5-2011

The Impact of Different Play Environments on the Social Interactions of Toddlers with Disabilities

Rebecca Buckley
Utah State University

THE IMPACT OF DIFFERENT PLAY ENVIRONMENTS ON THE SOCIAL INTERACTIONS OF TODDLERS WITH DISABILITIES

by

Rebecca Buckley

A thesis submitted in partial fulfillment
of requirements for the degree

of

MASTER OF LANDSCAPE ARCHITECTURE
(Plan A)

Approved:

_____	_____
Keith M Christensen, PhD Major Professor	Sean E. Michael, PhD Committee Member
_____	_____
Sue T. Olsen, MEd Committee Member	Mark R. McLellan, PhD Vice President for Research and Dean of the School of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah

2012

ABSTRACT

The Impact of Different Play Environments on the

Social Interactions of Toddlers with Disabilities

by

Rebecca Buckley, Master of Landscape Architecture

Utah State University, 2012

Major Professor: Dr. Keith M Christensen
Department: Landscape Architecture and Environmental Planning

Play is an important part of supporting social interactions with children, and these interactions are an imperative part of a child's social development. Social development is a significant challenge for children with disabilities, making play an important component in helping with their development. Different play environments may be better than others in terms of supporting social interactions. In order to determine what types of play environments were best at supporting social interaction, children between 33 and 36 months of age were observed in three different settings. Children that were part of the Lil' Aggies program—an early intervention program that helps children under the age of 3 with disabilities transition into community and district preschools—were observed on the playground, in the classroom, and in the gym. The social interactions in each of these environments were compared to see if one environment promoted more social interactions than another. A time-sampling procedure was used for the observations in each of the settings. Following the observations, the data were analyzed

using an independent sample *t*-test procedure. It was found that children are more likely to interact with peers on the playground, and more likely to interact with adults in the classroom. It was also found that interactions on the playground were more likely to be positive.

(69 pages)

PUBLIC ABSTRACT

The Impact of Different Play Environments on the Social Interactions of Children with Disabilities
By Rebecca Buckley

Play is a crucial part of any child's social behavior and development. It helps children develop self-determination, self-control, and identity. These skills are primarily learned through interactions with other children. Play is particularly imperative for children with disabilities approaching the age of three, an age that studies have shown to be pivotal for their social and emotional growth.

Children with disabilities often have difficulty with social interactions. Play serves as a platform for these interactions, and provides a way for children with disabilities to learn social standards and values. Children with disabilities who do not participate in play can suffer secondary impairments, such as depression, and decreased balance, strength and endurance.

Different play environments—such as a gym, a classroom, or a playground—can affect a child's play behavior and social development. Certain toys and play equipment can result in more independent and isolated play, whereas other play equipment may promote more social play. For example, slides, sandboxes, and large toys are designed for several children to use together.

This study had four principal objectives. First, to find which environments encouraged children with disabilities to have more social interactions. Second, to determine if one setting fostered more positive interactions than another. Third, to establish whether a child was more likely to interact with an adult than with a child in a given environment. Fourth, to see if children were more likely to approach someone to play in on setting than in another.

For this study, children in the Lil' Aggies Up To 3 program were observed from October 18 to November 5, 2010. Children in the program were between 33 and 36 months of age and had diagnosed disabilities such as autism, visual impairment, and Down syndrome. The children were observed on the playground, in the gym, and in their classroom during free-play.

This study had several significant findings:

- Children were more likely to interact with peers on the playground than in the other environments studied.
- Children were more likely to interact with adults in the classroom.
- Children were more likely to approach another child or adult to play on the playground or in the classroom than in the gym.
- Children were more likely to continue playing with someone in a gym than any other environment.

This is essential information to have when looking at the specific challenges a child may have. For example, if a child has difficulty interacting with other children, then a play area similar to a playground might help them develop social skills. These findings can assist caretakers of children with disabilities, and those that design the play areas, in creating better spaces specific to the needs of children with disabilities.

ACKNOWLEDGMENTS

I would like to thank the Rocky Mountain ADA Center for funding the research for the project. I would also like to thank the Center for Persons with Disabilities at Utah State University for allowing my research to be done at their facilities.

Lastly, I would like to thank my family, friends, and professors for their support and encouragement.

Rebecca Buckley

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INTRODUCTION

Play is an important aspect of supporting children's social interactions, which are central to their social development. Social development can be a particular challenge for children with disabilities, making play potentially even more important in helping with their social development. There are different types of learning environments, and some are better than others in terms of supporting social interactions. There is, however, not a significant amount of research exploring the effect of different types of play environments on the social interactions of toddler (1 to 3-year-old) age children with disabilities. Therefore, the purpose of this study is to determine if free-play on the playground, in the gym, or in classroom is better for supporting social interactions.

Social interactions involve at least two people (Grusec & Lytton, 1988) and can involve both verbal and nonverbal communication (Semrud-Clikeman, 2007). Age is a significant factor in terms of appropriate types of social interactions in which children are engaged. As children near the age of three, they are encountering an important period of their development both socially and emotionally. Much of this development is afforded through play, as children begin to develop a sense of self and identity (L'Abate, 2009). At the age of three, a typically developing child should initiate social behavior toward a peer, respond to peers' social behavior, play near one or two peers, observe peers, entertain self by playing with toys, initiate communication with peers, and respond to communication from a peer (Garner, 1998; L'Abate, 2009; Lidz, 2003).

Different types of play environments can affect a child's social behavior in different ways. Different play settings have different interactions of spaces, resources, values, and patterns of expected behavior and interactions (Mawson, 2010). Depending

on the developmental needs of children, different play environments can be used to meet those needs. The outdoor environment in particular is important for learning skills such as social competence, problem solving, and creative thinking. In the outdoor environment, children can also grow emotionally and academically because outdoor environments provide different opportunities for exploration and experimentation. An outdoor setting also allows children to enjoy sensory experiences with nature, and be more physically active. This physical activity not only enhances muscle growth, but also increases the development of fundamental nerve centers in the brain, allowing for clearer thought and an increased learning ability (Clements, 2004).

Children with developmental disabilities often have delayed development of both motor (Payne, 1988) and social skills (Guralnick, 1986). Therefore, social interactions are an important consideration when working with children with developmental disabilities (Pierce-Jordan & Lifter, 2005). While there have been many studies on the social interactions of children with disabilities (such as Barbour, 1999; Brodin, 2005; Carmichael, 1994; Hudson & Thompson, 2000; Johnson, 2009; Odom, McConnel, & Chandler, 1993; Pierce-Jordan & Lifter, 2005; Prellwitz & Skär, 2007; Prellwitz & Tamm, 1999; Roberts, Pratt, & Leach, 1991; Woolley, Armitage, Bishop, & Ginsborg, 2006), few have compared the interactions in the classroom versus playground environments. There have been even fewer studies that consider the interactions of children near preschool age, a critical age for social development, who are disabled. For example, Piece-Jordan and Lifter (2005) found a relationship between social interactions and play behaviors in children with and without pervasive developmental disorder. Brown and Bergen (2002) also did a study that considered the interactions of preschool-

age children with disabilities when they examined the types of play and interactions of preschoolers with disabilities.

In 2008, nationally there were approximately 188,000 2-3-year-olds receiving care through an early intervention program, and that number is just a fraction of the children that are actually eligible for such services (Cooper & Vick, 2009; Danaher, Goode, & Lazara, 2010). The findings of this study have significant bearing on the design of spaces for such programs and for these children. The findings are also important to those who design play areas for children with disabilities. Having knowledge of the impact of environments on the social interactions of children, and of the importance of interactions on children with disabilities should affect the design of the spaces. The importance of this knowledge merits the need for this research.

