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A comparison of the social interactions in children with developmental disabilities and their typically developing peers

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A Comparison of the Social Interactions in Children with Developmental Disabilities and their Typically Developing Peers

by

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An Abstract

of a thesis in partial fulfillment of the requirements for the degree of Master of Science in the School of Health Sciences and Human Performance at Ithaca College

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ABSTRACT

Children with disabilities are often placed in integrated classrooms to provide socialization with their peers. Past research has identified a disparity between the number of interactions that occur between children with disabilities and typically developing children. The purpose of this study was to observe the quality of the social interactions that take place between children with developmental disabilities and their typically developing peers, in order to determine whether socialization and play patterns differ between the two groups. The participants for the study were recruited from kindergarten and second grade classrooms in which children with developmental disabilities are integrated into the regular education classroom. Each participant was observed during free time at school for two fifteen-minute sessions through non-participant observation. For each thirty second interval sampled, the type of play behavior that was observed during the first two seconds was recorded for each participant. The recordings were placed into one of nine play behavior categories consisting of interactive and non-interactive play. The mean number of intervals observed in each play category were determined to compare areas of interactive and non-interactive play behaviors for the children with developmental disabilities and the typically developing children.

The results of this study indicate that children with developmental disabilities demonstrate more non-interactive play behaviors [t (4) = 3.44, $p < .05$], including more solitary play [t (4) = 3.22, $p < .05$] than their typically developing peers. The typically developing children were engaged in more interactive play [t (4) = -3.93, $p < .05$] than the children with disabilities. It may be that children with developmental disabilities are less interactive because of peer rejection or delayed social skills. There is a need to further

examine play behaviors of individual children to determine what causes children with disabilities to play alone more frequently. This research could also provide information on how to design and implement effective social intervention programs for children with disabilities to aid in the development of their interpersonal skills and ability to play with others.

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A Thesis Presented to the Faculty

of the School of Health Sciences and Human Performance

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In Partial fulfillment of the

Requirements for the Degree

Master of Science

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by

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CERTIFICATE OF APPROVAL

This is to certify that the Thesis of

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Submitted in partial fulfillment of the requirements for the degree of
Master of Science in the Department of Occupational Therapy, School of Health Sciences and Human Performance at Ithaca College has been approved.

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CHAPTER I: INTRODUCTION

Background

The relative benefits and limitations of the integration of children with disabilities into general education classrooms have been debated for many years. Children with special needs are often involved in regular education classrooms for socialization reasons. Many think it is essential for children with disabilities to interact with typical children, those who have met age-appropriate milestones of development, in order to enhance their social skills and not be isolated from their peers. Children with disabilities often are not at the same academic level as their classmates, but Buysse and Bailey (1993) argue that it is important that these children still interact with their typical peers to develop necessary social skills. Lamorey and Bricker (1993) state that structured inclusive classroom settings are created to provide children with disabilities the opportunity to engage in positive social interactions and social play with typically developing children. According to Kellegrew (1995) children with disabilities are more likely to follow appropriate behaviors and experience increased social interactions when they are integrated with typically developing children throughout the day.

On the other hand, some individuals may advocate for special education classrooms because they believe that children with disabilities may face rejection by typically developing peers in inclusive classrooms. Nabors (1996) found that preschool children with special needs had fewer interactions with their typical peers and engaged less frequently in cooperative play than typically developing children. She believed this may be the result of peer rejection due to physical and cognitive differences.

Children with developmental disabilities are integrated frequently into a regular education classroom for part of the school day. Moving from classroom to classroom may disrupt the formation of friendships and the choice of playmates during free time. Therefore, it is important to discover whether socialization of these children with typical peers is actually occurring and what the quality of those interactions are. Integration may provide many different opportunities that are valuable to these children, including social interaction, but very few current studies have addressed the quality of the social interactions in integrative school environments. Previous studies have frequently assessed the number of interactions that take place but do not qualify the types of interactions. According to Buysse and Bailey (1993) studies have concluded that integrated school environments have promoted social interactions between children with disabilities and typically developing children. The next step is to concentrate on the quality of those interactions in order to focus on how typical peers can impact the development of children with disabilities (Buysse and Bailey, 1993). It is essential to discover what types of interactions are occurring between children with disabilities and their typically developing peers. If the quality of the social interactions are not addressed then it is impossible to justify whether integration with typical children is benefiting the social needs of a child with disabilities. Finding what differences exist in the social interactions of children with disabilities compared to typical peers will help to demonstrate whether social intervention programs, such as social skill groups and peer networking, may be necessary to implement.

