreted by a frequency count to show the distribution of answers to each question. Variables in the questionnaire were foremost on a nominal level with only a few on an ordinal level. However, the results were presented by showing frequency distribution with numerical values and in percentages of the total.

Ethical considerations

The ethical committee of Umeå University, in Sweden approved Studies III and IV (Dnr 06-002M). In research dealing with subjects under the age of 15, there is a problem regarding informed consent since these participants can lack autonomy and thereby have difficulties deciding if they want to participate or not. Therefore, informed consent was obtained from both parents and children in Studies I and III. In these studies both verbal and written information regarding the study were given before being asked to participate. In Study I, the creators of playgrounds were given verbal information regarding the study before they were asked to participate. In all the information, it was made clear that participation was voluntary and that participants were free to withdraw from the study at any time without giving a reason. Confidentiality was guaranteed the participants in these studies, and the studies were written in such a way as to ensure that the participants remain anonymous for the readers. The information to the children in the studies was presented in both a written and spoken form in a manner appropriate to the children’s age. Confidentiality were also explained in a way that the children would understand. However, children might not always understand the information given, therefore it is important to bear in mind that the foreseeable benefits of the research can be considered to outweigh any discomfort the children may have experienced. It is also important that the
Methods

Researcher tries to see when the child does not wish to participate. In this thesis, all these aspects have been adhered to. For example, when noticing that a child did not wish to expand on a question, further questions were not asked on the subject.

In Study II the letter that followed with the questionnaire explained the study and that participating was voluntary. Consent to participate was considered given when the questionnaires were returned.
SUMMARY OF RESULTS

Study I


The results in this study showed that the persons involved in creating playgrounds in this municipality described a fragmented organization and shortcomings in the procedures for building playgrounds. These shortcomings consisted of poor coordination, communication, and unclear or few directives. For example, when building a playground near the county hospital, a special slide for children with disabilities was ordered by the landscape architect, but no instruction had been given to the builder regarding the stairs leading to the slide (Fig 1-2).

Figure 1: The special slide  Figure 2: Stairs to the slide

Furthermore, it was found that neither organizations for people with disabilities nor the municipality’s Committee for the Handicapped were consulted before planning or building playgrounds. The results of the study also indicate that the playground creators possessed insufficient knowledge on how to design accessible playgrounds. At the same time, the issue of accessibility came as a surprise to some of the persons planning and building playgrounds and some of the interviewees asked for more training and competence in the field. The financial problems also governed the design and building of playgrounds. Equipment adapted for children with disabilities were expensive, but so was consulting other professional groups on practical issues. The results showed that there had been no discussion about accessibility among the persons planning and building playgrounds in this municipality. The issue that a child with restricted
Summary of results

mobility should be able to access playgrounds was also not discussed. And according to the playground creators, nobody requested that the playgrounds be accessible.

The children with restricted mobility in the study expressed that playgrounds were not a place for them. On some playgrounds they could not even enter and if they could, few if any play equipments were accessible to them. The results of the study also showed that adult support was a prerequisite for children with restricted mobility to play in the playgrounds. These adults had to help the children, lifting and carrying them to the play equipment. For example; paved paths usually only led through the playground or to the park benches from where parents or assistants had to carry the child to the swing (Fig 3). The adults described it as both physically and psychologically trying, when they could no longer lift and carry the child, and had to refuse the child the opportunity to play in playgrounds.

![Figure 3. Paved path leading to the park benches (far right-hand corner).](image)

Study II

*Are playgrounds in Norrland (northern Sweden) accessible to children with restricted mobility?*

The results in this study showed that, in the 41 municipalities (that answered the questionnaire), only 2 of the 2,266 playgrounds were built to be accessible for children with restricted mobility. The results also showed that, of the 2,266 playgrounds, 46 had at least one playground equipment that could be accessed by a child with restricted mobility, making it a partly accessible playground. Of the 41 municipalities, six reported that there was no playground in the whole
municipality where a child with restricted mobility could use any equipment on any of their playgrounds. The primary reasons why the children could not enter the playground or use the equipment were that the ground cover was either sand or gravel and had half-buried logs, or the playgrounds had enclosures with narrow openings (Fig 4). According to the respondents, the reason why the playgrounds looked this way and were inaccessible was that accessibility was something they had never thought about or discussed. The municipalities that had discussed the issue of accessibility claimed that they lacked knowledge and/or financial means to build accessible playgrounds. However, results showed that the 5 municipalities that had discussed the issue of accessibility and been in contact with organizations for persons with disabilities, also had 31 of the partly accessible playgrounds and the two completely accessible playgrounds.

Figure 4: Sand, half-buried logs and a narrow opening at the entrance to the playground.

Study III

Usability of playgrounds for children with different abilities.
The children in this study described many similar experiences of activities that took place on the playground despite ability differences. The intensity and frequency in using the playground differed among the children depending on their abilities and playground accessibility. However, all the children viewed the playground as a place that they know very well and that they would miss it if it was removed. The playground was also viewed as a place for private
Summary of results

conversation away from adults, but the children with disabilities expressed this view as a wish or as something that happened infrequently. The performance of some sort of challenge was viewed similarly by all the children, but the kind of challenge they described varied depending on each child’s abilities. Play equipment that had a recognizable design and encouraged role-playing was also similarly experienced and liked by all the children.

The results also indicated dissimilar experiences as a consequence of playgrounds, usability. The children without disabilities experienced the playground as a meeting place, a place were one never played alone, while the children with disabilities seldom played with friends. The children without disabilities described that their play activities in the playground had names and that the activities usually involved other children. On the other hand, the children with disabilities performed activities that had no names, mostly by themselves. For example, the slide was simply something you climbed and went down on or the swing was simply something you sat on. The design of the playground equipment hindered many of the children with disabilities to partake in play activities, something that the children without disabilities never mentioned (Fig 5).

Figure 5. Stairs, sand and curbstones makes this play equipment like “Fort Knox” for a child in a wheelchair.

Study IV

How playground designs influence children with disabilities - parental perceptions.

According to parents’ perception, the results from this study show that
Summary of results

playground designs negatively influence children with disabilities. The parents perceive that their children missed opportunities to play and participate in play with other children on the playground. The parents also perceived their children to be dependent on support from adults and thereby lacked opportunities to be or feel independent if they wanted to play on the playground. Since their children could not perform activities in the same way or manner as the other children, the parents perceived that playgrounds made their children feel different and consequently avoid participating in playground activities. The results also indicated that playground was an environment avoided by both children and parents, and that the negative influence playgrounds had on their children was a problem society should do something about.
METHODOLOGICAL CONSIDERATIONS

For each study, different strategies were used to strengthen the validity or trustworthiness of the study. The concept trustworthiness refers to the extent to which the findings are authentic reflections on the personal or lived experiences of the phenomenon under study (Barbour, 1998). Trustworthiness is discussed in relation to Lincoln and Guba’s (1985) concepts of Credibility, Dependability, Transferability and Confirmability and in accordance with Graneheim and Lundman’s (2004) aspects of trustworthiness in relation to qualitative content analysis.

To strengthen the credibility of both quantitative and qualitative studies, pre-understanding and bias have to be dealt with throughout the whole process of inquiry (Nyström & Dahlberg, 2001). A person’s pre-understanding may facilitate as well as constrain understanding of the phenomenon being studied. According to Gadamer (1975) the best way to deal with pre-understanding is openness, having an open attitude when confronted with new experiences enable us to see the otherness of the phenomenon that does not already exist in our pre-understanding. Openness also means to be aware of one’s own history and possible bias due to one’s pre-understanding. Since the research issue was new to me (the researcher) in Studies I and II, keeping openness to the phenomenon was not a problem. In Studies III and IV, I tried to keep an open mind throughout the whole process by listening to the participants’ experiences and asking them to describe their experiences in detail during the interviews. During the analysis I also tried to keep openness to the data by reflecting on my own pre-understanding on the subject. However I believe that my pre-understanding facilitated the interviews, especially in Study IV where some questions asked were never previously reflected on by the parents themselves. This strengthened the interviews by making them more comprehensive.

An audit trail, or the detailed description of the research process, was written in the studies. The concept of an audit trail was developed by Lincoln and Guba (1985) in relation to the concept of confirmability. This strategy implies an external auditor that follows the progression of the study in order to try and understand how and why certain decisions were made. In these studies, there was no external auditor present, but the research process is presented in such a way that others should be able to judge the study’s trustworthiness.

Interviews were conducted in Studies I, III and IV. Selecting the most appropriate data collection method in order to answer the research question is important when establishing credibility (Graneheim & Lundman, 2004). In order to capture the participants’ descriptions of the phenomenon being studied, interviews were perceived to be the most appropriate data collection method.
Methodological considerations

Nevertheless, there is always the possibility of leading questions, as discussed by Kvale (1996), especially when it comes to interviewing children. In Study III only children were interviewed. One strategy to avoid leading questions was the use of an interview guide. The questions were broad with an outline of different topics. Thereafter, the children were asked follow-up questions based on their descriptions. Since some of these children had very little experience of playgrounds, a deviation from the interview guide was employed by posing some of the questions in a more visual manner like, “if you could have been on the playground…” and “what do you wish for…”. This deviation from the interview guide might in some way have affected the credibility of the study. Another aspect regarding credibility according to Graneheim and Lundman (2004), is how well the different categories in the studies cover all the data collected. In Study III, some data were omitted, since it was of a more private character, and did not pertain to the research issue. That the participants were only interviewed once can be considered a limitation in study I, III and IV since a second interview might have added more information on the issue. However, the fact that the different studies in the thesis and previous research all point in the same direction might be considered a way to judge trustworthiness of the studies.

Providing demographic information on the groups in Studies I, III and IV, was one way to address transferability of the studies. Since the aim of these studies was not to make generalizations about the findings the participants were instead described allowing the reader to assess how transferable the findings are (Graneheim & Lundman, 2004; Lincoln & Guba, 1985). In Studies III and IV, draft copies have been discussed with colleagues familiar with qualitative research in order to discuss alternative explanations and possible bias with the intention of strengthening credibility. However, these colleagues were not familiar with the research issue and could therefore judge only about the logic and clarity of the research but not alternative explanations. Studies I and II were also discussed with peers at a licentiate thesis seminar. Presenting quotations in Studies I, III and IV, shows that the findings are grounded in data. The quotations will also enable the reader to ascertain whether inferences based on data are logical. According to Lincoln and Guba (1985), this is another strategy for strengthening a study’s confirmability and it is also a way of strengthening a study’s credibility and transferability (Graneheim & Lundman, 2004).

Validity is a way to describe the extent to which a measure accurately represents the concept it claims to measure. In study II the internal validity was assessed using content validity which refers to how adequately the sampling of questions reflect the aim of the assessment, and is one way to measure validity (Polit & Beck, 2004). Content validity is particularly important in measuring if the study is designed to ascertain respondents’ knowledge within a field (Eby, 1993). The
questionnaire used in Study II was also assessed by content validity. The designing of the questionnaire was conceptualized from an exhaustive literature review and from the findings of Study I. The questionnaire was sent to all the municipalities in Norrland and the sample consisted of almost 80% of the total population. Therefore, it is reasonable to believe that the findings can be generalized to all municipalities in Sweden. It is, however possible that municipality in the south of Sweden with shorter winters would focus more on making playgrounds accessible since the playground season is longer. However, in relation to other studies (Christensen & Morgan, 2003; RBU, 2006; Stout, 1988; Thompson, Hudson & Bowers, 2002), the findings in this study seem to apply to other parts of Sweden and even to other countries in the western hemisphere. This could be one way to measure the study’s external validity.
GENERAL DISCUSSION
The overarching aim of this thesis was to identify and explore aspects of playground accessibility and usability for children with disabilities. In Studies I and II the findings revealed the lack of accessible playgrounds and some of the reasons why playgrounds are inaccessible. In Study III, the findings indicated that playgrounds are an important environment for all children regardless of ability, and that a playground is seen foremost as a place that can offer social interaction with peers. The findings in Study IV was that parents to children with disabilities perceived that playground designs influenced their children by being an environment that hindered independence, play, and participation with peers in play activities. The main finding of this thesis is that playgrounds in Sweden are not an accessible environment and therefore not usable to many children with disabilities. By not being accessible and usable the playground affects children with disabilities in several negative ways that can cause play deprivation, dependency, and stigmatization.

Playgrounds should enable and enhance social interaction
Why do we bother to build playgrounds? Is it so, that we still build playgrounds so that children can act out their physical energy or do we as adults have another reason for building them today? Perhaps it is once again time to think about why we have playgrounds. Is it once again to keep our children off the streets, or perhaps, is it to give them an alternative or compliment to computer games or a compliment to organized play by providing them a place for free play activities?

A main finding in studies I, III-IV was that, due to the lack of accessibility to playgrounds, participating in play was difficult or impossible for many of the children with disabilities. The findings in Study III showed that the most important function of the playground was to offer social interaction with peers and that this interaction was something described by all the children regardless of ability. Several studies (Blatchford, 1998; Bixler, Floyd & Hammit, 2002; Frost, 1997; Sutteby & Frost, 2002; Zinger, 2002) confirm that, for children from 7 to 12 years of age, social interaction with peers in play on playgrounds is important and has a high priority. It is estimated that children of that age spend from 20 to 25% of their school day in recess and that this time is spent mostly on the playground at school. Within developmental psychology research, the term “playground culture” is well established and according to Sutton-Smith (1990): “there is a culture of school playgrounds play, just as there is a culture of schooling...Further, the school playground children culture is apparently one of the most important as far as the children are concerned” (p5). According to other studies within developmental psychology (Andersson-Butcher, Newsome, & Nay, 2003; Barbour, 1999; Pellegrini & Blatchford, 2000; Sluckin, 1981)

36
“playground culture” is not easily recognized by adults but this culture is nevertheless very important for children since it is in this culture friendships are formed. These friendships in turn support children in adjusting to school and improve social and communicative skills. According to Blatchford (1998), children that have formed friendships during school recess have a tendency to perform better at school. Play on playgrounds can also help in the acquisition of many subtle social skills essential to later life and in the preparation for adulthood (Sutton-Smith, 1990). Studies I and III show that children with disabilities rarely play on playgrounds because of the physical barriers in the environment. The children without disabilities (Study III) describe their play on the playground as something with unique meaning and purpose, they gave their play names, like shark or monster, they never played alone and they rarely played with an adult. For the children with disabilities, it was the opposite; their play was described by some as hard work, had no names, was seldom played with peers, and required adult support. The question is what consequences these differences, due in part to inaccessible playgrounds, might have for children with disabilities. One consequence is that children with disabilities do not describe play as an occupation, in other words something with unique meaning and purpose, the way occupation is defined in this thesis. Play on playgrounds was described by the children with disabilities more as activities that were goal directed and relevant activities to be performed on a playground. However, their experiences of the activities seemed to lack importance and a special meaning. The challenge for occupational therapists and other professionals is therefore to enable children with disabilities to be able to experience play as something with unique meaning. Another consequence, for the children with disabilities, is the limited participation in play, which in turn can result in poor social skills, limited intrinsic motivation, lack of drive, decreased concentration, and more solitary play or play with adults, consequences that in turn could affects the children’s identity and health (Brown & Gordon, 1987; Lightfoot, Wright & Sloper, 1999; Mulderij, 1996; Nabors & Baldawi, 1997; Tamm & Skär, 2000).