The principal objective of this study is to determine if there is an increased number of social interactions in children with disabilities on the playground as compared to the number of interactions in the classroom. It is hypothesized that there will be more social interactions with peers on the playground than in the classroom.

LITERATURE REVIEW

Importance of Play in the Social Development of Children

Play is freely and personally chosen, and it is motivated by the satisfaction of the activity rather than any needs or social demands. Play also actively holds the attention of a child (Spodek & Saracho, 1988; Woolley et al., 2006). During play, children can make their own decisions such as choosing what they want to play and how to play (Fine & Fine, 1988). Play begins as early as infancy (Spodek & Saracho, 1988). There are many different types of infant and toddler play, and these types are typically categorized as object, motor, symbolic/pretend, and social (Garner, 1998). While object play and motor play help with physical skill development, it is through participating in symbolic/pretend and social play that children develop necessary social, cognitive, and emotional skills (Garner, 1998; Mitchell, Cavanagh, & Eager, 2006).

Near the second year in a child's life, and during the beginning of that year, children mainly engage in exploratory and object play. Such play involves exploring the relationships between the function and classification of objects. As children move closer towards their third year, they move from exploratory play to symbolic/pretend play (Bergen, 1988). During the second year of a child's development, initiations of social interactions with peers and responses to peer interactions also increase steadily (Guralnick, 1986). There are also other developments that occur as children move towards the preschool years. They experiment with various forms of sensory and motor play such as playing with blocks, sand, and climbing equipment. These activities give them an opportunity to explore different textures, and, more importantly, it helps them

develop the capabilities of their own bodies and gain mastery of their world (Fenson, 1986). Children in their second year also learn skills such as sharing, turn-taking, imitating, and becoming integrated into more elaborate play activities with others. Children also interact more with peers at this age (Garner, 1998). As children move closer to their third birthday, they participate in more advanced forms of cooperative or coordinated interactions and these interactions become a more stable component of a child's social gamut (Guralnick, 1986). The foundations for these cognitive and social abilities are established in the first two to three years of life and these skills are found through exploratory activities, symbolic/pretend play, and social interactions (Fenson, 1986).

While engaging in symbolic/pretend play, children create objects and roles. Although they may use an object to represent something else, they are aware of the original identity of the object. For example, a child may pretend a block is an apple, but they are cognizant that it is actually a block. This is accomplished through symbolic play (Spodek & Saracho, 1988), and symbolic play is a category of play that is most closely linked to early cognitive development (Garner, 1998). Additional skills learned through cognitive play include language (both verbal and nonverbal), comprehension, imagination, and creativity (Brodin, 2005; Woolley et al., 2006).

During social play, children learn both verbal and nonverbal communication skills and these skills help children learn to get along and socialize with others. While engaging in social play, children learn skills such as becoming responsive to others' feelings and attitudes, learning to wait for their turn, and learning to be work with others (Spodek & Saracho, 1988). While playing, children also learn social skills such as

sharing, cooperating, and mutual goal seeking (Hudson & Thompson, 2000). Other skills such as negotiation, resolution of emotional crises, and management of conflicts are also learned during social play (Prellwitz & Skär, 2007). Additionally, during play a child's awareness of his or her environment is also developed, and during play children can learn social norms and values (Prellwitz & Skär, 2007).

Conversely, a lack of play results in effects of an opposite and typically negative nature. One such consequence is that a child's social and cognitive development has a greater potential of being hindered. Children deprived of play have a reduction in motor skills, lower levels of physical and social skills, and also a poorer ability to deal with emotional or stressful situations and events. A lack of play also results in a reduction in the ability to deal with social conflict and cultural differences (Woolley et al., 2006). Because play results in increased social interactions, a lack of play can lead to social handicaps, isolation, and an increased dependence on adults (Prellwitz & Tamm, 1999).

Importance of Play for Children with Disabilities

For most children without disabilities, a favorable and coherent pattern of social relationships with peers develops naturally. However, children with disabilities are at risk for having difficulties with establishing these peer relations. This is especially true of children with sensory or motor impairments, or a combination of these impairments. Children with such challenges have a smaller repertoire of peer-related social behaviors (Guralnick, 1986), but play can provide the necessary platform for children with disabilities to gain confidence and aptitude in interacting with others. Like children

without disabilities, play is also an important component in the learning and development of children with disabilities.

Often, children with disabilities have deficiencies in social and cognitive development (Brodin, 2005). The development of cognitive and social skills varies greatly between different children with different disabilities. One reason for this is because children with different disabilities play differently. For example, blind children typically participate in manipulative play (such using crayons or playing in a sand box) rather than gross-motor play. Another challenge in the social and cognitive development of children with disabilities is that the children are usually delayed in terms of interactive skills. Children with disabilities also typically do not initiate and/or maintain social interactions with their classmates (Pierce-Jordan & Lifter, 2005). Consequently, children with disabilities can have difficulty with social interactions and relationships (Odom et al., 1993; Pierce-Jordan & Lifter, 2005).

One of the reasons for such developmental delays and deficits is that children with disabilities have different challenges than children without disabilities (Wolery & Wilbers, 1994). For example, children with autism typically have difficulty with reciprocal social interactions and communications (Gillberg, 2007). Another example is that children with sensory disorders such as hearing or visual impairments and children with motor disorders such as spina bifida can have language and communication disorders (Gerenser & Forman, 2007). Children with intellectual disabilities often have difficulty with speech and language, and, consequently, social communication. This significantly hinders social interactions. Because of these challenges, promoting social interactions and effective communication is an essential part of the education and social

development of children with developmental disabilities. Through play, social impediments can become less of a challenge (Semrud-Clikeman, 2007) because play facilitates social interactions not only through speech, but also through the activities available. Many children with and even without disabilities do not interact frequently unless the provision of play is provided to encourage interactions (Wolery & Wilbers, 1994). Some of the developmental needs of children with disabilities can be met through play because social interactions are enabled through the platform of play, which is considered a natural environment for these interactions (Mitchell et al., 2006; Woolley et al., 2006).

Children with disabilities benefit from play particularly when it comes to social skills and social development. When a child has limited responsibilities and a lack of decision-making experiences, that child may come to believe he or she is not competent (Carmichael, 1994). Play provides a stage for these decision-making experiences to occur and these experiences help develop self-confidence. For children with disabilities, play also helps in developing self-determination, control and identity (Woolley et al., 2006). Learning social standards and values are also important skills in the development of children with disabilities and these skills are learned through peer play (Prellwitz & Skär, 2007).

One of the results of children with disabilities not having play is a risk of developing secondary impairments, such as depression, and decreased balance, strength and endurance (Guralnick, 1986; Johnson, 2009). Without play, children with disabilities also tend to spend much of their time in the company of adults rather than with other children (Woolley et al., 2006). However, when there is a platform for encouraging

social interactions, such as a playground or in-class free-play, children with disabilities tend to interact with other children more frequently (Wolery & Wilbers, 1994).

Types of Environments

A child's behaviors and social interactions are affected by environmental factors such as programmatic or environmental differences (Guralnick, 1986). The activities and sensory experiences encountered during play also differ between indoor and outdoor environments (Mawson, 2010). This is due in part to the type of play area and the corresponding toys and equipment found in that area. In studies comparing an environment containing gross-motor-type equipment such as slides and jungle gyms to a setting containing fine-motor-type equipment such as crayons and pencils, it was found that more social play occurred in the gross-motor area while there was more solitary and parallel play in the fine-motor setting (Guralnick, 1986; L'Abate, 2009). Another aspect of the environment that has been found to affect social interactions is the amount of physical space available to the children, or the spatial density (Driscoll & Carter, 2010; Guralnick, 1986). In a study by Driscoll and Carter (2010), it was found that children with language delays had more social interactions in a more spatially dense play area than in an area with less spatial density.