Purpose

The purpose of this study is to compare the quality of social interactions that take place during free time between children with developmental disabilities and their typically developing peers.

Significance

Peer relations are an integral part of child development. If integration alone does not provide adequate social engagement for children with disabilities, it may be necessary for occupational therapists to design programs to enhance the opportunities for social interaction with peers. Occupational therapists (OTs) focus on socialization and play as performance areas. According to Gelzheiser, McLane, Meyers, and Pruzek (1998), social interaction goals are commonly included in the Individualized Education Plan (IEP) of the child with a disability. It is important for OTs to provide the means to increase the quality of social interactions taking place between children with disabilities and their peers in order to address IEP goals and to improve play and socialization performance areas.

Basic Definitions of Terms

Interactions: children's verbal or nonverbal communication, or play with another person.

Socialization: according to AOTA uniform terminology, socialization consists of "accessing opportunities and interacting with other people in appropriate contextual and cultural ways to meet emotional and physical needs" (Watson & Llorens, 1997, p.404).

Social Play: a form of play involving interactions with other people.

Integration: the time that children with disabilities spend with typically developing children in school.

Developmental disabilities: prenatal, perinatal, or early childhood onset of a disorder causing the child developmental delay in reaching age-appropriate milestones (Gordon, Schanzenbacher, Case-Smith, & Carrasco, 1996).

Typically developing peers: children who are reaching age-appropriate milestones of development.

Typically developing children: interchangeable with typically developing peers.

Limitations

This study will be limited by a small convenience sample of three children with developmental disabilities and three typically developing children. In addition, it is possible that observations of the children by the researcher may interfere with the natural environment and with typical interactions that may occur between children.

Delimitations

The study will be delimited according to the following criteria: using children from kindergarten through second grade in inclusive classrooms, only observing in school districts in Malone and Vestal, New York, obtaining a brief social background on each child from the parents, assessing the quality of the play interactions and socialization with others according to nine different behavioral categories, and observing the children for two fifteen-minute sessions during free play time.

Assumptions

In this study it will be assumed that: a) the children with developmental disabilities are integrated into a regular education classroom for socialization reasons, b) the typically

developing children's social play interactions will represent age-appropriate social and play skills, c) the observations made will assess accurately the quality of the play interactions and socialization taking place, d) the children will be observed in their natural environment, e) observations by the researcher will not affect the children's interactive behavior, and f) when observed, the children will interact in the same manner as they would on any other day.

Question

This study will address the following research question: Is there a significant difference between socialization and play interaction behaviors in children with disabilities and children who are typically developing?

Summary

This study aims to discover whether a difference exists in the social interactions of children with developmental disabilities and those of typically developing children. In order to assess the quality of the social interactions, it will be important to observe these children during free play in their natural environment.

The following chapter will review the literature on the differences in social interactions of children with disabilities and typically developing children. It will also demonstrate that there is very little occupational therapy research on the quality of social interactions between children with disabilities and typical peers, and how social intervention programs may help to develop social interaction skills and decrease peer rejection for children with disabilities in integrated school environments.