With increased attention on participation by the WHO (2001) it is important for occupational therapists to understand participation and what can enable or hinder it. As Law (2002) stated in her Distinguished Scholar Lecture, “participation is the raison d’être of occupational therapy; it is what we are all about; it is our unique contribution to society” (p.640). Research has shown that environmental factors have a major affect on hindering participation for people with disabilities. One of these factors is the lack of including people with disabilities in planning different environments, according to several disability studies (Barnes, Mercer & Shakespeare, 1999; Hahn, 1988; Oliver, 1996). Even though the ICF focus is more on participation and environment, one aspect that the ICF have been criticized for is the exclusion of subjective experiences regarding participation (Hemmingsson & Jonsson, 2005). This important aspect
General discussion

of participation might be missed if only objective measurements and evaluations are used. It is therefore important that research and assessments within occupational therapy and other professions take in the subjective experience of participation. This aspect is of importance for the clients occupational therapists meet and therefore it felt essential to include the children’s perspective on playgrounds in this thesis. The findings in Studies I and III show that the children’s subjective experience of playgrounds is that it is an environment that offers similar experiences regardless of ability, like a place to meet friends and challenges, and that the children all wished for similar things on the playground. That the children’s subjective experiences of playgrounds is to some extent similar should make it even more important to eliminate the experiences that are dissimilar that are caused by removable obstacles in the physical environment.

In Study III and IV, universal design is suggested as a way to create playgrounds that would enable participation not only for children with disabilities but for all children. For occupational therapists, this would entail advocating for the application of universal designs principals in the planning and building of playgrounds in the community, playgrounds that would enable participation in activities for all children. It is also important that occupational therapists increase their knowledge about the activities that take place in a playground and about the users’ subjective experience of this environment so that the advocating for playground design could enable all children to experience play as an occupation.

Occupational therapists already have a collection of knowledge needed to build public places using the universal design concept like understanding of human functioning, occupational performance, person-environment interaction and assistive technologies (Ringaert, 2003). However, besides more knowledge regarding different user groups’ subjective experience of different activities more knowledge regarding standards, guidelines and architectural drawings are still needed. With this competence, occupational therapists could focus more on changing different environments in the community and thereby enabling participation in play on a playground for children with disabilities, for example.

*Playgrounds can cause play deprivation, dependency, and stigmatization*

The results from Study III, indicate that children without disabilities spend a lot of time playing on playgrounds foremost during school recess. Nevertheless, the results in this thesis indicate that children with disabilities are deprived to a great extent of playing on playgrounds due to the playgrounds’ lack of accessibility. Within occupational therapy research, there is evidence that both lack of participation and occupational deprivation can lead to poor health and poor well-being (Missuna & Pollock, 1991; Whiteford, 2000; Wilcock, 1998).
General discussion

The findings in this thesis point to that playgrounds cause, to some extent, play deprivation, and, as mentioned earlier, lack of participation. According to several studies (Keating & Hertzman, 1999; Missuna and Pollock 1991; Sandler, 2001; Werner, 1990; Zeitland & Williamsson, 1990), play deprivation can lead to cognitive, social, and behavioral delays resulting in increased dependency, decreased motivation, lack of assertiveness, and low self-esteem. Due to play deprivation, children with disabilities can also become less skilled at solving mental problems and interacting with peers. In other words, lack of accessibility and poor usability of a playground can deprive children with disabilities the opportunity to engage in play. In Study IV, decreased motivation, lack of assertiveness and low self-esteem could be interpreted from the findings. Increased dependency on adults was clearly found in both Studies I and IV.

Independence in most western countries is something of high value. For most parents, fostering independent children is a primary goal, in our culture. Always having an adult present and being dependent on someone when playing at the playground, could be to go against cultural practice and as the children in Study I and III described they also expressed wishes to be able to be on the playground without an adult. This might be one reason why the parents in Study IV also avoided playgrounds. Children from 7 to 12 years of age are disinterested in spending time with adults, including their parents, and value the time spent with peers more (Case-Smith, 2005). Children need to feel a sense of accomplishment from doing things independently and, at the same time, connect with friends, which is important for children’s self-esteem (Heah, Case, McGuire & Law, 2007) Children also need to feel successful and independent and be with peers to experience enjoyment in performing an activity (Csikszentmihalyi, 1988). Therefore, the need to do things independently is something adults need to be able to recognize in children with disabilities. It is important for parents, occupational therapists and other adults around the child to identify what the child enjoys doing, can be successful at, and can do independently. In order to accomplish more play with friends and to minimize dependency on adults, one prerequisite is a well designed playground, with as little adult intervention as possible.

For children with disabilities, playgrounds are an environment where they feel different (Study IV). According to Goffman (1963), experiencing feelings of being different can foster a negative identity development. Results similar to Study IV were found by Segal, Mandich, Polatajko and Cook (2002b) that showed the consequences of feeling different is the same as being stigmatized, which in turn can result in being excluded from participation in activities. In order to avoid being stigmatized, children with disabilities often develop “stigma management techniques” which means avoiding certain environments and situations. This in turn can result in even more limited participation. Play on
General discussion

playgrounds could then, be a place for avoidance, resulting in even less opportunities for participation in play on playgrounds, a sort of catch-22. The question of whether building more accessible and usable playgrounds would prevent stigmatization or not, is not answered in this thesis but would be of interest for further research. However, according to several studies (Barbour, 1999; Goltsman, 2001; Ringaert, 2002), playgrounds that accommodate and encourage a range of play behaviors with focus on various abilities contributes positively to social acceptance and status among children. Another aspect of this is that play environments that are stimulating and supportive can enable children to feel successful in play situations which in turn can increase their self-esteem (Letts, Rigby & Stewart, 2003). Realizing that many of the children with disabilities have the capacity and ability to partake in many activities that take place on a playground if the physical environment was different, makes the problem of inaccessible playgrounds even more serious.

Lack of awareness of children’s rights

Considering the negative ways playgrounds influences children with disabilities, it is time to start looking at the opportunities a well designed playground can offer. In the findings from Study III, all the children asked for play equipment with recognizable designs, like houses and boats, and play material that are movable. In several studies, these wishes for ‘real things’ that encourages fantasy and role-playing on the playground has also been found (Barbour, 1999; Edwards, 2000; Mårtensson, 2004). Since studies have shown that a wish for ‘real things’ in playgrounds exists and that play is important, one can only raise the same question Willjelm, (2002) did about if architects and other persons designing and planning playgrounds, if they update their knowledge base when planning for children and their environment. Perhaps, the role of occupational therapists could be to encourage other key parties in the community to enhance play environments on a societal level in order to support play for all children.

The findings from Studies I and II indicated that persons in charge of creating playgrounds were not aware of how inaccessible playgrounds are. The findings show that it was not the budget or a lack of knowledge on building more accessible playgrounds, which was behind the small number of accessible playgrounds, but a more general lack of awareness in terms of accessibility. The question regarding accessible playgrounds does not seem to have been discussed much in Sweden. The result of this lack of awareness was evident since, according to Study II, only 2 % of the playgrounds in northern Sweden were partly accessible. Being unaware of playgrounds’ lack of accessibility must also mean an unawareness of the legislation that governs playgrounds that clearly states that public spaces should be accessible and usable and the amendment to this legislation with demands on the removal of easily eliminated obstacles on playgrounds. This amendment is from 2003 and yet, only 1.4 % of Sweden’s
General discussion

playgrounds are accessible in 2006. However, since the amendment does not have to be implemented until 2010, the municipalities in Sweden still have some time to comply with these laws and legislations.

There are also some conventions that Sweden has signed that should support accessible playgrounds. The Convention on the Rights of the Child (United Nations, 1993) does not state that playgrounds should be accessible. However, it does state that the special needs of children with disabilities should be recognized and that children with disabilities should have access to recreational opportunities, individual development, and to the fullest possible social integration. The fact that playgrounds are an important environment for all children, but do not support play and social integration for children with disabilities, reveals a shortcoming in adhering to the convention’s principle. Another article of the convention mentions that a child must be protected from all forms of discrimination. In Study II, it is argued that being excluded from a section of society that is important for children, like playgrounds, is a way of discriminating against children with disabilities. If playgrounds that are not accessible are to be considered discriminatory environments it can be argued that the Convention of the Right of Persons with Disabilities (United Nations, 2006) is also being violated. Article 30 of this convention states that the equal access of children with disabilities with other children to participation in play activities should be ensured. Another United Nations convention is the Standard Rules on the Equalization of Opportunities for Persons with Disabilities (United Nations, 1989), which states that persons with disabilities should have equal opportunities for recreation and sport. This convention also states that persons with disabilities should be consulted before developing services for persons with disabilities. Findings from Studies I and II showed that persons with disabilities, especially children, are rarely involved in planning playgrounds.

Focus on the environment to enable play

According to recent research, occupational therapists working with children are focusing mainly on body structures and body function, with relatively little focus on activities and participation levels using the terminology of the ICF (Barnes, Beck, Vogel, Grice & Murphy, 2003; Burtner, McMain & Crowe, 2002; Howard, 2002; Rodger, Brown & Brown, 2005). The focus of this thesis has been on the physical environment, but for occupational therapy, enable occupational performance is of prime importance. Changing the physical environment of playgrounds can be a powerful way to improve occupational performance for children with disabilities. In order to change the environment, occupational therapists need to work on a societal level by participating in the design of public spaces or advocating for accessibility and usability in the community in order to enable play for children with disabilities. Universal design is a field where occupational therapists can contribute with the
professions knowledge on human functioning, disability, and the person-environment interaction. This is also in line with the reasoning within disability studies that rehabilitation should focus more on societal attitudes and actions (Hahn, 1988). Here is an opportunity for the field of occupational therapy to expand, and give more consideration to disability studies and universal design theories, and start to contribute more on a societal level. However, as argued by Kielhofner (2005) occupational therapy cannot leave the individual level and work only on a societal level. Therefore, it is also important that occupational therapist work with the child, the child’s family, and the school to enable play.

For occupational therapists, it is important to work with family education, to help the parents understand the importance of play in a child’s development. It is also important that adults around the child facilitate reciprocal interactions between children with and without disabilities that promote friendship and supportive peer networks. In situations where social “stigma” is an issue, explaining a child’s disability for the other children is one strategy occupational therapists can use (Case-Smith, 2005). Another way is recognizing the child’s need to feel a sense of accomplishment from doing things independently and encouraging persons around the child to provide opportunities for this (Heah, Case, McGuire & Law, 2007). Occupational therapist could also work with the child by facilitating the acquisition of skills needed for different play activities on the playground and to provide opportunities for the child to try their skills in the actual setting. To practice using the playground at school and in the neighborhood might give children with disabilities the courage to play there and thereby improve their chances of participating in activities with other children. It is therefore important that all playgrounds are made accessible and usable since both the school and neighborhood playground might be of importance for children.

In conclusion, much work remains in improving playground accessibility and usability. Nevertheless, removing physical barriers does not necessarily lead to social inclusion or participation in play. Since playgrounds are according to the children in Study III also a social meeting place, accessibility and usability should be accompanied by full social access as well. Occupational therapists need to learn more about play on playgrounds in order to enable play for children with different abilities. The results presented in this thesis, points to a problem in our society that limits activities for a number of children, and poses a threat to these children’s health and development. That purposeful and meaningful everyday occupation, like play, is considered health promoting, is a cornerstone within occupational therapy theory (AOTA, 2002). Therefore, the efforts of occupational therapists working to promote accessibility and usability in playgrounds can be seen as being both health promoting and preventive.
Future research

One must be aware that today’s laws and legislations have their emphasis on physical access to playgrounds. However, if social inclusion is not in focus, a playground that is only physically accessible may actually emphasize a child’s disability more by placing the child in a situation where their inability to participate is significantly more noticeable. Constructing a playground where the main emphasis is on social inclusion and all accessibility issues are solved is truly the playground of the future. Therefore, more research is needed to investigate what kind of playground equipment can support and encourage social inclusion. More research is also needed to find out where play activities take place on playgrounds and how these places can be built so that children with disabilities can use them independently and on equal terms as children without disabilities. Accessible playgrounds usually focus on children using wheelchairs. What is needed is more research on how to enable play on playgrounds for children of all abilities.
SAMMANFATTNING (IN SWEDISH)

Lekplatser tillgänglighet och användbarhet för barn med funktionsnedsättningar. Erfarenheter från barn, föräldrar och professionella.


Avhandlingen består av fyra delstudier där de två första (I, II) primärt svarar på det övergripande syftet att identifiera lekplatser tillgänglighet. De två andra studierna (III, IV) svarar främst mot syftet om att undersöka olika aspekter kring lekplatser tillgänglighet och användbarhet för barn med funktionsnedsättningar.

Syftet med studie I var att belysa vad två grupper av nyckelpersoner – ”skapare av lekplatser” och ”nyttjare av lekplatser” - anser om tillgänglighet på lekplatser. En semistrukturerad intervju användes för att samla in nyckelpersonernas erfarenheter och uppfattningar av att skapa respektive nyttja lekplatser. Denna explorativa intervju användes för att belysa ett relativt outforskat område och finna intressanta frågor som kunde studeras vidare. Exempel på frågor till dem...


orsaken till varför så få lekplatser var anpassade var att ingen hade tänkt på saken.


Sammanfattningssvis visar resultaten i denna avhandling att lekplatser brister i
både tillgänglighet och användbarhet, vilket i sin tur resulterar i att begränsa barn med funktionsnedsättningars aktivitetsutförande i denna miljö. Lekplatsernas bristande tillgänglighet kan orsaka stigmatisering och bristande självständighet för barn med funktionsnedsättningar. Vidare framkom att det finns en bristande förståelse för detta problem trots att det finns lagstiftat att även lekplatser skall vara tillgängliga och användbara för personer med funktionsnedsättningar. Lekplatser är en social plats för barn, det är på lekplatser barn leker med sina kamrater, väntar på kamrater eller hittar nya kamrater. Den bristande tillgängligheten till och på lekplatser orsakar att barn med funktionsnedsättningar inte är delaktiga i denna sociala miljö. För att kunna förändra denna miljö kan arbetsterapeuter med sin kunskap om hur miljön och olika funktionsnedsättningar påverkar aktivitetsförmågan bidra till att skapa lekplatser tillgängliga och användbara för barn med olika funktionsnedsättningar.
ACKNOWLEDGMENTS

I would like to express my gratitude to everyone who assisted me in the work on this thesis. I am deeply indebted to all of you but I would like to express a special thank you to:

All my “informants” in the studies, all the children, parents and professionals who showed patience, motivation and willingness in providing me with information and experiences necessary for compiling this thesis.

Professor Jan Johansson, my main supervisor for professional advice during different stages of the process.

Assistant Professor Lisa Skär, my assistant supervisor and long-time friend, for excellent guidance through the second half of this thesis by generously sharing her knowledge, never-ending support and capability of giving constructive criticism.

Assistant Professor Maare Tamm, my first assistant supervisor, for choosing me to be her assistant a long time ago and thereby introducing me to the world of research. Thank you for sharing your knowledge with me.

My “home” Department of Health Science at Luleå University of Technology and the support and encouragement of many people there, and a special thank you to Professor Karin Axelsson.