Outdoor environments are primarily considered as being valuable in the development of physical skills. According to Brodin (2005), and Johnson (2009), children with developmental disabilities can be more passive and sedentary, and tend to not engage in physical activity as much as their peers without disabilities. Even with

these characteristics, however, play and discovery can stimulate passive children and can encourage physical activity (Brodin, 2005).

Play in outdoor environments is not only imperative for the physical well-being, but also important for enhancing social interactions, as well as a child's cognitive, social, and emotional skills (Ihn, 2007). According to White and Stoecklin (1997), the outdoor environment is, in fact, essential to the emotional health of children. Childhood development can occur in indoor spaces, but an outdoor space enhances the ability of children to experiment with things such as independence and interaction. The unrestricted feeling of a playground environment invites children to experiment and test their independence and separation from adults. Children also test an adult's willingness to trust their abilities. Such tests include gradually experimenting with increasing the distance between them and their caretakers (White & Stoecklin, 1997).

Different environments, such as classrooms, playgrounds, and gyms, can also influence children's play behavior in different ways (Shim, Herwig, & Shelley, 2001). For example, a child's social and cognitive development is very dependent upon play activities, which depend, in part, on the environment (Hart & Sheenan, 1986). In particular, social interactions and peer relations are significantly influenced by the situation and the environment in which they occur (Barbour, 1999). For example, certain toys and play equipment can result in more independent and isolated play, whereas others can result in the likelihood of more social interactions with peers (Guralnick, 1986; Wolery & Wilbers, 1994).

The outdoor environment is an important extension of indoor classroom learning, and the outdoor environment provides different opportunities for interaction that are not

available indoors (Hart & Sheenan, 1986). A gym or indoor recreation center can provide opportunities for physical activity, but of all public spaces, playgrounds are among the places where children are the most physically active (Active Living Research, 2011). Children also typically have more freedom of movement in outdoor spaces, which allows for a variety of activities. Children can not only run around and shout, but they can also manipulate the environment (White & Stoecklin, 1997). A study involving second-grade children further suggested that outdoor play stimulates more social play than an indoor environment, and this social play supports a child's growth and development (Barbour, 1999). A possible reason for this is that play equipment such as slides, sandboxes, and large toys are designed for several children to use together. This facilitates social interactions with peers because it allows children to talk with and be in physical contact with one another (Shim et al., 2001).

Need for Study

It is known that play is important in a child's development, and that the type of environment can affect a child's social interactions. It is also clear that play is important for the cognitive and social development of children with disabilities. It is not, however, known how different play environments affect children with disabilities who are near preschool age. This study will ascertain if the type of play environment has an impact on the social interactions of children with disabilities, which will in turn impact children enrolled in an early intervention program.

Early intervention programs were created in 1986 when Congress established the Part C Program under the Individuals with Disabilities Education Act. This program is a

federal grant program that assists states in operating comprehensive statewide programs of early intervention that serve toddlers and infants with disabilities. In order for a state to participate in the program, the state must guarantee that early intervention programs will be available to every eligible child and his or her family (Part C of IDEA, 2011).

Such early intervention programs help to enhance the development of infants and toddlers with disabilities. Early intervention programs also augment the capacity of families to meet the needs of a child with disabilities. Part C early intervention programs also can reduce education costs as a result of minimizing the need for later special education and it also minimizes the likelihood of institutionalization (Part C of IDEA, 2011). Through the early childhood years, children with disabilities and their families undergo a variety of transitions between various agencies, settings, and programs (Müller, Whaley, & Rous, 2009). Early intervention programs help with these transitions and participation in such program can have substantial effects on a child's later success. Early intervention programs also help with the development of social competence, especially with peers, which is a concern with children that have disabilities (Odom et al., 1993).

METHODOLOGY

The purpose of the research is to determine what types of play environments best support social interactions for children with disabilities. The objectives of this research include ascertaining the following:

1. If the type of play environment influences the number of social interactions of children with disabilities.
2. If there are more peer interactions in one environment than in the other.
3. If those interactions are positive.
4. If the children initiate or receive those interactions.

To determine the objectives, children that are part of the Lil' Aggies classroom will be observed in different play environments: the classroom, the gym, and the playground. It is hypothesized that there will be more initiated, positive social interactions on the playground than in the gym or classroom, and that the majority of these interactions will be with a peer instead of an adult.

Setting

The Up To 3 program is an Individuals with Disabilities Education Act, Part C, early intervention program at Utah State University. The program provides services to families with infants or toddlers that have developmental delays, disabilities, or diagnosed conditions that have a high probability of resulting in developmental delays. One of the programs that is part of Up To 3 is the Lil' Aggies classroom. This program is used to prepare children who are near their third birthday for district preschool classrooms or community preschools.

In the Lil' Aggies program, the children learn how to separate from a caregiver and follow classroom directions and routines. Through the program, children also learn skills such as cleaning up, sitting at the table, and participating in group activities. One of the most important skills taught at Lil' Aggies is how to socialize with peers. Through this program, children learn how to play together, and they also learn new skills from watching other children that may be more verbally and physically active.

The typical daily routine at Lil' Aggies includes free-play, "circle time," music, art, gross motor activity, and a snack over the course of two hours. Free-play is done in the classroom, while gross motor activity is done in the gym or on the playground, depending on the weather.

The main classroom used by the Lil' Aggies program was designed for small group settings, a high adult-to-child ratio, and the ability to manipulate the environment. This room consisted of a variety of toys, such as cars, balls, and musical instruments. The room also had books, tables and chairs (see Figures 1 and 2). The playground was designed to meet the needs of the Up to 3 population. Sensory integration specialists and occupational therapists were consulted in designing the space and determining the play equipment. Equipment was created to be low and accessible for children under the age of three. The outdoor play environment consisted of two swings, a slide, ball slide, steps, ramps, sound instruments, rocks, plants, and sand (see Figure 3 and 4). In the event of cold or inclement weather, an indoor gym was used for play and observations. This gym had features similar to the playground: swings, slides, a ball pit, and ramps (see Figure 5 and 6).

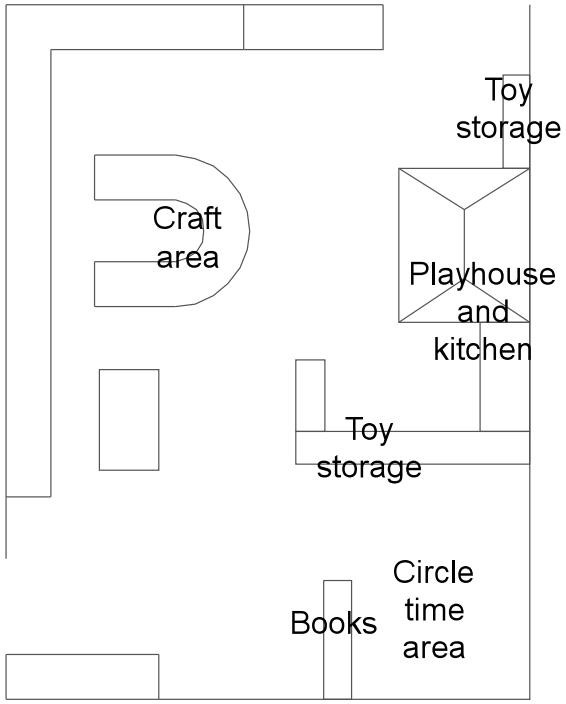

Figure 1. Plan view of classroom (Created by author).

Figure 2. Picture of classroom (Taken by author).