CHAPTER II: LITERATURE REVIEW

Children with disabilities are often integrated into regular education classes to provide them with the opportunity to socialize with typically developing classmates to promote social skills and appropriate behaviors. Buysse and Bailey (1993) concluded in their analysis of twenty-two studies that children with disabilities in integrated classrooms demonstrated improvement in social and behavioral areas. Vaughn, Elbaum, and Shay Schumm (1996) found that children in inclusive classrooms appear to be equal to or better than children in segregated settings in areas of social development and interaction. These authors reported low levels of loneliness and an increase in reciprocal friendships throughout the school year for children with learning disabilities in inclusive classrooms (Vaughn et al.). Research compiled by Freeman and Alkin (2000) on thirty-six different studies has resulted in a variety of conclusions about the benefits of integration. Among these benefits was the finding that inclusion has allowed students with disabilities to exhibit higher levels of academic achievement and social competence, especially for younger children with disabilities.

However, children with disabilities also face numerous difficulties when trying to fit in and socialize with their peers. Although integration has been found to be beneficial in the areas of social skills and competence, children with disabilities may still experience social rejection by their nondisabled peers. Freeman and Alkin (2000) conclude that children with disabilities still struggle with being socially accepted by their peers due to apparent differences in physical and cognitive abilities. When children with disabilities are continuously pulled out of the classroom to receive special services, other students notice and perceive them as being different. Vaughn et al. (1996) discovered that there was little

peer acceptance for children with learning disabilities in a study of second, third, and fourth grade students in inclusive classrooms. However, social interactions still increased as typically developing peers became more familiar with the children with learning disabilities (1996). Full integration into the classroom appears to make social acceptance somewhat easier, and helps to reduce the stigma and rejection placed on children with disabilities (Freeman & Alkin).

It is essential to realize to what extent, if any, typical children's interactions differ from those of children with disabilities in order to discover if changes need to be made to promote socialization and play interactions between the two groups of children. A variety of studies will be discussed in the following literature review that examine how inclusion affects social competence and social interaction among children with disabilities. Many studies have focused on how these aspects of social interaction are impacted by the age of the child, the amount of integration, and the level of the disability. This chapter addresses studies dealing with social interactions between typical children and children with disabilities in inclusive settings, in an effort to determine how socialization patterns might differ between the two groups.

Social Interaction in Integrative School Environments

Social interaction with peers is a necessary component of a child's development. Integration into regular education classrooms promotes the development of interactions between children with disabilities and typically developing peers. Guralnick (2001) suggests that social competence is necessary for children with disabilities to become independent and accomplish interpersonal goals. In order for social integration to be

successful, children must interact with their peers in order to promote social development and social competence (2001). If peer interaction skills are not developed appropriately the result may be a poor quality of life (U.S. Department of Education, 1994). It is necessary for children with disabilities to interact with other children at a young age so that social skills are developed and interaction with others is learned. An early focus on the development of social skills in children with disabilities may allow them greater success in the future.

Children with disabilities are mandated by the Individuals with Disabilities Education Act (IDEA) to have Individualized Education Plans (IEPs) designed for each school year. IEPs identify skills with which a child has difficulty and specify goals aimed at advancing these skills. As stated by Gelzheiser, McLane, and Meyers (1998), IEPs often include goals that focus on developing social interaction skills. In a study of regular and special education programs for elementary, middle, and high school students with disabilities, Gelzheiser et al. found that children with disabilities did not demonstrate appropriate social skills, such as initiating and maintaining prolonged interactions with others. The authors agreed that social interaction goals were accurate and necessary to include in IEPs. The authors also commented that these needs were often not addressed in integrative classroom settings.

Children with disabilities demonstrate an array of social difficulties when integrated into a general education classroom. Reynolds and Holdgrafer (1998) verified that preschool children with moderate to severe developmental delays rarely responded appropriately to a teacher or peer. The average response rate for a child with developmental delays consisted of only responding to half of the initiations made by their

interactive partner (Reynolds & Holdgrafer). Altman and Kanagawa (1994) evaluated the types of social engagement of three children with severe developmental disabilities and reported similar findings. These children were observed in both integrated and segregated environments. Altman and Kanagawa concluded that the types of social interactions that occur may be quite dependent on a child's individual characteristics and level of adaptive skills, or the child's ability to adjust to social situations. A child would be more likely to interact successfully with others if these skills are apparent; however, adaptive skills may often not be sufficiently developed in children with disabilities.