My colleagues at the Division of Health and Rehabilitation, for friendship and support, a special thank you to: Gunilla Isaksson, for being a good friend and always taking your time to listen to my thoughts and idea’s. For making me feel better when I doubted myself. Anneli Nyman, for taking your time reading and discussing different aspects of occupational therapy theories. Agnetha, Cecilia, Ann-Louice and Ulrica, for your genuine interest and stimulating discussions on the subject.

To all doctoral students at the Department of Health Science for valuable comments on the manuscript during seminars and to our great lunch meetings.

Assistant Professor Maria Larsson-Lund for valuable comments on the manuscript and for your encouragement.
Acknowledgements

Last and most of all my family: to Kurt for your love, your belief in me and for never-ending support. To our children, Tim, Marina, Elina, Emil and Ewa and our grandchildren for keeping me in touch with reality and constantly reminding me that life is more than work.

To my relatives that have listened with interest and patience to my playground stories for years.

The studies in this thesis were financed by Luleå University of Technology and grants from “Save the Children” – Sweden, Norrbacka – Eugeniastiftelsen and the Swedish National Association for Disabled Children and Adolescents (RBU).
References

REFERENCES


BFS. 2003:19 [The National Board of Housing, Building and Planning.] Boverkets föreskrifter och allmänna råd om undanröjande av enkelt avhjälpta hinder till och i lokaler
References

dit allmänheten har tillträde och på allmänna platser. [Instructions and general recommendations regarding easily removable obstacles in buildings open to the public and in public places. In Swedish.] Stockholm: Boverket.

BFS. 2004:15. [The National Board of Housing, Building and Planning.]. Boverkets föreskrifter och allmänna råd om tillgänglighet och användbarhet för personer med nedsatt rörelse- eller orientoeringsförmåga på allmänna platser och inom områden för andra anläggningar än hyggnader. [Instructions and general recommendations about accessibility and usability for persons with disabilities in public places and for other areas then buildings. In Swedish.] Stockholm: Boverket.


References


References


References


References


References


References


References


References


STUDY I
Attitudes of Key Persons to Accessibility Problems in Playgrounds for Children with Restricted Mobility: A Study in a Medium-sized Municipality in Northern Sweden

MARTA PRELLWITZ and MAARE TAMM
From the Boden University College of Health Sciences, Boden, Sweden


Playgrounds are an important outdoor environment for children. Yet few playgrounds are designed to be accessible to children with restricted mobility. In this study the child with restricted mobility is defined as one who is unable to move around without the aid of a wheelchair, walking-frame, walking-stick or other walking device. The purpose of the study was to explore the attitudes to accessibility problems in playgrounds among two groups of key persons: “creators” and “users of playgrounds” in a medium-sized municipality in northern Sweden. Eleven key persons (5 “creators of playgrounds” and 6 “users of playgrounds”) were interviewed in a semi-structured interview. The interviews were analysed according to content analysis and could be coded under different themes. The results showed that those who created playgrounds had (i) a fragmented organization, (ii) insufficient knowledge of disabilities, (iii) poor economy, and (iv) attitudes as an obstacle. Interviews with the users of the playgrounds were coded under two themes (i) the playground is not for me (i.e. for children with restricted mobility) and (ii) assistance is a precondition for accessibility. The results were discussed in the light of how the inaccessibility of play environments can affect the development of children with restricted mobility, and affect their possibilities of a life on a par with that of other children. Key words: accessibility, children with restricted mobility, playgrounds.

INTRODUCTION

Play is an important part of children’s development, physically, cognitively, emotionally and socially. Play allows children to experiment with different things, to make decisions, to understand cause–effect processes, and to recognize their own strengths and limitations. Playing encourages creativity and learning, and develops children’s social skills [1, 2]. Playing also helps the child to cope with disappointment, anxiety and fear [3].

From the perspective of occupational therapy, play is considered to be the primary activity of the child. Play arises from the curiosity of a child learning how objects, people and events function. This learning process is fundamental to children’s development, and a prerequisite for competence in occupational roles later in life [4]. A child with restricted mobility has fewer opportunities to experiment with objects in the surrounding environment, which can lead to a reduction in the child’s exchange of information with his/her surroundings. The child then misses several experiences that other children without these problems have. This, in turn, can lead to the child withdrawing from social situations and becoming more dependent on adults than is necessary. As a consequence of several factors in interplay, the child with restricted mobility can acquire secondary psychological handicaps, such as poor self-esteem, isolation, marginalization, and so on [5]. Research studies show, for example, that children with restricted mobility perform fewer activities than other children, they are more likely to play alone (or with an adult) than with their peers, and in many cases this is because these children do not have access to the same play environments that their peers frequent [6, 7].

Playgrounds are important environments where children play during their childhood. Playgrounds are specially designed for children, where they can perform many different activities and interact with one another. In playgrounds, children have opportunities for motor activities, running, swinging, climbing, and for social activities, interacting with each other in joint activities. In playgrounds, children’s awareness of their environment is developed, and it is usually in the playground that children learn about social norms and values [3, 8].

How should playgrounds be constructed to correspond to the different needs of children? Research shows [3, 9, 10] that there are three different types of playgrounds: (i) traditional, (ii) modern and (iii) adventure. Of these three types of playground, the traditional and modern are the most common. The traditional playgrounds are often found close to a school, a small park or blocks of flats. They accommodate swings, slides, seesaws, sandpits, and climbing frames. This play equipment is often made of metal and iron chains (extremely insensitive to flesh
and blood) and is not especially aesthetically pleasing. Modern playgrounds in general contain the same equipment as the traditional ones, but, instead, they are built of wood, and have steps and suspension bridges to create different levels connecting the different pieces of play equipment. Most play equipment can be used in more than one way. These playgrounds are constructed with a strong appreciation for colour and form and there is an emphasis on the aesthetic aspect. Adventure playgrounds have no ready-made play equipment, but here the children can build for themselves using wood and other materials, and using their own imagination, sometimes under the leadership of an employed play leader.

Traditional playgrounds are suitable for, and used by, small children and children of preschool age. Modern playgrounds are used by both preschool and schoolchildren. Adventure playgrounds are mainly for older children. They afford freedom from the adult world, and therefore attract children in the age range 10–12 years [3].

Playgrounds, then, are important outdoor environments for children. And yet there are few playgrounds that are accessible to children with restricted mobility. After searching in different databases (Cinahl, Eric, Medline, Architecture database, etc.) we found only a few locations in the world where playgrounds have been designed so that they are accessible to children with different types of activity limitations [11–13].

Concerning the accessibility of different environments to individuals with restricted mobility, research has recently begun to stress the importance of, and make demands for, the accessibility of constructed environments to everyone—a social right for all citizens, irrespective of whether they are children or adults [14–16]. WHO’s international classification system ICIDH-2 (1997) emphasizes the importance of environment, which means that through insufficient accessibility, an environment can cause participation restrictions in various domains [17]. For children, there are certain demands included in the United Nations convention on the rights of the child, whose 23rd Article states that “a mentally or physically disabled child should enjoy a full and decent life, in conditions which ensure dignity, promote self-reliance and facilitate the child’s active participation in the community” [18].

In the theory formation of occupational therapy, the relation between person and environment is by tradition of central significance. As early as the 1950s, Reilly [19] discussed the interaction between person and environment and considered that one of the most important tasks for occupational therapists is to adapt persons to a suitable environment and vice versa, in order to improve their health. During the 1970s and 1980s, Kielhofner [20] described the interaction between a living system and its environment, holding that there exists a mutual dependence between person and environment. In recent years, there has been a growing interest [21] in the theoretical model presented by the environment psychologist Lawton [22, 23]. According to this model, there should be a balance between the capacity of the individual and the demands of the environment, in order to create a harmonious relationship between man and environment. This balance, according to Lawton’s docility hypothesis, can be achieved in two ways—by adapting human capacity to the demands of the environment, or by adapting the environment to human capacity. Lawton considers further that people with lower capacity than normal (e.g. children with restricted mobility) are considerably more sensitive to the demands of the environment than individuals with higher capacity.

When a child with restricted mobility encounters an environment with limited accessibility, as is often the case when the child is going to play in an ordinary playground, a situation arises in which there is, in Lawton’s [22, 23] terminology, an imbalance; the environment is not adapted to the child with lower capacity. Occupational therapy research also shows that children with restricted mobility seldom play in public playgrounds, but are obliged to use their own gardens [24].

In the light of these findings, the purpose of this study was to find out what two groups of key persons—“creators and users of playgrounds”—in a medium-sized municipality in northern Sweden think about accessibility.

MATERIALS AND METHODS

The municipality of Boden, located in the north of Sweden, has 30,000 inhabitants and 117 playgrounds (in schools, public parks and housing areas). As we had little knowledge in the field, we carried out interviews with a number of key persons in order to acquire a clearer picture of the area under investigation. First, we tried to find an informant, a person who would be willing to act as a guide (to give us valuable information) and tell us who we should choose for the other key persons. This informant and the first person interviewed was the Head of the Parks Department. He selected the key persons whom he thought could provide the most information for us. They were: the Parks Department technician, the Head of the Roads Department, a landscape architect and the Secretary for the Handicapped (handikappsekreterare). We then contacted three chil-
dren with restricted mobility (aged between 7 and 11 years) who lived in the municipality. We also contacted one of their parents, and their personal or school assistant. These persons (the children, the parent and the assistants) were known to us through a previous study and participated in the present study as key persons. The two groups were designated “creators of playgrounds” and “users of playgrounds” (see Table I).

Procedure
Each of the persons in the investigation was contacted by telephone to make an appointment for the interview. The interviews with the key persons who create playgrounds were carried out at their respective workplaces. The interviews with the key persons who use playgrounds were, in the case of the parents and the children, carried out in the children’s homes, the school and the personal assistant were interviewed in the schools. Each interview, which took approximately one hour, was carried out by the first author and was tape-recorded and transcribed the same day. The interviews were semi-structured and were carried out in conversational form.

Analysis of interviews
The interview transcriptions were analysed according to content analysis [25] into different themes. The transcribed interviews were first read independently by the authors. After the first reading, different themes were sought in the texts, with the purpose of the investigation in focus. In the interview texts for “creators of playgrounds”, questions that were raised concerned: whether the creators had thought about accessibility? What were the obstacles to creating accessibility? In the interview texts for “users of playgrounds”, questions put were: What is it like to play in a playground? Is help needed? What problems arise? The analysis gave four themes for “creators of playgrounds” and two themes for “users of playgrounds”. Those for “creators of playgrounds” were (i) fragmented organization, (ii) insufficient knowledge of disabilities, (iii) poor economy, (iv) attitudes as an obstacle, and for “users of playgrounds”: (i) the playground is not for me (i.e. for children with restricted mobility) and (ii) personal assistance is a prerequisite for accessibility. The themes obtained were more or less the same for both authors, and they were labelled jointly, with some fine adjustment of the content.

RESULTS
“Creators of playgrounds”
Under this heading, accessibility to playgrounds is accounted for from the perspective of those who participate or may possibly participate in the planning stage when building a new or renovating an old playground in the municipality.

Fragmented organization (organizational difficulties)
The interviews indicated that there are shortcomings in the rules of procedure between the key persons involved (“creators of playgrounds”) within the municipality’s Public Works Office, but also in working with other departments in the municipality. These shortcomings include poor co-ordination, poor communication, and unclear or few directives. The Parks Department and the Roads Department are located on the same floor, but according to them there is no cooperation when it comes to the construction of playgrounds.

The landscape architect suggests certain play equipment, but the person purchasing the equipment is, according to the landscape architect, often in contact with other companies in the sector and therefore the equipment bought is not always the same as specified on the blueprint. Furthermore, it was found that it was very much up to the people working in the departments themselves, depending on their interest, to get in touch with organizations for handicapped people and/or the municipality’s Committee for the Handicapped (handikapprådet) for advice on accessibility, and the interviewees expressed hopes of increased cooperation in the future. This is what persons from different departments said:

Table I. Different key persons interviewed in the two groups “creators and users of playgrounds” in the investigated municipality

<table>
<thead>
<tr>
<th>Creators of playgrounds</th>
<th>Users of playgrounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 5</td>
<td>n = 6</td>
</tr>
<tr>
<td>Landscape architect*</td>
<td>1 Child 3</td>
</tr>
<tr>
<td>Head of Parks</td>
<td>1 Parent 1</td>
</tr>
<tr>
<td>Department</td>
<td></td>
</tr>
<tr>
<td>Park technician</td>
<td>1 Personal assistant 1</td>
</tr>
<tr>
<td>Head of Roads</td>
<td>1 School assistant</td>
</tr>
<tr>
<td>Department</td>
<td></td>
</tr>
<tr>
<td>Secretary for the</td>
<td></td>
</tr>
<tr>
<td>Handicapped</td>
<td>1</td>
</tr>
</tbody>
</table>

* The landscape architect works in a larger, neighbouring municipality, but has knowledge relating also to this municipality.
Well, sometimes you have to do a lot of searching, you have no clear indications of this particular question being a problem and that we have to put some extra thought into this particular feature when constructing.

...there should have been more meetings; I see now, that I should have done much more then, but the group had been dissolved by the time we’d finished the project and I can’t really explain why there weren’t more meetings, but it’s obvious more should have been done.

The Head of the Roads Department said:
We have worked very hard in parallel, but the Parks Department often works completely on its own.

The interviews showed that the municipality’s Committee for the Handicapped gives its views on some of the municipality’s various projects that concern public buildings and environments. The municipality’s Committee for the Handicapped is also consulted on “bigger” issues, when questions of adaptation for people with disabilities are dealt with, e.g. in connection with reconstructing traffic environments and leisure facilities. The municipality’s Secretary for the Handicapped, (who is also a member of the municipality’s Committee for the Handicapped) when interviewed about playgrounds said, that there are few representatives for children and young people in the Committee for the Handicapped.

You could say that the category, children, is not particularly visible in the Committee for the Handicapped and that it is mostly the adults with disabilities who are represented.

Projects such as, for example, the accessibility of playgrounds can then lack representatives. Furthermore, it seems that many issues stop at the detail level and that one “cannot see the wood for the trees”.

**Insufficient knowledge**

Several of the interviewees declared that they possessed insufficient knowledge of how to create playgrounds for children with restricted mobility. At the same time, the issue of accessibility came as a surprise to the interviewees. This was something they had not considered at all, on the admission of some of those who in fact create playgrounds.

No we haven’t thought about accessibility, not a jot, that’s the long and short of it. All I can say is, I have memorized nearly all the playgrounds and we simply haven’t been thinking along those lines.

In the opinion of the Secretary for the Handicapped, there was insufficient knowledge among those who read the blueprints and gave their views on accessibility. At the same time, few experts in the field of accessibility were consulted. The Secretary for the Handicapped said:

It’s hard for “ordinary” people (the people in the Committee for the Handicapped) to have the competence necessary to read the blueprints and make their own suggestions, when they don’t know what there is in other places.

Furthermore, it appeared that persons in the different departments were surprised that the construction industry did not possess more knowledge about adaptation for people with disabilities, and it seemed that it was often small details that could make big differences, and that these small details that were included in the blueprints disappeared, or were changed during construction.

Some of the interviewees offered suggestions that could bring about better knowledge of adaptation. Others wanted more training and competence development in the field. In the words of one of the interviewees:

... there should be more rules and regulations dealing with what can be considered as adaptation for people with disabilities.

In order to increase competence, it was also spontaneously suggested that one could acquire assistance from other professional groups, e.g. occupational therapists, which had not previously been done.