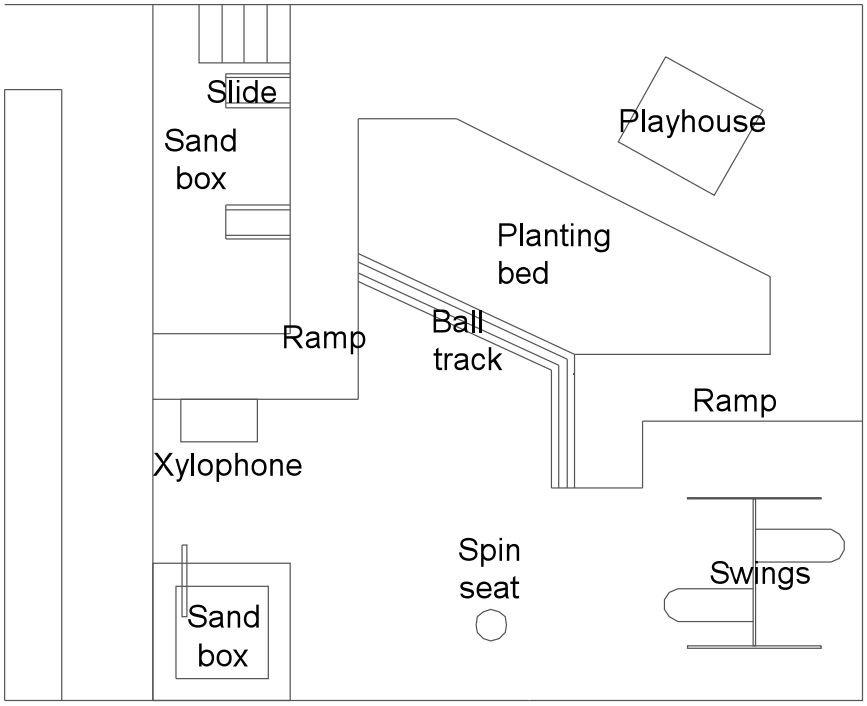

Figure 3. Plan view of playground (Created by author).

Figure 4. Picture of playground (Taken by author).

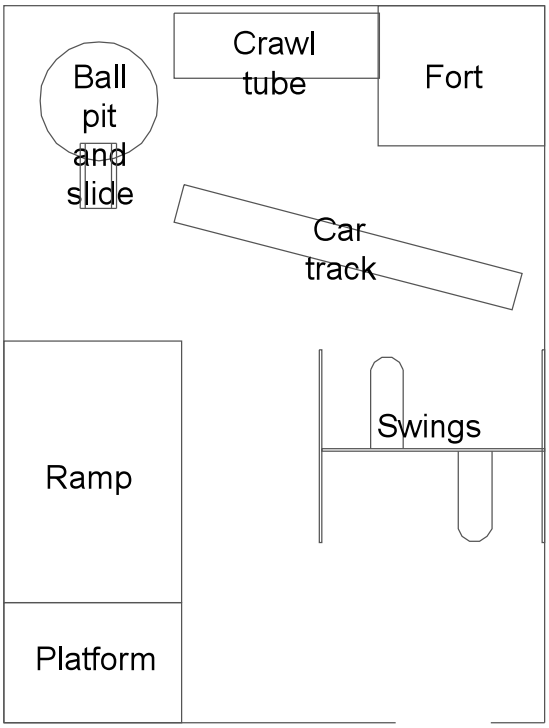

Figure 5. Plan view of gym (Created by author).

Figure 6. Picture of gym (Taken by author).

Participants

The subjects were eight children between 33 and 36 months of age, all of whom were part of the Lil' Aggies Transition Classroom. During this study there were two classes in the program. Each class typically had 5–8 children, with 8 being the maximum enrollment. Each class met for 2 hours, twice per week. There was one teacher and one to two aides in the room. The children in the program had diagnosed disabilities. Some of the disabilities of the children involved in this study included the following: Down syndrome, autism, visual impairment, and speech impairment. Only occasionally, typically developing children from the community join a class at Lil' Aggies and provide a model for the transitioning children to follow as they begin to learn new skills. During this study, there was one such model child from the community that participated in one of the classes.

Measures

For this study, the children's pattern of interaction and the type of activity engaged in were recorded during free-play in the classroom, gym, and playground environments. For the purpose of this study, free-play was defined as voluntary, creative, active and spontaneous activities where children play together (Rydenhad, 2003). Free-play is appropriate for this study because free-play is freely chosen and not dictated by the teacher (Johnson, Christie, & Yawkey, 1999). During the observations the following measures were recorded: the type of interaction, the person involved in the interaction, the quality of the interaction, and the type of activity employed in during the interaction. These measures were taken from a similar study that involved comparing the social

interactions of children with disabilities and children without disabilities in different environments (Roberts et al., 1991). It was found that the measures effectively demonstrated the effect of different environments on the social interactions of children.

Measure 1—Type of Interaction

This measure, type of interaction, concerns whether the child initiates the interaction or receives it.

An initiated type of interaction would be if the child being observed approaches another child or an adult to play. An interaction is counted as being initiated even if the child or adult being approached rejects the initiated interaction of the child being observed.

An example of receiving an interaction is when a child being observed is approached by another to play in the sandbox. If that child rejects the offer, it is still counted as being a received interaction. Another example of receiving the interaction would be if the child being observed has another person ask him or her a question.

The interaction is entered as ongoing if the interaction is already occurring when the observation session or observation interval begins. If the child being observed is doing the same activity (such as playing in the sand) for the entire observation session, the interaction is counted as ongoing for each of the observation intervals.

Measure 2—Person Involved

This measure records whether the person involved in the interaction is a peer or an adult. It was not distinguished if the peer interaction was with a typically developing peer model or another child with a disability. This measure was not counted unless it was

a social activity. The reason for this is that if the child being observed is engaged in solitary play, he or she is not interacting with a peer or an adult.

Measure 3—Quality of Interaction

This measure concerns whether the interaction is positive or negative. Social behaviors are positive when they include a greeting, talking, offers to play, requests, etc. Behaviors are negative when they involve aggression, hitting, kicking, threatening, grabbing another child's toy, or other antisocial tendencies. Crying is not considered a negative social behavior as it is considered to be an acceptable form of social communication for this age group (Carta, Greenwood, Walker, & Buzhardt, 2010). Like Measure 2, this measure was also not counted unless the child being observed was engaging in a social activity. The reason for this is that if the child being observed is engaged solitary play, for example, there is no interaction. Consequently, the activity cannot be considered a positive or negative interaction.

Measure 4—Type of Activity

This measure concerns the type of activity involved in the interactions. Activities and behaviors being observed include unoccupied behavior, solitary play, onlooker behavior, parallel play, social conservation, or cooperative play.

Unoccupied behavior is described as when a child is alone and unengaged. The child is not engaging in play activities, and is not paying attention to other children or his or her surroundings. Solitary play is when a child is alone and occupied with a non-disruptive task whether it is reading a book or playing in the sand.

Onlooking behavior is defined as a child watching others, but not interacting with them (Hart, DeWolf, & Burts, 1993). There is no interaction occurring.

Parallel play is classified as playing with toys or engaging in activities similar to those of other children nearby, within a 2-foot radius, but not with others (Johnson et al., 1999). An example of this would be if two children are both playing with cars near each other, but not interacting with one another.

Social conversation is face-to-face talk and can include crying, non-word (such as gestures and body cues), single word, or multiple word expressions (Carta et al., 2010).

Cooperative play is non-disruptive mutual activity with others (Hart et al., 1993).