A study by Nabors and Badawi (1997) determined through observations that children with special needs played alone or with their teacher more frequently than did their typical peers. The children with special needs also displayed less cooperative play and less involvement during playground activities than typical children (Nabors, 1996; Nabors & Badawi 1997). Bandyk and Diamond (1997) noted that children with disabilities displayed a decline in peer interaction with typically developing children and an increase in interactions with the teacher over the course of the school year.

It should not be assumed that children with disabilities in integrated settings will demonstrate appropriate social interactions and skill development as a result of integration alone (Altman & Kanagawa, 1994; Reynolds & Holdgrafer, 1998). Other measures may be necessary to allow these children to progress rather than simply placing them in an environment with typically developing children. Not only do children with disabilities lack age-appropriate social skills but other factors, specifically peer acceptance, also affect a child's social development and play with others in an integrated school environment.

Factors Affecting Social Interactions Among Children with Disabilities

The level of acceptance from peers contributes greatly to the degree of social interactions between children. Children desire acceptance from their peers and struggle to be as similar to their peers as possible. A study by Wolfberg et al. (1999) analyzed the peer culture in inclusive preschools. It was evident that the children with disabilities desired to fit in with their peers and there was some evidence of inclusion at the preschool, although the majority of the children with disabilities were faced with exclusion and little peer acceptance from typically developing children (Wolfberg et al.). Wolfberg et al. expressed the view that children tend to play with others who look like them and have similar interests. According to Nabors (1996), a low level of acceptance is demonstrated for children with disabilities, and is exemplified by low teacher and peer preference ratings, and little cooperative play. Observations indicated that children with special needs were less likely to be chosen as playmates, but a minority of typical children were still willing to play cooperatively with them (Nabors). Bandyk and Diamond's (1997) study on preschool age children demonstrated that the older typical children had more frequent social interactions amongst each other by the end of the school year but fewer involved children with disabilities. It was the younger typical children that played more often with children with disabilities. Bandyk and Diamond also concluded that typical children interact more with each other during free play than with children with disabilities. Okagaki, Diamond, Kontos, and Hestenes (1998) reported contradictory results. They found that typically developing children from two different inclusive preschool programs were equally willing to play with hypothetical children with disabilities and other typical

children. The fact that these measures used only hypothetical situations should be considered.

Nabors and Badawi (1997) found that late arrival to free play may contribute to less frequent involvement in play activities among children with disabilities. It can be much more difficult for the children to join in activities that are already in progress. The amount of time during the day that the child with disabilities is integrated into the regular education classroom may have a significant impact on the child's social development and acceptance by typically developing peers. Okagaki et al. (1998) identified that the number of interactions with children with disabilities may have been equivalent to those with typically developing children if the children with disabilities were present more often. As mentioned previously, Freeman and Alkin (2000) argue that full integration appears to help alleviate peer rejection and allows typically developing children to become more accepting of the differences apparent in children with disabilities. But many others justify that more is necessary for a child's successful integration into the regular education environment, specifically intervention programs for children with moderate to severe disabilities that address social skill deficits, self competence, and peer acceptance (Buysse & Bailey, 1993; Altman & Kanagawa, 1994; Reynolds & Holdgrafer, 1998; Wolfberg et al., 1999).

Intervention Programs to Promote Social Interaction

Intervention programs to improve social interaction between children with disabilities and typical peers have demonstrated contradictory results. Kamps et al. (1998) conducted a study that applied a social skills group and peer network activities over a five-

year period to promote peer interaction between typically developing children and children with autism. Interviews with typical peers indicated an increase in acceptance towards the children with autism. In addition, more frequent social interactions occurred throughout the five-year observation period (1998). The results from this study differ from a study by Antia and Kreimeyer (1996), where no improvements in peer interaction or acceptance between typically developing children and children with hearing impairments were achieved through the use of two different social interventions. The interventions only led to an increase in recognition of the children with hearing impairments. The lack of agreement in these studies may be due to the fact that each of the studies described utilized different interventions for different disability groups and may be attributed to the length of each study. The study by Kamps et al. was performed over a period of five years, recording interactions and individual development over a longer period of time than did the study by Antia and Kreimeyer, which only recorded observations for a six-month period. The Kamps et al. study may have benefited from the long-term implementation of these intervention programs and suggests the need to utilize these programs long enough for children to adapt and gain from them.