**Financing**

The interviewees stated that there were financial considerations that governed the design of playgrounds. “The creators of playgrounds” considered that equipment adapted for children with mobility restrictions was expensive, that it was expensive to adapt the surfacing, but also expensive to consult other professional groups on practical issues. When creating the only playground in the municipality that is partially adapted for children with disabilities, which we here shall call “the Snowrose”, the intention was to install several pieces of play equipment that could be adapted to children with disabilities, which we here shall call “the Snowrose”, the intention was to install several pieces of play equipment that could be adapted to children with mobility restrictions. But when tenders were offered, there were considerable price differences between the equipment that was to be adapted and the standard equipment. It was then considered too expensive to carry out the adaptation and the cheaper alternative was chosen.

When the interviewees were told by the interviewer that there were shortcomings in accessibility, both in case of entering the playground and in approaching the play equipment, one of the interviewees said:
It is dreadful that they (children with restricted mobility) cannot even get into playgrounds, but it's a thing that could be seen to immediately, the costs are so low. But rebuilding the playgrounds so that children with mobility restrictions can use them unaided, without them being carried to the different play equipment, things like that would mean high costs.

**Attitudes**

Several persons said that they had only half-heartedly discussed adaptation for children with mobility restrictions when new playgrounds in the municipality were discussed, but that it never went further than that, with the exception of “the Snowrose” project. Plans for accessibility, then, were not followed through. And in the discussion about not adapting “the Snowrose” playground any further, it was brought up that the children often have an adult with them who can carry and help the child in the playground, and that it therefore was not necessary to carry out other forms of adaptation.

We talked about it (accessibility), but we said that if you are wheelchair bound you can at least get into this playground and get to the centre of the playground; from there, we said, they always have someone with them who can carry the child.

The interviews showed that there had been no discussion about adaptation when other playgrounds in the municipality were renovated. Nobody had even considered how a child with restricted mobility might be able to play in the municipality playgrounds. Nor had anyone—parents or any institution or authority—requested that playgrounds should be accessible.

“It is largely a question of attitudes, of point of view”, some of the interviewees said. Since the questions had not arisen, it had not been necessary to deal with them.

“Users of playgrounds”

Under this heading, accessibility to playgrounds is accounted for from the perspective of the children with restricted mobility and of those who help these children in the playgrounds.

*The playground that is not for me*

The children interviewed told of how inaccessible the playgrounds are, that they cannot even get into the playground, often because of openings in the fences that were too narrow, sand that began right at the entrance, or because of a ditch that almost completely surrounded the playground. One boy told of how he could see the playground where his friends played from his window. He could not take part himself, because he could not drive his wheelchair into the playground. One nine-year-old boy said:

> My friends are often in the playground, but there, in our playground, there’s sand. What I want most of all in all playgrounds is tiles, because then I can get in. I think that “the Snowrose” (the playground partially adapted for children with disabilities) is best because it has tiles, so I can at least get in there.

The playgrounds with accessibility through the entrance seldom or never have accessibility all the way to the play equipment. The children’s experience then is that although they can get into the playground, they cannot play. The paths and trails that exist often lead only to the park benches or lead through the playground. “Yes, I can drive through the playground, but I can’t play with the different things that are there”, an eleven-year-old girl said.

Opportunities to use the play equipment are also limited and according to the children only a few pieces of play equipment are partly accessible in the “the Snowrose” playground. The children also described that the traditional types of play equipment (slide, roundabout and swings) that are there are not accessible to children with restricted mobility unless there is an attendant adult from whom to seek assistance. Several of the children said that they needed help at the swings, the climbing frame and the slide when playing in this playground.

> The swings are so high, I get help from my mum, my dad, my brothers or grandma. They lift me up onto the swing. My assistant is there ... always.

**Assistance is a prerequisite for accessibility**

The interviews with the school and personal assistants showed that a prerequisite for the children with restricted mobility to be able to play in the playgrounds is that they receive help, from adults (parents or assistants), as there is often no possibility for the children to get to the play equipment by themselves. These adults help the children in the playgrounds as long as they can manage to lift and carry them to the play equipment. The interview answers showed that when the children get older and heavier, it is no longer always possible to lift and carry as earlier. The assistants described it as also psychologically trying, when they can no longer manage to lift and carry the children, and are forced to deny them the opportunity to play in the playgrounds.
Accessibility problems in playgrounds

You’d have to be Superman. It’s all right when they’re not so big, but when they get a little bigger ...

It was all right as long as I could manage it. Saying no to him isn’t something I enjoy, exactly.

The school and personal assistants also reflected over why the older children said that they did not wish to go to the playground, and thought that it was because the children knew that their assistants could not manage to lift and carry them around in the playground, and out of consideration for them, they refrained from asking to go there. When their friends ran to the playground, both the school and personal assistants saw signs that the children wanted to go with them, but that they did not express such a wish. In the interviews, the assistants also said that they realized that without the help of an adult the children had no possibility of playing in the playground.

You exert yourself a little too much, perhaps more than you should, but I’ve done it because I feel that they (the children) should be able to take part if they want to.

The parents interviewed have similar experiences, that playing in the playground is associated with lots of heavy lifting. Playgrounds are places where children preferably are not left alone, because of the playgrounds’ design. The sand on the ground is an obstacle:

She wants to go around with the other children, but the crutches sink in the sand and she falls over.

The play equipment, too, was inaccessible to the children. The parent said:

If there had been paths up to the play equipment, and proper supporting rails on the play equipment, the accessibility would have been easily improved.

DISCUSSION

The results indicate that, in the municipality studied, there are many obstacles in playgrounds for children with restricted mobility. That means that the children with restricted mobility living in this municipality cannot play in a natural way in the municipality’s playgrounds. This is contrary to the United Nations Convention on the Rights of the Child [18], which emphasizes the right of all children to engage in play, to recreational activities and active participation in the community.

If we interpret our results on the basis of Lawton’s docility hypothesis [22, 23], in which the environment is the playground, the demands imposed by this environment are in most aspects too high for children with restricted mobility. There have only been attempts to adapt the child’s ability with the help of personal or school assistants and technical aids, but no attempts have been made to adapt the environment to the child’s ability. In order to strike some kind of balance between the child’s capacity and the demands of the environment, the playground should be adapted to reduce the demands of the environment upon the children. Based on Lawton’s theory, by reducing the demands of the environment (playground) one can increase the activity of the individual (child). In occupational therapy, too, theories have been developed on the relationship between persons and the environment, and occupational therapists have a considerable amount of knowledge to offer regarding environmental adaptations [4, 20, 21, 26]. The fact that occupational therapists have not been engaged as consultants in the creation of playgrounds is not surprising, because occupational therapists in Sweden do not usually work within recreational environments, but they may play a significant role in future planning.

The key persons who create the playgrounds admit that they have insufficient knowledge about impairment and handicaps, and that their work methods do not naturally bring them into contact with those persons who possess such knowledge, i.e. persons from organizations for the handicapped. That there was insufficient knowledge concerning impairment and handicap also in the construction industry came as a surprise to many of the key persons. Similar conditions were described by Iwarsson & Isaksson [27], who also see lack of knowledge and conservatism in the construction industry as obstacles to the development of accessibility in modern buildings.

The results indicate that insufficient knowledge is not the only reason for the inaccessibility of play environments, but also a general lack of awareness of the needs of children with restricted mobility. Interviews with those who create playgrounds, then, perhaps reflect the attitudes existing in society, which can be summarized in the saying, “out of sight, out of mind”. We could ascertain that there were no directly negative attitudes among the interviewees, but rather a lack of awareness of the situation. Similar results have also been found in international research [15, 27] (even though not dealing with playgrounds in particular) showing that accessibility is not seen as a right, but is regarded more as a privilege or a question of benevolence.

The fact that economy can be an obstacle is a well-known phenomenon in all societies, including Swedish society. The interviewees expressed views on the costliness of consulting other professional groups. According to Lawton [22], the problem of high cost is
often exaggerated—practical solutions are not always necessarily more expensive. An important practical solution would be to change the ground surfacing by extending pathways, so that the children can get into the playground and get to the play equipment.

Among the “users of playgrounds”, the children’s accounts showed clearly that they felt excluded from these play environments. They were, at best, spectators of other children’s play or completely outside these contexts. But playgrounds are not purely physical places. Not having access to a playground denies the child both the opportunity to be in the play environment in question, and to be in the social environment, i.e. the opportunity of interplay with one’s peers who play together at these places [8]. It is difficult to say in what way such deprivation of play can harm the development of children with restricted mobility; for that, further studies are needed, following the child’s development over a period of time. Nevertheless, those who have studied children with restricted mobility have shown that their play is hindered partly by the physical environment and partly by their consequent lack of social skills. [5–7, 24]. Further studies may clarify the developmental psychological aspects in more detail.

As shown by the interviews, playgrounds in the municipality investigated were not built to be accessed by children without the help of adults. The interviews show clearly that the personal assistant is a prerequisite if these children are to play in the playground. For the child, being constantly dependent on the presence of an adult in a playground can be an obstacle to spontaneous contacts with other children, and in the long run, perhaps detrimental to his/her social development [5, 7].

From the personal or school assistant’s perspective, his/her role becomes not only physically strenuous, but also psychologically arduous when the child begins to be too heavy to carry, and must be refused access to the playground. From an early age, children with restricted mobility display a lack of interest in playgrounds. Do the children discard the playground as an environment for play with their peers out of consideration for their assistants? Or is the personal assistant an obstacle when the disabled child seeks to join the social community of other children? Further research in this area may produce an answer to these questions.

CONCLUSION
To summarize, it can be said that playgrounds, which are important outdoor environments for children with restricted mobility, were perceived to lack accessibility in the municipality investigated. The fact that the playgrounds lacked accessibility seems to have been a surprise to those who create these environments. This means that the demands of the United Nations convention on the Rights of the Child, which emphasizes the importance of recreational activities and active participation in the community, do not seem to have had much impact in the municipality investigated. The result, then, can be said to be rather disappointing. This means that, owing to insufficient knowledge, children with restricted mobility have been excluded from environments that are important to them, and they have been deprived of their just rights. The municipality investigated is just one of many municipalities in the county of Norrbotten, and therefore one of the limitations of this study is that it is restricted to only one municipality, meaning that the results cannot be applied to other municipalities in Sweden. Conditions in other municipalities in Sweden are a topic for study in our further research.

ACKNOWLEDGMENTS
The authors express their gratitude to those who participated in this study. Further thanks are extended to “Save the children”, Sweden for financing the project.

REFERENCES

Accepted October 1, 1999

Address for correspondence:
Maria Prellwitz
Hedenbrovägen
SE-961 36 Boden
Sweden
Fax: + 46 921 75 850
E-mail: maria.prellwitz@hv.luth.se
ARE PLAYGROUNDS IN NORRLAND
(NORTHERN SWEDEN) ACCESSIBLE TO
CHILDREN WITH RESTRICTED MOBILITY?

By Maria Prellwitz, Maare Tamm and Rafael Lindqvist

Abstract: The purpose of this study was to investigate the accessibility of playgrounds to children with restricted mobility in Norrland. The investigation was carried out as a descriptive postal survey study. The questions in the survey were retrospective, i.e. addressed the issue of what had or had not been done to adapt the playgrounds for children with restricted mobility. The questionnaire was sent out to all the 54 municipalities in the province of Norrland. In the municipalities that responded to the questionnaire there were in all 2,266 playgrounds. When compiling the answers it appeared that only two of the total number of playgrounds were considered by the municipalities to be completely adapted for children with restricted mobility and that 46 playgrounds were partially adapted for them. The investigation can be seen as an illustration of the social model of disability. The inadequate adaptation of playgrounds to the needs of children with restricted mobility constitutes a very tangible societal barrier. It is a barrier, which can only be removed if the knowledge borne by those with restricted mobility and their organisations is utilised by municipal decision-makers.

Accessibility is a theme that has been intensely discussed in disability research in recent years (Barnes et al., 1999; Imre, 1997; Oliver, 1996; Finkelstein, 1993; Hahn, 1986). One reason for this is that in sociological research today there is increasing mention of the social model of disability, i.e. disability can be seen as something created by society (Oliver, 1996). According to this view, disability occurs as a consequence of the fact that society contains a series of disabling barriers which exclude those with a disability from every day activities. Such barriers can be physical obstacles of different kinds, e.g. buildings, workplaces, transportation and so on, that are not accessible. This can also apply to institutional obstacles, i.e. the fact that social services in the wider sense are organised in such a way that persons with disabilities have difficulties with regard to access. The experiences of persons with disabilities are to a large extent experiences of such barriers, consciously or unconsciously.
ARE PLAYGROUNDS IN NORRLAND (NORTHERN SWEDEN) ACCESSIBLE TO CHILDREN WITH RESTRICTED MOBILITY?

raised by persons without disabilities (Law et al, 1999; Imre, 1997; SOU 1980:16). The solution is assumed to be that the barriers and obstacles mentioned should be removed, which presupposes that persons with disabilities are given increased influence over different aspects of social planning. The social model (Oliver, 1996) has been put forward as an alternative to the previous medical model. In the medical model, disability is seen as a result of the individual’s illness or impairment. Care, treatment, rehabilitation and technical aids designed by experts are becoming important factors in adapting the individual to society. Through such measures, the so-called “personal tragedy” assumed to be caused by the disability can be mitigated.

Many disability researchers have noted the problems daily encountered by persons with disabilities in the form of different constructed environments that are not accessible to them. Such accessibility problems exist also in Sweden, according to the response report (SOU 1999:21) of the Ministry of Health and Social Affairs. In an investigation addressed to the municipalities in the country and commissioned by the Disability Ombudsman, it was found also that there are considerable shortcomings in accessibility for persons with disabilities at sports facilities and public baths. Approximately two-thirds of the municipalities stated that only half their facilities were adapted for persons with disabilities (Handikappombudsman 1999:28).

In WHO’s new international classification system, ICIDH-2 (WHO, 1999) there is considerable emphasis on the aspect of accessibility, where a passage states that inaccessible environments, both physical and social, can have a disabiling effect, and that persons with disabilities should have a right to participate in community life. In fact, the basic principal in Swedish disability policy and legislation is that persons with a disability should have the possibility to participate in the community and live as all others do (SOL, 1980:620). In addition, the Swedish definition of disability (SOU, 1980:16, p.40) underlines the significance of the environment for persons with disabilities and states that "disability arises in the confrontation between an individual with an impairment, or a disease, and an imperfection in the environment or in an organized activity, that makes accessibility difficult or impossible for him/her".

In this article, we address the issue of the occurrence of barriers that create disability also for children, principally as regards playgrounds. To children, playgrounds are significant outdoor public environments that are built specially for their (the children’s) different needs. At playgrounds children can carry out different activities, many of them motor activities, but there is also opportunity for social activities, i.e. playing with friends. Through interaction with other children in shared activities, the children learn many
social rules and values. The physical environment is of great importance to children. If accessibility is insufficient, many play activities cannot be carried out, and children’s interaction with these environments will be reduced or eliminated. At the same time, physical public environments communicate symbolic messages as to whether persons are welcome in these environments. A disabling playground, for example, states that this environment is intended for non-disabled children and that other children are not welcome there (Proshansky & Fabian, 1987; Hayward et al., 1974). Through the inaccessibility of certain environments, certain groups of individuals are excluded, which in turn can be discriminatory (Imre & Kumar, 1998; Kitchin, 1998; Imre & Wells, 1993). In addition, in Sweden there is a law stating that public places including playgrounds should be accessible to persons with restricted mobility or restricted sense of locality (Plan- och bygglagen, 1987:10).