Procedures

A time-sampling procedure was used to gather observational data. Time-sampling was chosen so that observations could be made systematically and relatively efficiently. A short observation period was used to allow enough time for the observer to determine what type of activity was occurring, but it was also brief enough so that it was unlikely that two different types of play would occur during one observation period (Johnson et al., 1999).

A randomly selected child was observed in 25-second intervals. With each interval, 15 seconds were used for observation and 10 seconds were used for recording. Each child was observed in five-minute blocks, resulting in twelve 25-second intervals. Selection was randomized by drawing a name out of a bag at the beginning of each 5-minute block. Once a name was drawn, it was not returned to the bag until all the children were observed, or until the end of an observation session (i.e., after the

classroom session was completed, the names were returned to the bag before the session in the playground or gym began). When all of the children were in attendance during an observation session, the set length of the free-play time did not allow for all of the children to be observed. Conversely, when there were fewer children in attendance, some children were observed twice. The total observation session in each environment lasted 20–30 minutes, or up to six 5-minute blocks. The same procedures were used in each of the settings.

Class sessions lasted two hours with free-play in the classroom occurring at the beginning, and playground or gym play occurring towards the end. The primary investigator served as observer and arrived at the classroom before the children, and stayed throughout the 2 hours. During the observations, parameters were not placed on the activities of the teacher and aides. The adults would typically engage the children in interaction only if prompted by a child, or if they felt it was necessary.

The observation sessions took place between October 18 and November 5, 2010. There were twenty total observation sessions during this project. Because of the fall and winter weather, the children were not always able to play on the playground. As a result, 4 of the observations were done in the gym, 6 on the playground, and 10 in the classroom.

To ensure inter-observer reliability, a second observer was used to confirm observations. The second observer was a graduate student in the Department of Landscape Architecture and Environmental Planning at Utah State University. Training involved two meetings to discuss definitions and procedures. For the observations, the second observer was given a sheet with the definitions of each of the measures, and the

components of those measures. Two preliminary observations were also done with the second observer in order for the observer to gain familiarity with the procedures. Following the preliminary observations, another meeting was held to clarify questions regarding the measures and procedures. The second observer collected data during 35% of the sessions. The threshold for agreement was 80%. This percentage of agreement indicates the observations were reliable and valid.

A week before the recorded observations, a pilot study was conducted by the primary investigator to test the procedures and also to allow the children to gain some familiarity with the observer. Four preliminary observations were completed, and following them, the table used for observations was adjusted to improve readability and functionality (e.g., a section for notes was added and different shades were used on the rows for better readability).

RESULTS

The first stage of analysis involved eliminating and collapsing categories that showed very low rates of occurrence. The category of unoccupied behavior was eliminated because reliability was less than 80%. The categories of social conversation and cooperative play were collapsed into one category in order to achieve the 80% reliability. The categories could be combined because observers found that social conversation consistently coincided with cooperative play. The study also defined cooperative play as non-disruptive mutual activity with others (Hart et al., 1993), and social conversation could be considered a mutual activity. Frequency scores were calculated for the data characterizing the type of activity and the categories of behavior (see Table 1). The data for free-play in the classroom and on the playground were then compared to see if there were differences in the proportion of social interactions occurring in each setting. Independent sample *t* tests were used to compare the relationship of types of environments to the types of interactions, the person involved in the interactions, the quality of the interactions, and the type of activity (see Table 2).

Measure 1—Type of Interaction

When comparing the playground to the classroom, there was no significant difference ($p = .842$) between the interactions in the different environments (Classroom $M = 2.56$, $SD = .665$, Playground $M = 2.52$, $SD = .652$).

When comparing the differences in the type of interactions in the classroom and the gym, the test was significant, $t(357.9) = -1.281$, $p = .008$. The predominant type of interaction with the children in the classroom was ongoing ($M = 2.56$, $SD = .665$). When

Table 1

Measure Count by Environment

	Indoor	Outdoor	Gym
Measure 1			
Recipient	23	19	3
Initiation	58	82	36
Ongoing	125	106	78
Measure 2			
Peer	100	115	65
Adult	151	92	74
Measure 3			
Positive	198	172	120
Negative	0	1	0
Measure 4			
Unoccupied	0	0	0
Solitary play	91	92	24
Onlooker	28	19	23
Parallel play	60	68	34
Social conversation	60	49	52
Cooperative play	114	88	59

children were in the gym, there was a greater average of an ongoing type of interaction than was found in the classroom ($M = 2.64$, $SD = .569$). The 95% confidence indicated that -.3% of the variance of the type of interaction variable was accounted for by whether a child was on the playground or in the classroom.

The test was also significant when evaluating the differences in type of interactions on the playground compared to the gym, $t(358) = -1.875$, $p = .003$. Children on the playground on average had an ongoing interaction ($M = 2.52$, $SD = .652$). Children in the gym showed a greater average of an ongoing type of interaction than was found on the playground ($M = 2.64$, $SD = .569$). The 95% confidence interval for the difference in means was narrow, ranging from -.253 to .006. The eta square index indicated that .9% of the variance of the type of interaction variable was accounted for by whether a child was on the playground or in the classroom.

Table 2

Results of Independent Sample t-*tests*

Measure 1	Significant	Classroom	Playground	Gym
Playground to Classroom	No, $p = .842$	2.52	2.56	
Classroom to Gym	Yes, $p = .008$	2.56		2.64
Playground to Gym	Yes, $p = .003$		2.52	2.64

Measure 2	Significant	Classroom	Playground	Gym
Playground to Classroom	Yes, $p = .00$	1.63	1.5	
Classroom to Gym	No, $p = .076$	1.63		1.58
Playground to Gym	Yes, $p = .024$		1.5	1.58

Measure 3	Significant	Classroom	Playground	Gym
Playground to Classroom	Yes, $p = .027$		0	0.056
Classroom to Gym	No			
Playground to Gym	No, $p = .117$		1	1

Measure 4	Significant	Classroom	Playground	Gym
Playground to Classroom	No, $p = .605$	3.12	2.93	
Classroom to Gym	No, $p = 1.83$	3.12		3.52
Playground to Gym	No, $p = .089$		2.93	3.52

Measure 2—Person Involved

Independent-sample *t* tests were conducted to evaluate the relationship between the persons involved in the interaction and the environment the interaction took place in. The test was significant when the playground was compared to the classroom, $t(435.752) = 2.794$, $p = .00$. Children in the classroom ($M = 1.63$, $SD = .485$) on average are more likely to interact with adults. Children on the playground on average are less likely to interact with adults ($M = 1.50$, $SD = .501$). The 95% confidence interval for the difference in means was narrow, ranging from .038 to .218. The eta square index indicated that 1.5% of the variance of the variable of the person involved was accounted for by whether a child was on the playground or in the classroom, which represented a small effect.

When comparing the classroom to the gym, there was no significant difference ($p = .076$) between the persons involved in the interaction and the different environments (Classroom $M = 1.63$, $SD = .485$, Gym $M = 1.58$, $SD = .496$).

The test was significant when evaluating the differences in the person involved in the interaction and comparing the playground to the gym, $t(359) = -1.514$, $p = .024$. Children on the playground on average chose to interact with an adult ($M = 1.50$, $SD = .501$). Children in the gym on average were more likely to choose to interact with an adult ($M = 1.58$, $SD = .496$). The 95% confidence interval for the difference in means was narrow, ranging from -.185 to .024. The eta square index indicated that .6% of the variance of the person involved variable was accounted for by whether a child was on the playground or in the classroom.

Measure 3—Quality of Interaction

When comparing the quality of interactions in the different environments, the test was significant when the playground was compared to the classroom, $t(316) = -1.0$, $p = .027$. Children in the classroom on average had positive interactions ($M = .00$, $SD = .00$). Children on the playground on average had a greater number of positive interactions ($M = .056$ $SD = .003$). The 95% confidence interval for the difference in means was narrow, ranging from -.009 to .002. The eta square index indicated that -.1% of the variance of the quality variable was accounted for by whether a child was on the playground or in the classroom.