To improve the social interactions between children with disabilities and their typically developing peers, it is not only important to increase familiarity among the children through the use of intervention programs, but also to increase the self-competence of those with special needs. A study on Classwide Peer Tutoring (CWPT), an intervention program aimed at helping enhance academic competence and performance levels in students with mild disabilities, found that recipients of the intervention were more optimistic than nonrecipients about working with their fellow typically developing peers

(Sideridis et al., 1997). In addition, these authors reported an increase in the number of social interactions between the students with mild disabilities and their typical classmates throughout the time CWPT was being implemented. It appears that as self-competence and academic achievements increased among children with disabilities, more social interactions with typically developing peers took place. It should also be noted that children in this study only had mild disabilities, which may explain the progress seen in the results. Studies of children with more severe deficits may not demonstrate the same degree of improvement in self-competence and academic achievement.

As exhibited by the previous studies, intervention programs can help to promote the social development of children with disabilities who are integrated into regular education classrooms. Different interventions may be needed depending on the level of the child's disability and the uniqueness of the situation. Long-term implementation of intervention programs when children are young appears to be the most beneficial in providing children with disabilities the opportunity to develop social skills, competence, and friendships with others. In order to successfully develop intervention programs it is first necessary to discover differences in the quality of the social interactions that children with disabilities have in comparison with typically developing children. This knowledge may help guide successful intervention programs for children with disabilities.

The Need to Address the Quality of Social Interactions

Very few studies have focused on the quality of social interactions that occur among children with disabilities (Okagaki et al., 1998; Buysse & Bailey, 1993). Guralnick, Connor, Hammond, Gottman, and Kinnish (1995), identified the quality of interactions

between children with cognitive delays and their typically developing peers by determining whether the interactions were positive or negative. They concluded that children with developmental delays demonstrated a higher degree of social interaction in integrated settings versus placement in a segregated environment. Guralnick et al. (1995) concluded that even though acceptance and social inclusion were decreased for children with developmental delays, interactions with typically developing children took place approximately three quarters of the time observed. However, the findings also revealed that the children with developmental delays were often rejected and the interactions were more frequently considered to be negative. Guralnick et al. (1995) argued that poor social competence among the children with developmental delays may have triggered poor peer acceptance and high rates of negative interactions. It is necessary to examine the differences in the quality of social interactions in order to implement appropriate programs for children with disabilities.

Summary

A continuous theme being displayed throughout most of the research is that children with disabilities face lower levels of acceptance by playmates than their typical peers and demonstrate social skill deficits, resulting in fewer social interactions. It appears to be most beneficial to allow children the opportunity to relate to one another by utilizing integration for children with disabilities and incorporating different social interventions into the classroom for extended periods of time. Since social interaction goals are often a component of a child's IEP (Gelzheiser, McLane, & Meyers, 1998), occupational

therapists need to gain a better understanding of all the factors that contribute to a child's social development in inclusive settings.

In order for this increased understanding to take place, it is first necessary to further address the quality and extent of the social interactions occurring between children with disabilities and their typically developing peers. Analyzing the quality of social interactions in integrated settings will help to identify the types of interactions and relationships in which children who are typically developing and children with disabilities engage when they are integrated into a regular education classroom. This analysis will help determine whether children with disabilities are getting the opportunity to develop social competence and skills that are necessary to function in daily life. Currently there is little empirical research published in this area. Some research that has looked at this issue include studies by Nabors (1996) and Nabors and Badawi (1997) on the amount of cooperative play and involvement that children with disabilities have with other children during playground activities. However, it is necessary to further analyze how these play behaviors differ according to a range of play categories for children with different disabilities, and to continue to supplement this area of research. Altman and Kanagawa (1994) compared the types of social engagement children with disabilities were involved in while placed in both integrated and segregated settings. These authors compared the two different environments but did not observe the types of social engagement in typically developing children. Numerous studies have also reported on the number of interactions that occur between children with disabilities and typically developing children but have failed to investigate the parameters of those interactions. Several studies have addressed

the need to further develop this area of research (Okagaki et al., 1998; Buysse & Bailey, 1993).