Environmental psychologists describe three different types of playgrounds - traditional, contemporary and adventure playgrounds (Hayward et al., 1974; Bell et al., 1990; Shaw, 1987). Traditional playgrounds are often found in parks and schools. They consist mainly of slides, swings, seesaws and climbing frames made of metal. Contemporary playgrounds are more aesthetically formed, with wooden play equipment built on different levels, with bridges and ladders linking equipment. At adventure playgrounds children have access to building materials and tools and the children themselves can build different play structures. Sometimes also, an adult is on hand to assist. In different studies of playgrounds (Shaw, 1987; Brown & Burger, 1984; Hayward et al., 1974), it appeared that it was principally young children who played in traditional playgrounds. In contemporary playgrounds and adventure playgrounds the children were older, spent more time there and visited the playgrounds more often. At adventure playgrounds the children’s games both socially and cognitively were more creative and complex than at the other playgrounds, and the children conversed more with each other on different topics, also on topics not related to the game or the playground.

To children with restricted mobility many playgrounds have insufficient access. This can be due to purely physical barriers, such as for example a ground cover of sand at a playground or too narrow a gateway into a playground. But there can also be social obstacles, such as the fact that children with restricted mobility seldom are alone in these environments, often being accompanied by an adult, who thereby ‘disturbs’ the normal play between children and also removes the opportunity of unconstrained interaction with other children (Tamm & Skär, accepted 2000; Howard, 1996; Brown & Gordon, 1987).
In several recent studies it has been found that children with restricted mobility have fewer play experiences, that they participate less in social activities with peers and that they are often onlookers during the play of other children (Tamm & Skår, accepted 2000; Howard, 1996; Brown & Gordon, 1987; Margalit, 1981). If children with restricted mobility become limited in their play and play contacts with other children, this can hinder their all-round development and it is possible that such play deprivation can lead to secondary disabilities. These secondary disabilities may consist of increased dependence on adults, poorly developed social competence and poor self-esteem. Such secondary disabilities affect the child with restricted mobility not only during the game, but also in his/her whole development (Misiuina & Pollock, 1991; Philip & Duckworth, 1982; Mogford, 1977).

Children have the same rights as adults as regards access to different public environments. The General Assembly of the United Nations adopted the Convention on the Rights of a Child in 1989. Sweden was among the first states to sign the convention. This means that Sweden is committed to ensuring that its national legislation is harmonised with the articles of the Children's Convention, i.e. that "an intellectually or a physically disabled child should enjoy a full and decent life, in conditions which ensure dignity, promote self-reliance and facilitate the child's active participation in the community" (SOU 1997:116, p. 267). It further states in the convention that the child is to be protected against all forms of discrimination.

In a previous exploratory study (Prellwitz & Tamm, 1999), which was carried out in a medium sized municipality in northern Sweden, it was found that there was not a single playground that was completely adapted for children with restricted mobility. It was further found in this study that in this municipality the responsibility for the playgrounds was divided and that coordination was poor between the different administration units. Our questions therefore are as follows: Does this apply also to other municipalities? Is accessibility for children with restricted mobility something non-existent, despite the articles of the Children's Convention? In order to ascertain this, the purpose of this study was to investigate how accessible playgrounds are to children with restricted mobility in Norrland, the northern region covering about half the area of Sweden.

**Method**

The investigation was carried out as a descriptive postal survey study. In the investigation, a questionnaire was used, consisting of 8 closed- and 5 open-ended questions. The questions in the questionnaire were formulated on the
basis of our previous study. The main questions in the questionnaire were short and easy to understand: what types of playground exist in your municipality? (The question was illustrated with a picture of the three relevant types of playground). How many playgrounds in your municipality are adapted for children with restricted mobility? etc. The survey format was chosen because it is quick, cheap and because it enabled us to cover a total population, i.e. to shed light on the total situation regarding playgrounds in Norrland. The questions were retrospective; i.e. they addressed what had or had not been done to adapt playgrounds for children with restricted mobility in the different municipalities.

Procedure
The questionnaire was sent by post to all municipalities in the five counties (Norrbotten, Västerbotten, Västernorrland, Jämtland and Gävleborg), that together constitute the region of Norrland. The questionnaires were addressed to the person in the municipality who was responsible for playgrounds. A total of 54 questionnaires were sent out. The municipalities that after six weeks had not responded to the questionnaire were sent a reminder in the form of a letter. Four weeks after the reminder, 18 municipalities had still not responded to the questionnaire. These 18 municipalities were contacted by telephone. Five of these municipalities chose to reply to the questionnaire directly by telephone.

Two municipalities replied that they could not reply to the questionnaire since they had handed over responsibility for playgrounds to road or residents’ associations and in two municipalities the appointment had recently been filled and the person responsible did not consider him/herself to have sufficient information to be able to reply to the questionnaire. Seven municipalities did not reply to the questionnaire despite the reminder and the telephone call, and neither did they give any reason for not replying. In all, 41 (76%) municipalities replied to the questionnaire.

Results
The information was given by the person in the municipality who is responsible for the playgrounds or the person who considers him/herself to be the most knowledgeable in that field. The number of participating municipalities and playgrounds in each county is presented in Table 1.

Different types of playgrounds
In the first question in the questionnaire, the respondents were asked to state what types of playgrounds were represented in the municipality - traditional, contemporary or adventure playgrounds. The result is presented in Table 2.
Table 1: Number of participating municipalities and number of playgrounds in each municipality:

<table>
<thead>
<tr>
<th>County</th>
<th>Number of participating municipalities (of total number of municipalities)</th>
<th>Number of playgrounds investigated in each county (n=2266)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norrbotten</td>
<td>14 (14)</td>
<td>621</td>
</tr>
<tr>
<td>Västerbotten</td>
<td>11 (15)</td>
<td>339</td>
</tr>
<tr>
<td>Jämtland</td>
<td>3 (8)</td>
<td>65</td>
</tr>
<tr>
<td>Gävleborg</td>
<td>7 (10)</td>
<td>540</td>
</tr>
<tr>
<td>Västernorrland</td>
<td>6 (7)</td>
<td>711</td>
</tr>
<tr>
<td><strong>Total of five counties</strong></td>
<td><strong>41 municipalities (of a total of 54 municipalities)</strong></td>
<td><strong>2,266 playgrounds</strong></td>
</tr>
</tbody>
</table>

Tabell 2: Number and percentage of different types of playground in Norrland

<table>
<thead>
<tr>
<th>Type of playground</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>1,077</td>
<td>47.5%</td>
</tr>
<tr>
<td>Contemporary</td>
<td>820</td>
<td>36.2%</td>
</tr>
<tr>
<td>Traditional/contemporary</td>
<td>360</td>
<td>16.2%</td>
</tr>
<tr>
<td>Adventure playground</td>
<td>3</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

As shown in the table, approximately half the playgrounds in Norrland are traditional, while the other half of the playgrounds are contemporary or a combination of contemporary and traditional. This combination often arises according to the respondents when a traditional playground is renovated and new, contemporary play equipment is mixed with the traditional. The table also shows that there are very few adventure playgrounds. 

Playgrounds adapted for children with restricted mobility

In response to the question whether there were any playgrounds in the municipality that were wholly or partially adapted for children with restricted mobility, the replies showed that there were only two playgrounds (0.8%) in the whole of Norrland – one in Gällivare and one in Söderhamn – that according to the municipalities were adapted for children with
restricted mobility. The respondents reported also that in all there were 46 (2%) playgrounds that were partially adapted for children with restricted mobility. Of these playgrounds partially adapted for children with restricted mobility, 35 (76%) were located in larger cities, 17 (35%) were in Gävle and 10 (22%) in Umeå. The remaining 2,218 were not adapted in any way.

Even though playgrounds are not consciously adapted, they nevertheless may be accessible to children with restricted mobility. In the questionnaire the question was posed whether a child using a wheelchair could pass through the entrance to the playground even though the playground was not adapted for children with restricted mobility, then reach the play equipment and finally, use the play equipment. The replies showed that 10 respondents (24%) considered that a child using a wheelchair was able to pass through the entrance of all the municipality’s playgrounds, approximately half of the respondents (49%) considered that this was possible in most or some of the municipality’s playgrounds, while four respondents (10%) did not consider this to be possible at any of the municipality’s playgrounds.

The possibility to move to the play equipment is also limited. Only one respondent (2%) thought that a child using a wheelchair would be able unaided to move to the play equipment at all the playgrounds in the municipality and more than half of the respondents (54%) considered that they had one or a few playgrounds in the municipality where a child using a wheelchair would be able unaided to make it all the way to the play equipment. 7 respondents (17%) stated that they had no playground in the municipality where a child using a wheelchair would be able to move all the way to the play equipment.

None of the 41 respondents considered that there was any possibility for a child using a wheelchair to use the play equipment in all of the municipality’s playgrounds, while 19 respondents (46%) considered there to be one or more playground(s) in their municipality where the play equipment was accessible. Six respondents (15%) reported that there was no playground in the whole municipality where a child using a wheelchair could use the play equipment.

One of the reasons why children using a wheelchair cannot pass through the entrance to the playgrounds in many municipalities, according to the respondents, is quite simply the ground cover. Sand or gravel right up to the entrance makes it difficult for a person using a wheelchair to enter. Another obstacle at the entrance can be a gate that is difficult to open or too narrow.

The greatest obstacle to access to the play equipment has also to do with the ground cover. The play equipment is
ARE PLAYGROUNDS IN NORRLAND (NORTHERN SWEDEN) ACCESSIBLE TO CHILDREN WITH RESTRICTED MOBILITY?

often located at the centre of sand-covered areas with no footpath nearby. Borders in the form of half-buried logs or enclosures with narrow openings also constitute obstacles for a child using a wheelchair. The fact that the ground is uneven and the fact that there are steep gradients are also mentioned as obstacles, but to a lesser extent.

According to most respondents, the main obstacle to being able to use the play equipment is that there are no ramps leading to the play equipment. The fact that the play equipment is not designed for children with restricted mobility is also given as an obstacle. Some respondents comment that if the child using a wheelchair receives help from an adult then the child can use some play equipment.

"Has the issue of adapting the playground for children with restricted mobility been under discussion among you?", was one of the questions in the questionnaire. 26 respondents (63%) replied no to this question and 15 respondents (37%) replied yes. Of the 26 respondents who replied to the question in the negative, 22 stated that the reason for this was that they had never even considered it or that nobody had brought up the subject, the remaining four gave economic reasons for the issue never having been brought up. The 15 municipalities where the issue had been brought up, that is, those that had answered the question in the questionnaire in the affirmative gave a lack of expertise and/or lack of funds as the main reason why little or nothing had been done with regard to this issue.

Of the playgrounds that the municipalities completely or partially had adapted for children with restricted mobility, it is principally the ground cover that has been dealt with. Paths had been built leading up to the play equipment, and in addition, some equipment was ordered that was specially designed as adapted for children with restricted mobility. In some municipalities, ramps have also been built, leading to some play equipment. All this is according to the respondents in the study.

Renovation and new construction of playgrounds
The respondents (in one of the questions) were asked to report how many of the municipality’s playgrounds that had been newly built or renovated in the preceding five years, and who had participated in any way in these construction projects. It appeared that of the 2,266 playgrounds, 392 (17%) had been built or renovated in the preceding five years. Both regarding new construction and renovation, all 41 municipalities stated that they had contacted different groups of representatives for consultations. The result is presented in Table 3.
Table 3: Number and percentage of municipalities that had contacted representatives upon new construction or renovation of playgrounds.

<table>
<thead>
<tr>
<th>Representatives</th>
<th>No. municipalities Upon new construction</th>
<th>Upon renovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>School or day nursery staff</td>
<td>25 (61%)</td>
<td>29 (71%)</td>
</tr>
<tr>
<td>Children</td>
<td>15 (37%)</td>
<td>15 (37%)</td>
</tr>
<tr>
<td>Parents</td>
<td>8 (20%)</td>
<td>6 (15%)</td>
</tr>
<tr>
<td>Organisations for the disabled</td>
<td>5 (12%)</td>
<td>3 (7%)</td>
</tr>
<tr>
<td>Nearby residents</td>
<td>1 (2%)</td>
<td>6 (15%)</td>
</tr>
</tbody>
</table>

The table shows that the municipalities to a larger extent consult school and day nursery staff and nearby residents when renovating existing playgrounds than when building new playgrounds. Just over one third of the municipalities considered children’s views while parents’ views were considered to only a small degree. Something which cannot be read from the table, but which appeared when compiling the results, was that the five municipalities that had been in contact with organisations for persons with disabilities when building playgrounds also had 31 (68%) of Norrland’s partially adapted playgrounds and both (100%) of the playgrounds that are completely adapted.

One of the questions in the questionnaire was of a hypothetical nature. It was: "If the economy allowed your municipality to build a playground adapted for children with restricted mobility, what more would you need to be able to carry out the project?” The most common reply to this question was that the respondents wished for more knowledge in the field. Some replied that they would contact organisations for persons with disabilities and others would investigate whether there was a need in the municipality for a playground adapted for children with restricted mobility.

Discussion

The aim of this study was to investigate the accessibility of playgrounds to children with restricted mobility in Norrland. The results show that only a few playgrounds are accessible to these children. Many municipalities have playgrounds where a child using a wheelchair cannot even pass through the entrance to the playgrounds, despite the fact that the Planning and Building
Act (1987:10) stipulates that also playgrounds are to be built in such a way that they are accessible to all. Through their lack of accessibility, playgrounds become disabling barriers to children with restricted mobility. Why has this situation come about? In our previous study (Prellwitz & Tamm, 1999), it was shown that the planning and building of playgrounds itself is an activity that often "falls between two stools" in municipal administration. It is often unclear which administration department has the main responsibility and the fact that this part of a municipality's commitment is so fragmentised can be seen as a major obstacle to those with restricted mobility. In addition, the results of the present study indicate that those with a disability are not always given the opportunity to influence or participate in municipal decisions.

Another problem that the respondents in this study mentioned, which was also identified in the previous study (Prellwitz & Tamm, 1999), in response to the question why playgrounds were not adapted, was the poor economy of the municipalities. When the economy is seen as poor, visions of providing children with disabilities opportunities equal to those of children without disabilities can easily be set aside. The fact that most playgrounds are of the traditional type in Norland and that only 17% have been renovated in the last five years might depend partially on the municipalities' economy. Playgrounds adapted for children with restricted mobility, according to the respondents, are simply not a priority area, which also suggests a lack of new thinking in this area. The respondents also say that they would like more knowledge about these questions. One interesting observation is as follows: in the municipalities that have contacted organisations for persons with disabilities when a new construction or reconstruction has been considered, certain changes have indeed been made, resulting in some playgrounds being adapted for children with restricted mobility. Institutional barriers evidently can be overcome, but this requires that the decision-makers observe the views of those with limited mobility.