When comparing the playground to the gym, there was no significant difference ($p = .112$) between the quality of the interactions and the different environments (Playground $M = 1.00$, $SD = .056$, Gym $M = 1.00$, $SD = .000$).

Measure 4—Type of Activity

Independent-sample *t* tests were conducted to evaluate the differences in the types of activity involved in the interaction, and the environment in which it took place. When comparing the playground to the classroom, there was no significant difference (p=.605) between the types of activities and the different environments (Classroom $M = 3.12$, $SD = 1.404$; Playground $M = 2.93$, $SD = 1.438$).

When comparing the classroom to the gym, the test showed that there was no significant difference (p=.183) between the types of activities chosen and the type of environment (Indoor $M = 3.12$, $SD = 1.404$; Gym $M = 3.52$, $SD = 1.318$).

Also, when comparing the playground to the gym, it was found that there was no significant difference (p=.089) between the types of activities engaged in, and the different environments (Playground $M = 2.93$, $SD = 1.438$, Gym $M = 3.52$, $SD = 1.318$).

DISCUSSION

In looking at the results of the study, conclusions can be made from the outcomes of the independent sample *t* tests for each of the measures. Because some results were found to be significant, interpretations can be made that can have an important impact on the creation and designing of spaces for children with different disabilities. The significant test results need to be approached with attention, however, because of the small effect size. With that in mind, it is important to note that in studies that involve behaviors and environments, the real effects are hard to determine, and even small effect sizes can be of worth (Cohen, 2001). The results also revealed some of the limitations of the study, as well as some unanswered questions that can be explored in future research.

Measures

Type of Interaction

Interactions are considered to be received, initiated, or ongoing. When comparing the type of interaction with the type of environments, it was found that there were no significant differences in the types of interactions when the playground was compared to the classroom. There was, however, a significant difference in the type of interaction engaged in when comparing the classroom to the gym, and the playground to the gym. Children were more likely to have ongoing interactions in the gym than in the classroom. Children were also more likely to have ongoing interactions in the gym when compared to the playground.

From these results, it can be generalized that the gym fosters more ongoing interactions than other environments. It can also be assumed that since there were fewer

ongoing interactions on the playground, children are more likely to initiate an interaction than have an ongoing interaction on the playground. This supports current research that indicates playgrounds help children that may be withdrawn become less inhibited in terms of interacting with others (Wolery & Wilbers, 1994). Because the gym is similar to the playground in that they both allow for exercising the gross motor skills of children (Active Living Research, 2011), it was unanticipated that the children were more likely to have an ongoing interaction in the gym than in the classroom or playground. This may be because gross motor activities do not necessarily equate initiated interactions, but the type of environment influences the type of interactions more. The gym in this study was also smaller than the playground. By having a more enclosed environment, and also having elements that require sharing and taking turns (such as slides), the children may be more likely to have ongoing interactions.

Ongoing interactions can be equated to sustained interactions. The results show that the gym is the best environment for sustaining interactions. This result is valuable because sustained interactions are another important part of a child's development. This result is also important because children with disabilities such as autism often have difficulty sustaining interactions (Gorn, 2005). This supports the findings of Driscoll and Carter (2010), and Guralnick (1986), who indicated that the more spatially dense an environment is, the more social interactions there will be.

Person Involved

It was hypothesized that there would be more peer interactions on the playground than in the other environments. The independent-sample *t* tests showed that this may be true. There was a significant difference when comparing whom the child interacted with

on the playground to the classroom. Children are more likely to interact with an adult in the classroom or gym than on the playground.

There are a few possible explanations for the results. In an indoor space, whether it is a classroom or a gym, children typically do not have as much freedom of movement. Classrooms also typically have more structured rules, and, consequently, children may feel more at ease and independent on the playground than in the classroom or gym. The gym has similar features to the playground, but it was still found that children were less likely to interact with an adult on the playground than in the gym. A possible reason for this is that children are more physically active on the playground than in a gym (Applied Living Research, 2011), and the playground is also a larger space than the gym. Having an open playground environment allows children to test their independence and separation from caretakers, which leads to more interactions with peers (White & Stoecklin, 1997). The playground has slides, sandboxes, and large toys that are designed for several children to use together. This setting allows for more peer interactions and the results of the *t* test supports the indications of other studies (Shim et al., 2001). It is a possibility that adults may be less likely to initiate interactions on the playground than in the other play environments.

Quality of Interaction

There was no significant difference when comparing the quality of interactions on the playground to the gym or the classroom to the gym. There was, however, a significant difference when comparing the quality of the interactions between the playground and the classroom. Children were more likely to have positive interactions on the playground than in the classroom.

While types of interactions have been studied in previous research, the quality of interactions is a component of social interactions that has not been studied. From these results, it can be generalized that the playground is better than the classroom for fostering positive interactions. This supports indications made by Barbour (1999) who suggested the environment influences social interactions and peer relations. Because learning social norms and values is an important part of a child's social development, positive interactions indicate a child is progressing in this area.

Type of Activity

As discussed in the literature review, outdoor play enhances social interactions as well as children's social skills. Different play environments also influence a child's play behavior. Children's play in indoor and outdoor environments is different in terms of sensory experiences and activities engaged. In fact, Barbour (1999) found that social interactions are significantly influenced by the environment. Studies also found that more social play occurred gross-motor play while there was more solitary and parallel play during fine-motor play (Guralnick, 1986; L'Abate, 2009). Because of the findings in the current literature, it was hypothesized that there would be more social interactions on the playground because of the different opportunities for interaction the outdoor environment provides. The result of the analysis, however, did not support the indications of previous research. Children did have social interactions in each of the environments, but there were no significant differences between the type of activities engaged in and the environments.

This may be because while play does result in social interactions, and different environments may influence play experiences, the environment doesn't necessarily

influence the amount of social interactions. This result may also have been because of some of the limitations of the study. Because of the weather, there were not as many playground observations as classroom interactions. This small sample size may have impacted the results.

Limitations of Study

While there were *t* tests that proved to be significant, it is important to note that the effect size is small. There were also tests that were hypothesized to be significant, but were not. This may have been because of some of the limitations that were encountered during this study.

One of the limitations was the adult-to-child ratio, and the inconsistency of this ratio. For example, during one observation there were three adults and only one child in attendance for the first 15 minutes. During some of the observations there were two adults and only two children in attendance due to absences. It can be reasonably assumed that when you have a 1:1 ratio of a child to an adult, or a ratio of more adults than children, there are not going to be as many interactions with peers. This is supported by Guralnick (1986) who found that higher teacher-child ratios tended to inhibit child-child interactions. Notwithstanding the ratio, however, there were more peer interactions on the playground. During the study, the ratios did not vary significantly between the different environments. This indicates the ratio may not be as essential on the playground, or that there are other influences such as the play equipment and the size of the environment.

Another limiting factor was the small sample size. The largest sample size during an observation was five children, but most of the observations had fewer than five children. A larger sample size may have led to a larger effect size, and would have possibly led to a greater number of significant results. The small sample size could also have affected the types of interactions or the types of activities, because a child that was absent may have been more social. Through not having that social child there, the other children may not have interacted as often.

The final limiting factor was the weather. More observations would also have benefitted the study, but there were a limited number of observations because of winter weather. Due to the age and medical conditions of the children, they were unable to use the playground during cold or windy weather.