The insufficient accessibility of playgrounds also indicates that children with restricted mobility are treated in a discriminatory way or that their needs are ignored. The present study shows that children with restricted mobility are excluded from a section of society that is important to them. This discrimination is illustrated by the fact that the most common answer to the question why there were no adapted playgrounds in the municipality was that the decision-making administrators had not thought about the issue or that nobody had brought up the issue. As one official with responsibility for municipal playgrounds put it, "I have never seen anyone in a wheelchair in a playground". The situation is so normal that nobody has reacted to the fact that
children using a wheelchair are seldom or never seen in a playground. In the official report of the Swedish Government done by the Ministry of Health and Social Affairs (SOU 1999:21), similar situations are reported (not regarding playgrounds however), where persons with disabilities are largely excluded from e.g. public transport in many municipalities. Also according to the United Nations’ Children’s Convention children are to be protected against discrimination and exclusion from society and instead active participation in the community should be facilitated.

To create easily-accessible playgrounds where a child with restricted mobility can move about independently is also important in order for the child to be able to grow up and become as independent as possible. To constantly be surrounded by professional helpers, assistants, parents and siblings who “help out,” means that children with restricted mobility are gradually socialised into the role of weak and constantly help-dependent individuals (Tamm & Skär, 2000; Söder, 1989). They risk being part of “a vicious circle” where they are considered to have ”special needs”, which require the help of experts and specially-adapted solutions, which in turn confirms that they have special needs and so on. With such an approach, the disability becomes a question of the individual’s shortcomings and the societal barriers disappear from the field of vision. This approach is described by several disability researchers as a common phenomenon in society (Barnes et al., 1999; Burmanes, 1996; Oliver, 1996). The insufficient accessibility can in time lead to a broad range of skills not being acquired, to a sense of competence not being achieved, to self-determination being weakened and to the understandings of society and culture being developed to a lesser degree, which many researchers refer to as secondary disabilities (Howard, 1996; Brown & Gordon, 1987; Margalit, 1981).

The insufficient adaptation of playgrounds to the requirements of children with restricted mobility can instead be interpreted within the conceptual framework of the social model of disability (Oliver, 1996). Non-adapted playgrounds constitute very tangible physical barriers to children with restricted mobility. However, the fact that accessible playgrounds are not built must also be seen in a wider context. There are institutional barriers in the fragmented manner in which the issue of playgrounds is dealt with in the municipalities. It is difficult to know who has the responsibility and where the decisions are made, which means that there is a shortage of channels for persons with disabilities to exert influence. In addition, there is little knowledge, and there are attitudinal obstacles among decision-makers, in that the issue is not regarded as especially important. At the same time, our results show that changes can be made. In those cases where persons
with disabilities through their organisations make their voices heard, certain consideration is given to their views.

Acknowledgement: The authors express their gratitude to those who participated in this study. Further thanks to "Save the Children" Sweden for financing the project.

References:


The Authors:

Maria Prellwitz, is a doctoral student at the Department of Health Sciences, Luleå University of Technology. Her research project is focused on children with restricted mobility and their physical and social environment.

Maare Tamm, PhD, is a senior lecturer in psychology at the Department of Health Sciences, Luleå University of Technology. Her research topics are children with disabilities social and physical environments and rehabilitation in home-settings.

Rafael Lindqvist, is professor at the Department of Sociology, Umeå University. He is currently conducting research on inter-organisational co-operation between welfare state agencies in vocational rehabilitation and disability policies.
STUDY III
Usability of playgrounds for children with different abilities

MARIA PRELLWITZ and LISA SKÄR

ABSTRACT: The aim of the present study was to better understand how children with different abilities use playgrounds to engage in creative play and interact socially with their peers. Twenty children aged between 7 and 12 years, with different abilities, participated in interviews. The findings showed that playgrounds served as a reference point for all the children, they challenged a child's physical abilities and provided opportunities for role-playing and social interactions. However, for children with disabilities, playgrounds had limited accessibility, usability and did not support interaction with peers. A methodological limitation of the study was that the interviewer only met the children once. Further research should be carried out to investigate if creating playgrounds according to universal design principles and adapting them to the needs of children with disabilities would improve social interactions and provide more opportunities for play. Copyright © 2007 John Wiley & Sons, Ltd.

Key words: paediatric occupational therapy, playground accessibility, universal design

Introduction

Play is essential to a child's development; it is regarded as an all-encompassing activity that helps to develop different skills such as social, intellectual, emotional and physical abilities (CAOT, 1996; Rodger and Ziviani 1999; Stagnetti, 2004). Playgrounds are designed especially for children, to play in, and they provide children with opportunities for both physical and social activities. In a playground, children's awareness of their environment is developed, and while playing, children can learn social norms and values (CAOT, 1996; Stagnetti, 2004).

For children with disabilities these skills are important for their development; however, the physical environment of a playground can be difficult to master and thereby be an obstacle for participating in play activities (Tamm and Skär, 2000). Ground cover and play equipment are important factors to consider when planning or modifying playgrounds, in order to provide easy access and inde-
Usability of playgrounds


Copyright © 2007 John Wiley & Sons, Ltd
DOI: 10.1002oti

pendence for children with mobility limitations (Prellwitz and Tamm, 1999; Stout, 1988). For children with sensory limitations, play with sand, water and noise-makers has been suggested by Stout (1988). Occupational therapists could provide perspectives on playground design and equipment so as to develop playgrounds for children with and without disabilities (Stout, 1988). However, more information is needed about subjective experiences to better understand what makes playgrounds usable.

Policies – both international (UN, 1993) and Swedish (SOU 1997) – advocate children’s rights in society. Sweden’s National Action Plan on Handicap Politics proposes that all of Sweden should be accessible by the year 2010 (Regerings propositionen, 1999/2000). In addition, in Sweden, since 1987, there has been a law stating that public places, including playgrounds, should be usable for people with disabilities (Plan-och bygglagen, 1987). In the USA the Americans with Disabilities Act (ADA, 2000) prohibits discrimination on the basis of disability in facilities such as playgrounds, and a national building code regarding play areas was developed in the year 2000. This code requires playground builders to plan for universal accessibility. In addition, accessibility should also include opportunities for children to engage in creative play in playgrounds while they are interacting with their peers (Hendy, 2001; Malkusak et al., 2002).

From the child’s perspective, what types of play activities do today’s playgrounds support and what is lacking? Listening to children with disabilities can help when designing playgrounds that are universally accessible and which promote social interaction.

In recent years occupational therapy research has focused not only on an environment’s accessibility but also on its usability. The concept of usability implies that a person should be able to move around, be in and use the environment on equal terms with others (Iwarsson and Ståhl, 2003; Carlsson, 2004; Fänge and Iwarsson, 2005). Usability takes into account users’ subjective evaluation of effectiveness, efficiency and satisfaction when performing an activity. According to the definition of usability by Iwarsson and Ståhl (2003), the concept consists of three components: person (P); environment (E); and activity (A), that is, activity performance is a transaction between these three (P–E–A). The P component in the present study refers to children with and without disabilities. The E component refers to playgrounds and the A component refers to play activities on the playground. Another focus in recent years, both within occupational therapy and in relation to the concept of usability, is ‘universal design’. This focus supports the need for usability by designing products and environments that are usable by all people without specialized design, which may be stigmatizing (Ringaert, 2002). Universal design is a design approach that assumes that the range of people’s abilities is ordinary, not out of the ordinary (Ostroff, 2001). A well-designed playground using the principals of universal design can provide physical and social settings so that children with disabilities become part of the overall play experience (Goltsman, 2001). By gaining knowl-
edge about playgrounds and the activities that are important to them from children we will increase our knowledge and increase the usability of playgrounds. The aim of the present study was to better understand how children with different abilities use playgrounds.

Method

Study design

A descriptive study design was chosen to elicit children's attitudes and thoughts about playgrounds. The method selected for analysing the children's experiences was content analysis, a method which elicits meanings and insights from the words of the respondents and identifies patterns in data (Appleton, 1995).

Participants

Twenty children (9 girls and 11 boys; age range 7–12 years, mean age 9.4 years, standard deviation (SD) 1.67 years), with different abilities, participated in the study. There were five children with restricted mobility, five children with severe visual impairment, five children with moderate developmental disabilities and five children without disabilities. All the children included in the study had good communicative abilities and the children with restricted mobility used assistive devices.

Procedure

The children with restricted mobility and developmental disabilities were selected with the assistance of two occupational therapists and psychologists from two children's rehabilitation clinics in northern Sweden. Letters were sent to their parents requesting permission for the children to participate in the study. After consent was given a suitable time was arranged for an interview with child. The ethics committee at Umeå University, Sweden, approved the study.

Data collection

Data were collected by the first author through an interview guide, together with an outline of topics to be covered (Kvale, 1996). The first question was a broad one, asking the children to describe what they thought when they heard the word 'playground'. After that, the interview focused on topics such as 'Tell me about the playground at your school, what do you do on playgrounds, and with whom?' and 'What would you like to do at the playground that you cannot do today?' The interviews were tape-recorded and took place in the child's home or school, they lasted between 20 and 45 minutes.
Data analysis

Content analysis, by Catanzaro (1988), was used to analyse the interviews. The interviews were tape-recorded then transcribed verbatim. The transcripts were read through several times. The first step was to divide the text into meaning units. In content analysis a meaning unit comprise a sentence or a paragraph which contains some understanding that the investigator needs, and a new meaning unit starts when there is a change in content or meaning in the text. The meaning units were identified, coded and then clustered through a process of comparison. The clustered meaning units were then condensed in order to make the text shorter but retain its core message. The text and the codes were read again and new codes with interpretations of the underlying meaning were generated. These codes were then sorted into different categories (cf. Catanzaro, 1988). After that, two different categories were formulated. Both authors discussed the two categories and identified sub-categories. To validate the categories and the sub-categories both authors returned to the data and read through the text once again to confirm the content of the formed categories.

Results

The analysis resulted in two categories with seven sub-categories (Table 1). The first category describes similarities in the children's experiences, regardless of their abilities. The second category describes the differences in experiences the children had.

**Despite ability differences, playgrounds offer similar experiences**

The children described many similar experiences of activities that take place on the playground. What differed between the children was the intensity and frequency of use of the playground, which depended on the children's abilities and the accessibility of the playground.

<table>
<thead>
<tr>
<th>TABLE 1: Overview of categories and sub-categories which were constructed from the analysis of the interviews with children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Categories</td>
</tr>
<tr>
<td>Despite ability differences, playgrounds offer similar experiences</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Dissimilar experiences as a consequence of the usability of playgrounds</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

A place everybody knows

One similarity of the children's experience of playgrounds was that all the children described their playground to be a place they knew very well and would miss if it did not exist. The children could describe in detail both the playground at their school and the playground closest to their home; this was regardless of whether or not they could use the playground. The children also stated that they used the playground as a reference point, the place you went to outdoors in your free time or the place where games started or ended, and, for some, it was a place to meet up with friends. The swings were described as the centre of the playground, a place for social gatherings or a place where it was OK to just sit when the children were by themselves. The swings were also described as the most important and usable play equipment, and for the children with disabilities, the most wished-for place to be in the playground. If most of the playground was difficult to get to, the swings were worth the effort to try and reach them.

Changes in their playground were also something all the children had experienced: most of the time the children explained that these changes had made the playground less usable. Some children claimed that all the 'fun stuff' had been removed. Their experiences expressed a sadness that 'their' playground was gone, changed or that it was in need of repair. One child said, 'I loved the little house, I had fun there, I don't understand why they had to take it away' and another, 'I had fun there until they took all the things away.' The children also described that these changes had happened without them understanding why.

A place for private conversations

Another finding was that the children described the playground as a usable place for privacy, away from adults, together with friends. Here, somewhere in a private corner – on the swing, on top of the jungle gym or on a bench – private conversations took place. For the children with disabilities this was mostly expressed as a wish or as something that had happened once or twice, but it was something they remembered as significant. This 'sitting around talking' was perhaps the most important activity on the playground, and all the children expressed that these conversations should take place where there were no adults present. The children also expressed wishes for benches, houses and other equipment at the playground that would support this activity. One of the children said, 'I can crawl to the swing and then we can sit and talk; we don't play anything we just talk about different things.'

Challenges for everybody

The playground was, according to the children's experiences, a place for activities that posed some sort of challenge. However, the kinds of challenges they described...
were different depending on the children's abilities. For example, a challenge for the children without disabilities could be to perform activities that were forbidden by the adults, such as hanging upside down or sitting on the highest point on the jungle gym. One child stated, 'Almost everybody tries to hang by the knees. I know we are not supposed to, but it is fun and scary. I like to see my feet and say "Hi feet".' To reach the highest point on the jungle gym or the roof of a playhouse, both children with and without disabilities mentioned as a challenge – either something they did or something they wished to do. For the children with disabilities other challenges were described, for example trying to use play equipment never tried before or to do an activity on the playground without an adult there to assist them. This was expressed in the following ways, 'I tried to climb up the slide, it's hard but its fun, I can do it all by myself' and 'I have a slide by my house I can play there without my mother being there.'

Play equipment with a recognizable design are more usable

Another experience that was similar between all the children was that some playground equipment promoted role-playing on the playground. According to the children, these role-playing activities were usually created around play equipment with a recognizable design, that is, things shaped like a house, a car, a boat or an animal. The playhouse produced a number of activities, such as playing 'store', 'school' or 'family'. The playhouse could also serve as a jail or a place where the witch or monster lived. Most of the children expressed a wish for these kinds of play equipment since, according to them, very few playgrounds had them. Play equipment shaped in other recognizable designs produced role-playing activities as well. One child said, 'I wish for a roof and a house and a store and a car. I play with my friend until dark' and another, 'I wish they would get rid of the old swings and the jungle gym, I want a playhouse where I can play, hospital, bank, bakery, café, bowling ally, florist, hockey rink and I want a new basketball hoop.' The activities that these designs generated seemed to hold the children's interest for a longer period of time than the jungle gyms and slides.

Dissimilar experiences as a consequence of the usability of playgrounds

The children's descriptions of dissimilarities in playground usability, attributed to the environment and the children's different abilities, were also evident. These findings showed that, compared with children without disabilities, children with disabilities lacked a number of opportunities to use this environment and if they could use it they were not on equal terms with others.

A place to be with friends

The children without disabilities experienced the playground as a meeting place; this was, according to them, a place were you never played alone. If you
came to a playground by yourself you either waited for your friends to arrive or you made new friends with the children who were already at the playground. The experience of the children with disabilities was different: they were seldom with friends at the playground. One child said, ‘Once I was with a friend at the playground, we sat on the swings, but it was only once.’ None of the children with disabilities mentioned ever making new friends at the playground.

For the children with disabilities the school playground was difficult to use and they rarely got help from adults, whereas at the playground by their home an adult was necessary if they were to use the playground at all. A visually impaired child said, ‘I’m always with an adult, I wish I could sit on the swings with the others.’ The experience of the children without disabilities was that they rarely had an adult with them. If they did the adult would never participate in playing, they would only sit on the park bench and watch.

Playing games or sitting on the swing

One of the dissimilarities between the children with and without disabilities was in their description of their play activities and how they used the playground equipment. According to the children without disabilities, play activities in the playground had names, usually involved other children and they used the playground equipment in many different ways. For example, the slide was a mountain to climb where the camp was underneath or the swing could be a boat that carried them over the ocean. One child expressed it this way, ‘On the big slide we play crocodile, you try to climb up but the crocodile pulls you down.’ The children with disabilities, on the other hand, did not describe these kinds of play activities; their play activities had no names and, for example, the slide was something you climbed up and went down or the swing was something you sat on. One child with restricted mobility said, ‘I sit in the sandbox or I sit on the swing.’ These descriptions lacked interactions with others.

The design hinders play activities

The usability of playgrounds, according to the children with disabilities, depended on their design. For the children with restricted mobility, sand was their biggest obstacle, but they also stated that the playground equipment was too small for them to manoeuvre around if they had some sort of mobility device. For example, if the child could enter the playhouse using a wheelchair they could not turn the wheelchair around inside the playhouse and therefore had a difficult time getting out again: ‘I wish for a path made of wood so that I could use my wheelchair and that things was sort of bigger.’ Their experience was that the playground was a place they did not visit much. According to these children, the playground equipment was only for smaller children, ‘It’s mostly little kids there, I don’t know why I’m not there, it’s really not a problem I can get in with the wheelchair to the playground I just have to toil and moil (work
hard).’ For the children with visual impairments the grey wood which playground equipment is often constructed from made it difficult for them to see stairs and barriers. They also wished for playgrounds to be closer to the school building so it would be easier to find them and also it would be easier for them to know if the other children were there. The experience of the children with developmental disabilities experiences was that a lot of the playground equipment was complicated to understand, for example it was hard to understand where to start and how to use large, multi-functional jungle gyms with slides and ropes to climb. Swings and other equipment that was for sitting on were often too small for them. Both the children with visual impairments and those with developmental disabilities expressed that they did not want to try some playground equipment when other children were present because they were afraid they would not use the equipment the right way and would be teased by the other children. Instead, they would sit and wait until they were by themselves and then try. The children without disabilities never mentioned any problems with playground equipment. Their experiences of playgrounds were that this was their place and they spent a lot of time there.

Discussion

The aim of the present study was to better understand how children with different abilities experience usability in playgrounds. In the study it was evident that all the children, regardless of their abilities, had experienced playgrounds and that they were a special place they did not want to be without. The most important function the playground had, according to the children, was to offer social interaction with peers. They were also seen as an important place to have private conversations, meet friends or make new friends. The findings also showed that, regardless of the children’s abilities, there were many similar experiences of the activities that took place in playgrounds. When integrating the P, E and A components, according to the Iwarsson and Ståhl (2003) definition of usability, the results showed that the P component (the functional capacity of the children) was quite heterogeneous and that the E component (the playgrounds) was quite different, while the A component (play) had several similarities. To focus an enquiry on the A component seemed, in this case, to add to our understanding of usability.

The results also showed that all the children, regardless of ability, sought challenges or risks on some level. According to Rodgers and Ziviani (1999), experience of challenges, disappointments and failures are common human experiences which can be experienced in a supportive play environment. Often, children with disabilities are overprotected by well-meaning parents and caretakers. According to Mårtensson (2004) the jungle gyms with several climbing functions are one attempt to meet children’s needs for challenges; however, children are capable of creating their own challenges, with a diversity of experi-
ences where the challenge was more on a mental level. Therefore can today’s modern playgrounds, built on small areas with one or two large multi-functional jungle gyms, seem boring to children and make them look for challenges elsewhere (O’Brien and Smith, 2002; Mårtensson, 2004; Solomon, 2005). In the present study, children looked for challenges but none of them wished for large multi-functional jungle gyms; instead, all the children wished for more recognizable things or ‘real things’, meaning houses, cars and boats. According to Mårtensson (2004), it is around these ‘real things’ that play on a more mental level, such as fantasy play and role-playing, has a tendency to take place. Creating playgrounds that have more ‘real things’ which promote fantasy and role-playing might also encourage more social interaction between children.

Play activities on the playground were described by the children in the present study in two different ways. These two different ways could be illustrated by two core concepts in occupational therapy: activity and occupation (Golladge, 1998; AOTA, 2002; Royeen, 2002). The children without disabilities described most of their play activities on the playground as an occupation, that is, activities that had a unique meaning and a purpose. This occupation was central to their competence, and the occupation play influenced how they spent their time and made decisions on the playground. The children with disabilities, on the other hand, described most of their play as an activity, for example the goal was to sit on the swing or go down the slide, and the children’s experiences did not describe a unique meaning or purpose. The only time they described their play activities more like an occupation was when they played on equipment with a recognizable design. Their descriptions did not, for the most part, reflect the complexity that is play, the imaginary world that children create while interacting with their peers. Therefore, instead of concentrating only on playground equipment, measurements and meeting accessibility standards, it is important to focus on designing opportunities for interaction. In the concept of universal design the value of standards and rules is recognized; however, compliance to these alone does not guarantee accessibility for all. Instead, universal design focuses on the inter-relationship between the physical environment and the user, with emphasis on social inclusion (Ostroff, 2001). Examples of universally designed objects, pedestrian crossings and residential environments, have proved to be useful for everybody not just for people with disabilities. Playgrounds should incorporate universal design principles so that children with different abilities can fully enjoy and participate in outdoor play activities.

In the past, within occupational therapy, play has been used mainly as a tool to reach therapeutic goals. However, in recent years, play has started to be seen as a need-fulfilling and appropriate occupation in the life of all children, and occupational therapists are starting to promote play as an occupation in itself (CAOT, 1996). Focusing on usability in playgrounds will attract attention to a problem at a societal level; doing this demands knowledge about the
functional limitations of the target group, about accessibility of the environment, but, perhaps most of all, the subjective evaluation of the target group of the activities that are to be performed in the specific environment. When the focus is on a societal level the concept of universal design should also be addressed. Having knowledge about how to integrate the needs and abilities of all children, together with occupational therapists’ knowledge about play as an activity and the of concept universal design, we should be able to provide support when creating universally designed playgrounds, an environment which supports a range of mental and physical challenges, promoting interaction and communication, and giving children a choice of challenges (Goltsman, 2001; Ringaert, 2002).

Methodological consideration

The strength of the present study lies in the insider perspective of children’s experience of playgrounds. Strategies used to enhance the credibility of the study were used in the interview process to reframe and repeat questions asked during the interview and the interviewer having had experience in interviewing children. The use of citations from the interview text was also a strategy to enhance credibility. To enhance dependability and confirmability, the methods of data collection and analysis were described in detail and the analysis was done separately by the two authors. One limitation might be that the interviewer only met the children once, and thus could not detect any possible misinformation in the children’s answers (Lincoln and Guba, 1985).

Conclusion

The results from the present study indicate that playgrounds are important environments for all children, regardless of their abilities, but they are not accessible and usable for all. The results also indicate that playgrounds do not fully support play activities for children with disabilities. This, in turn, might affect their opportunities to play and interact with their peers. However, a new approach to designing playgrounds is to consider the activities that children undertake on playgrounds. The playground should not only be a place for physical play activities, but should be a meeting place where play and social interactions take place. Playgrounds are a public environment according to Swedish law and they should therefore be universally designed. Occupational therapists, with their knowledge of environmental barriers, understanding of disability and specific knowledge of activities, are in an ideal position to develop and maximize play activities on playgrounds to increase their accessibility and usability. They are also in a position to educate and advocate for universal design to decision-makers. The focus of the occupational therapists’ support should therefore be on both individual and societal levels.
Acknowledgement

The authors would like to thank the children who participated in the study and the occupational therapists who helped to select the participants. The study was supported financially by a grant from Norrbacka – Eugeniastiftelsen and Luleå University of Technology.

References


Address correspondence to: Maria Prellwitz, Department of Health Sciences, Luleå University of Technology, SE-971 87 Luleå, Sweden (E-mail: maria.prellwitz@ltu.se).

Copyright © 2007 John Wiley & Sons, Ltd


DOI: 10.1002oti
STUDY IV
Objectives of study: The aim was to gain increased understanding of how playground designs can influence a child with disabilities.

Methods: Eighteen parents of children with disabilities participated in the interviews.

Results: The findings showed that parents perceived that playground designs influenced their children in different negative ways, by hindering play activities and interaction with peers. The parents also perceived that playgrounds caused the children to feel different from their peers and that the children thereby avoided being in playgrounds.

Limitations and recommendations for further research: A methodological consideration was the lack of variations between the parents’ perceptions, which is a central issue in phenomenographic studies, perhaps because all the parents had similar negative experience of this environment. Further research should investigate the role of occupational therapists working on environmental changes on a societal level.

Key words: pediatric occupational therapy, parents, playgrounds, phenomenography
Playgrounds are a common place that can be found in most cities, towns, neighborhoods, and schoolyards in the western world (Thompson, Hudson, and Bower, 2002). Playgrounds as an environment that enables or hinders play activities for children with disabilities has received little attention in occupational therapy research (Rigby and Letts, 2003). A few studies have addressed the issue regarding the number of playgrounds that are accessible for children with disabilities, and concluded that it is uncommon to see playgrounds designed and built with this intention (Stout, 1988; Thompson, Hudson, and Bower, 2002). According to a Swedish report, only 1% of the countries' playgrounds are built with the intent of being accessible for all children (RBU, 2006). In a study (Prellwitz and Skär, 2007) regarding children’s experience of playgrounds, the results indicated that the playground design did not support play activities and participation with peers for children with disabilities, whereas children without disabilities described playgrounds as an important place to meet and play with friends. Therefore, it is important to study how lack of accessibility to playgrounds and participation in play activities can influence children with disabilities.

Participation in different play activities often takes place on playgrounds during school recess and after school and is important for children’s social life (Smyth and Anderson, 2000). In a longitudinal study (Blatchford, 1998) of British children, results showed that friendship develops during school recess in conjunction with play when children begin their first school year at around 7 years of age. According to this longitudinal study, play during school recess seems to peak when the children are 8–10 years of age and it is during this time groups come together and lasting friendships are formed. According to several studies, lack of friendship with peers and lack of opportunities to participate in play activities is a problem for children with disabilities (Brown and Gordon, 1987; Bedell, Haley, Coster and Smith, 2002). For parents of children with disabilities, this is also one of their concerns; that is, how to promote forming friendship and participation in play (Bedell, Cohn, and Dumas, 2005). According to a recent research on occupational therapy (Law, Finkelman, Hurley, Rosenbaum, King, King, Hanna, 2004; Heah, Case, McGuire, Law, 2007), environmental factors have been found to have the biggest impact on participation in play activities for a child with disabilities, not the child’s diagnosis.

In playgrounds, at least in Sweden, environmental factors are a big reason why children with disabilities have problems participating in play activities. Decisions regarding the design and
building of playgrounds in the western world are on a societal level and there are several laws and conventions (Plan- och bygglagen, 1987; United Nations 1989; United Nations, 1993; ADA, 2000; Office of the Deputy Prime Minister, 2003; United Nations, 2006) that supports the view that playgrounds should be accessible and usable for people with disabilities.

According to the concept of universal design, it is possible to build playgrounds that integrate the needs and abilities of all children into the design. A universally designed playground does not need to be high-tech; it needs innovative thinking, problem solving attitude, and user-based data on occupational performance. By providing a diverse physical environment with different kinds of challenges and a social environment with gathering places that are accessible to all to promote social interaction, children with disabilities should have less problems participating in play activities in this environment (Goltsman, 2001). Occupational therapists should therefore work together with people with disabilities toward societal changes to enable occupational performance (Ringaert, 2002). The need to change the environment on societal level coincides with the social model of disability (Oliver, 1983). This model claims that problems for people with disabilities are consequences of disabling environments that contain barriers, thereby excluding people with disabilities from performing activities.

Occupational therapy can contribute to the process of creating a nondisabling environment by entering into a dialog with people with disabilities to discover effective ways of enabling occupational performance (Hunt, 1996).

The research review reveals that children with disabilities have limited opportunities to play on playgrounds, and this depends largely on the way playgrounds are designed today. After interviewing children with different abilities regarding their thoughts about playgrounds, it also seemed important to obtain the parents’ perception on this issue. Parents’ perception can add valuable knowledge into some of the environmental factors that exist on playgrounds for children with disabilities, and can explain how this in turn influences their children. This knowledge can be of importance when designing playgrounds for all children, and important for occupational therapy interventions. Therefore, the aim of this study was to gain increased understanding about parents’ perception of how playground designs influence their children with disabilities.
Method

Design

A descriptive and qualitative design using a phenomenographic approach was chosen to understand and describe the phenomenon “how children with disabilities are influenced by playgrounds design.” Phenomenography is an explorative way of doing research from empirical data to discover differentiated categories that give descriptions of the phenomena in the world as people see and describe them in various ways (Barnard, McCosker, and Gerber, 1999; Marton and Pong, 2005).

Participants

Eighteen parents of children with different disabilities aged between 7 and 12 years of age participated in the study. Six parents had a child with moderate developmental delay, six parents had a child with restricted mobility where the use of assistive device was necessary, and six parents had a child with severe visual impairment (Table 1).

Table 1 Demographic characteristic of the parents and children with disabilities

<table>
<thead>
<tr>
<th>Interview number</th>
<th>Gender and age of parent</th>
<th>Gender and age of child</th>
<th>Child’s diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male 39 yrs</td>
<td>Boy 7 yrs</td>
<td>Moderate developmental disabilities</td>
</tr>
<tr>
<td>2</td>
<td>Female 32 yrs</td>
<td>Boy 8 yrs</td>
<td>Moderate developmental disabilities</td>
</tr>
<tr>
<td>3</td>
<td>Female 53 yrs</td>
<td>Boy 12 yrs</td>
<td>Moderate developmental disabilities</td>
</tr>
<tr>
<td>4</td>
<td>Male 49 yrs</td>
<td>Boy 12 yrs</td>
<td>Moderate developmental disabilities</td>
</tr>
<tr>
<td>5</td>
<td>Female 37 yrs</td>
<td>Boy 11 yrs</td>
<td>Moderate developmental disabilities</td>
</tr>
<tr>
<td>6</td>
<td>Male 45 yrs</td>
<td>Girl 11 yrs</td>
<td>Moderate developmental disabilities</td>
</tr>
<tr>
<td>7</td>
<td>Female 35 yrs</td>
<td>Girl 12 yrs</td>
<td>Arthrogryposis</td>
</tr>
<tr>
<td>8</td>
<td>Female 42 yrs</td>
<td>Girl 9 yrs</td>
<td>Cerebral palsy (CP) GMFC III</td>
</tr>
<tr>
<td>9</td>
<td>Male 37 yrs</td>
<td>Boy 10 yrs</td>
<td>Cerebral palsy (CP) GMFC III</td>
</tr>
<tr>
<td>10</td>
<td>Female 43 yrs</td>
<td>Girl 9 yrs</td>
<td>Arthrogryposis</td>
</tr>
<tr>
<td>11</td>
<td>Female 32 yrs</td>
<td>Boy 7 yrs</td>
<td>Spinal Muscular Atrophy III (SMA).</td>
</tr>
<tr>
<td>12</td>
<td>Female 37 yrs</td>
<td>Girl 11 yrs</td>
<td>Cerebral palsy (CP) GMFC IV</td>
</tr>
<tr>
<td>13</td>
<td>Female 29 yrs</td>
<td>Boy 7 yrs</td>
<td>Severe visual impairment</td>
</tr>
<tr>
<td>14</td>
<td>Female 38 yrs</td>
<td>Boy 11 yrs</td>
<td>Severe visual impairment</td>
</tr>
<tr>
<td>15</td>
<td>Male 40 yrs</td>
<td>Boy 9 yrs</td>
<td>Severe visual impairment</td>
</tr>
<tr>
<td>16</td>
<td>Female 40 yrs</td>
<td>Girl 8 yrs</td>
<td>Severe visual impairment</td>
</tr>
<tr>
<td>17</td>
<td>Female 45 yrs</td>
<td>Girl 12 yrs</td>
<td>Severe visual impairment</td>
</tr>
<tr>
<td>18</td>
<td>Female 37 yrs</td>
<td>Boy 8 yrs</td>
<td>Severe visual impairment</td>
</tr>
</tbody>
</table>

GMFC= Gross Motor Function Classification
Procedure
The parents of children with restricted mobility and moderate developmental delays were selected with the assistance of two occupational therapists and psychologists from two children’s rehabilitation clinics in northern Sweden. The parents of children with visual impairment were selected with the assistance from the Swedish Association of Visually Impaired Youth. Letters were sent to the parents, asking them if they were willing to participate in the study. In the letter, the aim of the study was presented, and the fact that all data would be treated confidentially, and that they could terminate the participation was mentioned. A signed consent form was sent back to the first author, who then contacted the parent to give verbal information about the study, and to arrange a suitable time and place for the interviews. The ethics committee, Umeå University, Sweden, approved the study.