Implications for Future Research

The findings and limitations of this study indicate that there are opportunities and needs for future research. Future research in this area could involve a larger sample size and more observations. This would likely result in a larger effect size and may possibly result in more significant findings.

Because of the nature of the Lil' Aggies program, the adults occasionally had to initiate social interactions to teach the children social norms in order to help the children transition into public schools. Future research could be done where the adult intervention is more limited. This would remove the 'person involved' variable from the research and allow the focus to be on types of activities chosen.

The participants in the study mainly included undiagnosed children and children with autism. Further research should be done that focuses on groups of children with other disabilities such as hearing, visual and mobility impairments.

Implications for Practice

The main objective of this study was to determine if there were more social interactions on the playground than in the other play environments, and if more of those interactions occurred with a peer. While it was not found that there were more social interactions in one environment than in another, it was found that children were more likely to initiate interactions on the playground and that children are more likely to interact with a peer than with an adult when on the playground.

Without play, children with disabilities tend to spend much of their time with adults rather than children (Woolley et al., 2006). Social interaction with peers is a skill that children with disabilities sometimes struggle to acquire, and the results of this study imply that outdoor play environments help children with this challenge. Knowing that the playground fosters peer interactions has significant implications on designing spaces for programs that have the goal of children with disabilities having positive interactions with other children. Creating environments that have the elements of a playground—such as slides, swings, and open spaces—can facilitate positive interactions with peers.

This study also determined that children initiated more interactions in the outdoor and indoor environments than in the gym. If a program has children that struggle with initiating interactions, then designs for play environments should incorporate elements of the playground or classroom rather than the gym. The study also established that there

were more ongoing interactions in the gym than the other environments. Consequently, if a program has children that have difficulty sustaining interactions, then the elements of a gym—such as a more enclosed space—would be of benefit.

Evidence in other studies suggests that the quality of early childhood intervention programs, particularly during the transition from Part C early intervention to Part B preschool, has the potential to significantly influence a child's later success (Müller et al., 2009). A child's social and cognitive development is greatly influenced by play activities (Hart & Sheenan, 1986). Play is also important in the social development of children with disabilities. Because children with disabilities sometimes have trouble with social activities and initiating interactions, knowing what influences these aspects of play is important. Consequently, this makes the understanding of the relationship of play environments to the aspects of social interactions an important component in the social development of children with disabilities. Through having this knowledge, those that design the environments for children with disabilities are better equipped to meet the needs of those children.

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APPENDICES

APPENDIX A. IRB APPROVAL FORM

IRB APPROVAL FORM

Institutional Review Board
9530 Old Main Hill, Suite 214
Logan, UT 84322-9530
Telephone: (435) 797-1821
Fax: (435) 797-3769

USU Assurance: FWA#00003308
Protocol # 2776

11/5/2010

SPO #:
AES #: UTA00

MEMORANDUM

TO: Keith Christensen
Rebecca Buckley

FROM: Richard D. Gordin, Acting IRB Chair
True M. Fox, IRB Administrator

SUBJECT: Impact of Outdoor Play Environments on the Social Interactions of Children with Disabilities

Your proposal has been reviewed by the Institutional Review Board and is approved under expedite procedure #7

X There is no more than minimal risk to the subjects.
There is greater than minimal risk to the subjects.

This approval applies only to the proposal currently on file for the period of one year. If your study extends beyond this approval period, you must contact this office to request an annual review of this research. Any change affecting human subjects must be approved by the Board prior to implementation. Injuries or any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Institutional Review Board.

Prior to involving human subjects, properly executed informed consent must be obtained from each subject or from an authorized representative, and documentation of informed consent must be kept on file for at least three years after the project ends. Each subject must be furnished with a copy of the informed consent document for their personal records.

The research activities listed below are expedited from IRB review based on the Department of Health and Human Services (DHHS) regulations for the protection of human research subjects, 45 CFR Part 46, as amended to include provisions of the Federal Policy for the Protection of Human Subjects, November 9, 1998.

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

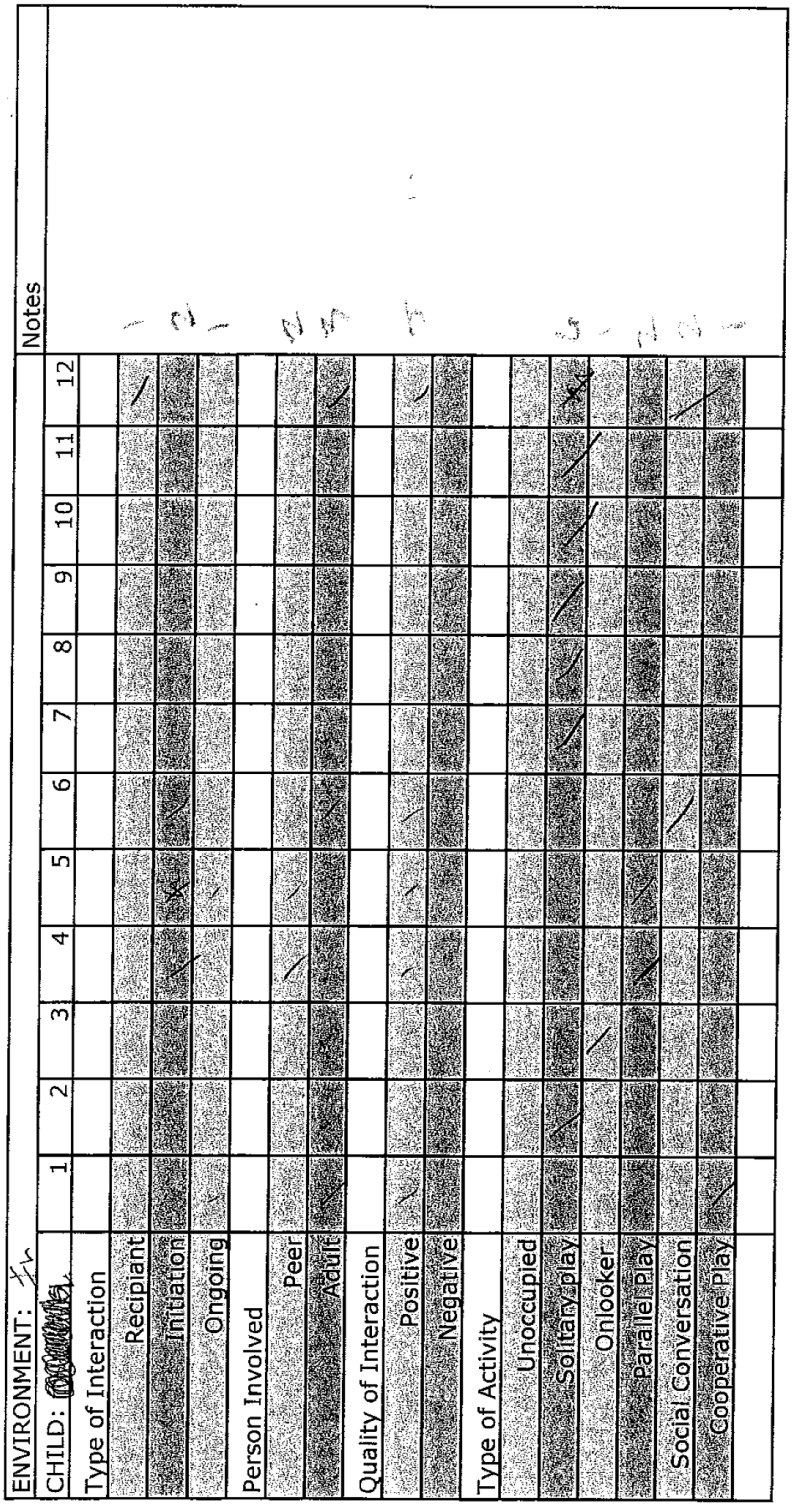
APPENDIX B. OBSERVATION TABLE

OBSERVATION TABLE

ENVIRONMENT:													Notes
CHILD:	1	2	3	4	5	6	7	8	9	10	11	12	
Type of Interaction													
Recipiant													
Initiation													
Ongoing													
Person Involved													
Peer													
Adult													
Quality of Interaction													
Positive													
Negative													
Type of Activity													
Unoccupied													
Solitary play													
Onlooker													
Parallel Play													
Social Conversation													
Cooperative Play													

APPENDIX C. EXAMPLES OF OBSERVATION TABLES

EXAMPLES OF OBSERVATION TABLES



10/26

ENVIRONMENT: In													Notes
CHILD: [redacted] IY	1	2	3	4	5	6	7	8	9	10	11	12	
Type of Interaction													
Recipiant					\				\				2
Initiation													
Ongoing						\	\			\			3
Person Involved													
Peer													
Adult					\	\	\		\	\			5
Quality of Interaction													
Positive	\				\	\	\		\	\			5
Negative													
Type of Activity													
Unoccupied													
Solitary play	\	\	\	\				\			\	\	7
Onlooker				\									
Parallel Play													
Social Conversation					\								1
Cooperative Play						\	\		\	\			4

10/26

ENVIRONMENT: In													Notes
CHILD: [redacted]	1	2	3	4	5	6	7	8	9	10	11	12	
Type of Interaction													
Recipiant											\		1
Initiation			\				\		\		\		3
Ongoing			\									\	2
Person Involved													
Peer		\					\				\	\	4
Adult			\						\		\		2
Quality of Interaction													
Positive			\				\		\		\	\	5
Negative													
Type of Activity													
Unoccupied													
Solitary play	\							\		\			
Onlooker		\		\	\	\							
Parallel Play		\		\			\				\	\	
Social Conversation													
Cooperative Play			\						\		X		

10/21

ENVIRONMENT: In													Notes
CHILD: [redacted] JN	1	2	3	4	5	6	7	8	9	10	11	12	
Type of Interaction													
Recipiant												\	
Initiation					\								
Ongoing													
Person Involved													
Peer												\	
Adult					\								
Quality of Interaction													
Positive					\							\	
Negative													
Type of Activity													
Unoccupied													
Solitary play			\					\	\	\	\		
Onlooker	\	\		\		\	\						
Parallel Play													
Social Conversation					\								
Cooperative Play												\	

07

10/24

ENVIRONMENT: In													Notes
CHILD: [redacted] CA	1	2	3	4	5	6	7	8	9	10	11	12	
Type of Interaction													
Recipiant													
Initiation													
Ongoing	\		\	\	\								
Person Involved													
Peer													
Adult	\	\	\	\	\								
Quality of Interaction			\										
Positive	\	\	\	\	\								
Negative													
Type of Activity													
Unoccupied													
Solitary play						\		\	\	\	\	\	
Onlooker							\						
Parallel Play													
Social Conversation		\	\										
Cooperative Play	\		\	\	\								

ENVIRONMENT: Out													Notes
CHILD: [redacted] TH	1	2	3	4	5	6	7	8	9	10	11	12	
Type of Interaction													
Recipiant									\				1
Initiation													
Ongoing	\	\	\	\	\	\	\	\	\	\			7
Person Involved													
Peer									\				2
Adult	\	\	\	\		\	\			\			8
Quality of Interaction													
Positive	\	\	\	\	\	\	\	\	\	\			9 10
Negative													
Type of Activity													
Unoccupied													
Solitary play													
Onlooker													
Parallel Play													
Social Conversation													
Cooperative Play	\	\	\	\	\	\	\	\	\	\			10

Chrissy

ENVIRONMENT: art													Notes
CHILD: [redacted] JN	1	2	3	4	5	6	7	8	9	10	11	12	
Type of Interaction													
Recipiant					\								1
Initiation							\				\		2
Ongoing	\	\											2
Person Involved													
Peer	\	\			\		\						4
Adult											\		1
Quality of Interaction													
Positive	\	\			\		\				\		5
Negative													
Type of Activity													
Unoccupied													
Solitary play			\	\		\			\	\			5
Onlooker								\				\	2
Parallel Play	\	\					\						3
Social Conversation											\		1
Cooperative Play					\								1

Swing

Push on car

11/2

	ENVIRONMENT:													Notes
	CHILD:	1	2	3	4	5	6	7	8	9	10	11	12	
	Type of Interaction													
6	Recipiant													
1	Initiation													
87	Ongoing													
	Person Involved													
8	Peer													
8	Adult													
	Quality of Interaction													
8	Positive													
0	Negative													
	Type of Activity													
0	Unoccupied													
1	Solitary play													
3	Onlooker													
0	Parallel Play													
1	Social Conversation													
T	Cooperative Play													

P. Klind

11/2

	ENVIRONMENT: Gym												Notes
	CHILD: [redacted] CY	1	2	3	4	5	6	7	8	9	10	11	12	
	Type of Interaction													
0	Recipiant													
2	Initiation													
10	Ongoing													
	Person Involved													
10	Peer													
9	Adult													
	Quality of Interaction													
12	Positive													
	Negative													
	Type of Activity													
0	Unoccupied													
0	Solitary play													
0	Onlooker													
7	Parallel Play													
12	Social Conversation													
2	Cooperative Play													

Conv w/ adult

Parallel w/ child

P 15h

11/2

	ENVIRONMENT: [illegible] Gym												Notes
	CHILD: [illegible]	1	2	3	4	5	6	7	8	9	10	11	12	
	Type of Interaction													
0	Recipiant													
3	Initiation	\		\	\									
9	Ongoing		\			\	\	\	\	\	\	\	\	
	Person Involved													
0	Peer													
12	Adult	\	\	\	\	\	\	\	\	\	\	\	\	
	Quality of Interaction													
12	Positive	\	\	\	\	\	\	\	\	\	\	\	\	
0	Negative					\								
	Type of Activity													
0	Unoccupied													
0	Solitary play													
0	Onlooker													
6	Paralle Play													
8	Social Conversation			\	\	\		\	\	\		\	\	
4	Cooperative Play	\	\	\	\	\	\	\	\	\	\	\	\	

Sam

11/12

ENVIRONMENT: Gym													Notes
CHILD: [redacted]	1	2	3	4	5	6	7	8	9	10	11	12	
Type of Interaction													
0 Recipiant													
0 Initiation													
34 Ongoing	\		\	\		87							
Person Involved													
0 Peer					0X	0X							
3 Adult	\		\	\									
Quality of Interaction													
3 Positive	\		\	\		87							
0 Negative													
Type of Activity													
0 Unoccupied													
0 Solitary play		87											
1 Onlooker		\			\	\	\						
0 Parallel Play													
2 Social Conversation	\		\	\									
3 Cooperative Play			\	\									
				\									

jiving

11/5

	ENVIRONMENT: Gym												Notes
	CHILD: [redacted] BV	1	2	3	4	5	6	7	8	9	10	11	12	
	Type of Interaction													
0	Recipiant													
1	Initiation				\									
7	Ongoing	\				\	\	\	\	\		\	\	
	Person Involved	\				\						\		
0	Peer													
9	Adult	\			\	\	\	\	\	\		\	\	
	Quality of Interaction	\												
8	Positive	\				\	\	\	\	\		\	\	
	Negative													
	Type of Activity													
0	Unoccupied													
3	Solitary play													
8	Onlooker	\	\	\	\		\		\		\		\	
0	Parallel Play													
9	Social Conversation	\			\	\	\	\	\	\	\	\	X	
0	Cooperative Play													

swim