Data Collection
Data were collected by the first author through semi-structured interviews using an interview guide with an outline of topics to be covered (Kvale, 1996). The first question was a broad one asking the parents how they thought their child was influenced by the playground design. After that, the questions focused on topics such as: Does your child play on the school playground? Does your child play on the playground near your home? Depending on the answers, one follow-up question was: How do you perceive that playing on these playgrounds has affected your child? The focus of the question and the focus of this article are on the children. The interview was carried out as a dialog to grasp the aspects of the person’s awareness that changed from being unreflected to being reflected. The interviews were tape-recorded and took approximately 45 min to 1 h. After each interview, the first author transcribed the interviews verbatim.

Data analysis
Using a phenomenographic data analysis, the intention is to identify the meaning and content of perceptions, and to present them in descriptive categories that describe variations in the way people experience a phenomena (Marton and Booth, 1997; Barnard, McCosker and Gerber, 1999). The transcripts of the interviews were read through several times for overall comprehension. After this, the interviews were analyzed for the purpose of finding relevant statements that contained perceptions of how the parents thought their child was influenced by playground designs. The analysis focused on comparing the statements to find similarities and differences. Perceptions that described different aspects of the same issue were then grouped
together into patterns. These patterns emerged into four descriptive categories. In this study, the first author conducted the analysis, whereas the second author served as a peer reviewer by placing all the statements from the interviews to one of the eleven perceptions that the first author had found after analysis. In this step of the analysis both the first and second author had an 87% agreement. The next step of the analysis was for the second author to place the eleven perceptions to one of the four descriptive categories that the first author had formed; here, both the first and the second author had a 100% agreement.

Findings

Four descriptive categories comprising 11 perceptions were constructed according to the descriptions provided by parents of their perception on how their children are influenced by playground designs (Table 2).

Table 2. How playground designs influence children with disabilities based on the parents’ perspective.

<table>
<thead>
<tr>
<th>Descriptive categories</th>
<th>Perceptions</th>
<th>Number of statements n=327</th>
<th>Number of interviews n=18</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Playground design makes play activities and independence difficult.</strong></td>
<td>• A need for different things</td>
<td>28</td>
<td>1–4,6–8,11–15</td>
</tr>
<tr>
<td></td>
<td>• The environment rules</td>
<td>20</td>
<td>2–4,6–7,9–11,14,16,18</td>
</tr>
<tr>
<td><strong>The playground design hinders interaction with peers.</strong></td>
<td>• If more independent more friends</td>
<td>51</td>
<td>1–11,14,16–18</td>
</tr>
<tr>
<td></td>
<td>• Lack of participation in activities</td>
<td>28</td>
<td>1,5–11,14,17–18</td>
</tr>
<tr>
<td></td>
<td>• Would be happy just to be close by peers</td>
<td>9</td>
<td>3–7,11</td>
</tr>
<tr>
<td><strong>An environment that creates negative feelings.</strong></td>
<td>• Makes them feel different</td>
<td>65</td>
<td>1–4,6–11,12–16,18</td>
</tr>
<tr>
<td></td>
<td>• Avoids them</td>
<td>38</td>
<td>1–4,6–15,17–18</td>
</tr>
<tr>
<td></td>
<td>• Society should do something</td>
<td>31</td>
<td>2,5–14,16</td>
</tr>
<tr>
<td><strong>An environment circumvented.</strong></td>
<td>• Never considered playgrounds a place to go</td>
<td>22</td>
<td>1,3–5,7–9,12,14–18</td>
</tr>
<tr>
<td></td>
<td>• A problem never discussed</td>
<td>18</td>
<td>1,3–5,9,11–12</td>
</tr>
<tr>
<td></td>
<td>• That’s just the way it is</td>
<td>17</td>
<td>3–9,12–13</td>
</tr>
</tbody>
</table>
Playground design makes play activities and independence difficult

This descriptive category comprises the two perceptions: ‘a need for different things’ and ‘the environment rules.’ When reflecting over playground designs in relation to their children, most parents described that playgrounds were an environment filled with difficulties for their children to use in play activities. The first perception described that the parents reflected over solutions to make the playground more useable for their child. If the playground had contained simpler play equipment, movable toys or playhouses, their child could have used more things on the playground for play activities. If the ground cover and design of equipment had been different, their child could have also used more of the playground. “Make the playgrounds more colorful and things that are easier to use, it would not just benefit the children with visual impairment.” The second perception had to do with how the environment puts limits on the child’s whereabouts, and how it also made the presence of the parents a necessity when visiting playgrounds. “The opening in the fence (the entrance) is not big enough for her to enter by herself I have to help her, so I have to go with her every time.” “I have to send him to a different school than his friends in kindergarten because it is more accessible and the schoolyard too.” The parent’s perceptions in this category expressed that playground designs influenced their child’s ability to play there in a negative way. The playground design also required the presence of someone who could help, influencing their child by making them feel dependent on someone, if they wanted to play there.

Playground design hinders interaction with peers

This descriptive category comprises the three perceptions: ‘if more independent, more friends,’ ‘lack of participation in activities,’ and ‘would be happy just to be close to peers.’ In this category, the parents’ answers described that they perceived their child had missed opportunities to make friends at the playground. The first perception described that if the playground had been more accessible, the child could have been more independent and the parents would not have been an obstacle for their children’s interactions with peers. “I feel that I am with him too much, the other children ask me instead of talking to him it feels like I’m in the way.” The second perception refers to the parent’s statements that their children are mostly onlookers to other children’s play activities because of the playground design. “He does not want to be part of outdoor play activities any more; he feels that he just sits there.” It
also refers to the parents’ perceptions about how much more their child would have been able to participate in activities on the playground, if the environment had been more accessible. The third perception refers to parents describing that their child sometimes cannot even get close to the playground where the other children are. “I am convinced that she would be pleased if she could be where the others are. I am telling you to be an onlooker is okay for her but if there is something in the way she is no longer an onlooker, she is an outsider.” The parents’ perceptions in this category expressed that lack of accessibility influences their children by denying them opportunities to participate with other children in play activities.

An environment that creates negative feelings

This descriptive category describes three perceptions: ‘makes them feel different,’ ‘avoids them,’ and ‘society should do something.’ In this category, the parents described that playgrounds are an environment that influences their children by creating feelings of insecurity and embarrassment—an environment that clearly made their child feel different compared to their peers. The parents also described that being on the playground is embarrassing for their children when they are reminded that they cannot use the playground, or be there on the same terms as other children. “She is a child with a handicap and she comes crawling, the other children think that she is much younger than what she is, if she could make it to the swings like the rest of them she would not be so different.” Playground designs also influence the parents by creating negative feelings. The second perception describes how the parents perceived that the children found excuses for not going to the playground, and that the children simply stopped asking to go there. The parents also described that they avoided playgrounds as well: not only did they express different reasons for not going there, but also declared that they had not really been there and expressed guilt feelings about not being on playgrounds more often. “It might be up to us parents, we have not encouraged her to go there because it is just too darn much, too demanding and also it is a big sorrow to watch the other children play I feel really guilty at times that I have not meet her needs.” The third perception refers to the parents describing that a change in playgrounds was needed, and that it should be society, not them, that should be responsible to ensure that these changes take place. If playgrounds had been more accessible and had different equipment, more opportunities for their child to play and interact with peers would have been possible. “Society should be equal for everybody then everybody should have the right to play.” The parents’ perceptions in this category expressed that playgrounds caused their
children to have negative feelings, and that this in turn is a problem that society should do something about.

An environment circumvented

This descriptive category comprises the three perceptions: ‘never considered it a place to go,’ ‘a problem never discussed,’ and ‘that’s just the way it is.’ This category is about how parents perceived playgrounds, which in turn has influenced their children’s opportunities to visit playgrounds. The first perception described that the parents never had thought about playgrounds as a place to visit because of all the difficulties that was involved both for them and for their children. “There is no chance that he can play there in that case I have to be active the whole time, no it isn’t a place for fun for us.” Regarding the second perception, most parents had never heard their child mention playgrounds, which made them assume that their child did not want to talk about it. The subject was also avoided by the parents because it became too obvious that activities on the playground was something their child was missing out on. Playgrounds were a subject circumvented both in reality and as a subject for discussion by both the parents and children. “We never discuss it, and we never think to ask about it either, although we would be happy if the playground was accessible and so would he”. The third perception showed that the parents had resigned themselves from the situation, that is, given up. The fact that their child had a disability was, according to the parents, the reason that made it difficult or impossible for the child to use the playground. There was nothing to do about it and the parents never thought that this environment could become accessible for their child. “That’s the way it is going to be, you have to accept that she has difficulties with her motor control so I have to carry her, that’s reality.” The parent’s perceptions in this category expressed playgrounds as a place that both their children and themselves had a quiet agreement because inaccessibility in this environment for the most part was a hindrance in performing the activities that playgrounds are intended for. The category also expresses the fact that the parents perceive that the problem was because of the disability, and that it was not an environmental problem.

Discussion

The aim of this study was to describe parents’ perception of how playground designs influence their children with disabilities. The findings indicate that playgrounds influence children with disabilities in a number of different ways, all of them negative. According to the parents’ perception, the playground influenced their children by making them feel insecure,
embarrassed, and different from other children, and that their child therefore avoided being
there. Earlier researches (Nabors and Badawi, 1997; Pollock and Stewart, 1998; Skår and
Tamm, 2000) described how children with disabilities, with regard to play activities, often
feel alienated and different from peers. Feeling different and not being able to use
playgrounds the same way as other children can be stigmatizing. The consequences of
stigmatization can in turn result in exclusion from participation in play activities. To avoid
being stigmatized, children with disabilities can choose to develop a “stigma management
technique” (Segal, Mandich, Polatajko, Cook, 2002) which in this case would mean avoiding
playgrounds. This in turn can limit the social life of the children, as seen in the results of this
study.

Playgrounds were also a place avoided by the parents perhaps as a “stigma management
 technique.” However, after reflecting on playground designs, the parents felt anger toward
society, questioning as to why nothing was done about playground accessibility for children
with disabilities. Universal design could be a strategy to use when designing and building
playgrounds because the concept ‘universal design’ is mostly about changing attitudes
throughout society with an emphasis on democracy and equality to avoid stigmatization and
segregation (Iwarsson and Ståhl, 2003). In the concept, the focus is on making environments
accessible by accommodating not only the physical needs, but also the psychological and
behavioral needs where the needs of all user groups are considered (Ringaert, 2002). As
occupational therapists work to facilitate participation in life’s occupation to promote health
and well-being and have a great deal of knowledge regarding disability, environment, and
activity, they would be good consultants in supporting the universal design concept when
designing and building playgrounds.

Further, parents described that playgrounds influenced their children by hindering them from
performing play activities on the playground. This also influenced the children in a negative
way by making them feel different from other children. Children with disabilities are often
deprived of the opportunity to engage in play. As a result of this, children can experience
Ideas about how some changes in the design would make the playground more accessible to
perform play activities were described by the parents, although they had not asked or
demanded any changes. They even thought there has been a law in Sweden (Plan- och
bygglagen, 1987:10) for 20 years stating that playgrounds should be accessible for persons
with disabilities. Similar laws can be found in other countries. The authors’ interpretation of this is that the parents do not see playgrounds as something included in this law (Ibid.) regarding accessibility and that they therefore do not have the right to demand accessibility in this environment. Considering the low percentage of accessible playgrounds, one might assume that persons responsible for playgrounds have made the same assumption that this law does not apply to playgrounds. However, a new law (SOU, 2006:22) is being considered in Sweden that will make it an act of discrimination if built environment is not accessible, similar to the Americans with Disabilities Act (ADA, 2000) that prohibits discrimination on the basis of disability in facilities such as playgrounds. If this new law comes into effect, one can only hope that both parents and policy makers realize that playgrounds are included in the built environment. This could result in accessible playgrounds with possibilities to play, and thereby reduce the risk that children with disabilities are influenced in a negative way by playground designs.

The results indicate that playground designs influence children with disabilities by limiting participation with peers. According to the International Classification of Functioning, Disability and Health [ICF], participation is necessary for the well-being and health of children with disabilities (WHO, 2001) and is the primary goal of occupational therapy interventions for these children (Law et al., 2004). The parents perceived that lack of accessibility and therefore lack of possibilities of participation make their children more dependent on them, the parents. Limited participation in play activities for children with disabilities can, according to many researchers (Brown & Gordon, 1987; Mulderij, 1996; Nabors & Baldawi, 1997), lead to poor social skills, limited intrinsic motivation, decreased concentration, and more solitary play or play with adults. Therefore, the design of playgrounds should be more about participation, about being able to interact with peers in play activities (Goltsman, 2003). This could reduce the risk that children with disabilities feel different and are less influenced in a negative way by playground designs.

**Methodological considerations**

The trustworthiness in this study was built on the use of a co-assessor (Marton, 1981) with a high level of agreement when independently placing the statements into different conceptions and then into different descriptive categories. The agreement was within the range of what is recommended for phenomenographic studies (Uljens, 1989). In addition, the study’s
dependability was strengthened by showing how the analytical process was achieved (Holloway and Wheeler, 2002). As the aim of phenomenography is to qualitatively investigate the different ways in which people understand an aspect of the world around them (Marton and Pong, 2005), a methodological consideration was the lack of variations between the parents’ perceptions. However, according to Uljens (1989) there are only a limited number of different qualitative ways to perceive a phenomenon or situation.

**Conclusion**

The findings from this study show that playground designs influence children with disabilities in a negative way, according to their parents’ perception. Missed opportunities to participate in play activities and dependence on support from adults can result in fewer opportunities to social interaction with peers, which in turn might result in fewer opportunities to learn valuable social skills. Another negative influence that the parents reported was that playgrounds made their children feel different if they went to a playground or that they avoided participating in activities on playgrounds so that they would not feel different. The results of this study reveal that an environment that is created especially for children might, for children with disabilities, be an example of how an environment can cause limitations both in activities and participation, and can cause stigmatization and play deprivation.

**Acknowledgement**

We would like to thank all the parents that participated in the study. Further thanks are expressed to the occupational therapists and the regional coordinator for the Swedish Association of Visually Impaired Youth that helped selecting the participants. This study was financially supported by the Swedish National Association for Disabled Children and Adolescents (RBU) and Luleå University of Technology.
References