Structured social interventions have been developed to intensify the positive social benefits of inclusion into general education classes, while making it easier for children with disabilities to interact with their typical peers. Through time, research has led to the development of interventions that help to promote social interaction among children with disabilities. Social intervention programs incorporating cooperative learning and peer networks have led to an increase in social and academic gains (Garrison Harrell, Doelling, & Sasso, 1997). According to Slavin (1995), collaborative groups also have the potential to provide a child with a disability the opportunity to develop greater peer acceptance. These intervention programs also take into account modifications that are necessary for students with disabilities to help decrease the number of deficit areas and increase the opportunity for inclusion into the school environment. Peer networks allow the child to gain support from their peers. Social interventions are beneficial to lead to a greater level of inclusion among children with disabilities within general education settings. These intervention programs need to be studied more thoroughly and implemented into more school settings in order to promote social interaction between children with disabilities and their typical peers. In order for appropriate social intervention programs to be developed it is first necessary to discover how and to what extent social interactions may differ between children with disabilities and their typically developing peers. This study is an attempt to clarify these issues while focusing on the quality and not just the number of interactions that occur.

The following chapter will discuss the methodology that was utilized to gather data on the quality of social interactions taking place between children with developmental disabilities and their typically developing peers.

CHAPTER III: METHODOLOGY

The research question addressed by this study was whether there was a significant difference between socialization and play interaction behaviors in children with disabilities and children who are typically developing. This chapter describes the research methods that were utilized in this study to compare the quality of social interactions of children with disabilities with their typically developing peers. Social interaction and the development of social skills are major components of play. In this study, children were observed in their natural environments to provide information on how they interact during free play time at school.

Participants

Participants in this study were three children diagnosed with a developmental disability and three typically developing peers matched for gender and age from the same inclusive classroom. Each child with a disability was integrated into a regular education kindergarten or second grade classroom for at least part of the school day.

Selection Method

After approval of the study by the All-College Review Board for Human Subjects Research (See Appendix A), school administrators in Ithaca, Malone, and Vestal, New York were contacted to verify that participants could be recruited from that particular school district (See Appendix B). Once the school administrator gave permission, the researcher verified if any children in kindergarten through second grade fit the inclusion criteria while following the guidelines provided by each school district. If a child with developmental disabilities was identified, a typically developing child of the same gender

was also selected from the classroom. A cover letter and informed consent was sent home to each child's parents (see Appendix C) and a checklist on the child's background was also distributed (see Appendix D). When the parents agreed to their child's participation in the study, times were set-up to observe each child during free play time at school.

Measures

Two different measures were used in this study, including a checklist and a play behavior scale developed by G. W. Ladd (1983).

Checklist

A checklist filled out by the parents provided background information on the child's social history, amount of integration in the regular education classroom, and any areas perceived as a concern (see Appendix D). The checklist contained yes/no questions and some open-ended questions. The checklist confirmed the child's age as well as medical and educational diagnosis if applicable.

Play Behavior Scale

Non-participant observations were used to assess the social play interactions of each child according to nine behavior categories (Ladd, 1983). Ladd's nine behavioral categories consist of interactive behaviors (including social conversation, cooperative play, arguing, and rough-and-tumble play), non-interactive behaviors (including unoccupied behavior, onlooking, solitary play, and parallel play). An additional category of "other" constituted extraneous behaviors that did not fit in any of the eight categories. See Table 1 for a complete description of each of the nine play behavior categories.

The principal investigator of the study served as the observer. Since the presence of the observer could have affected the external validity of the study, the participants were unaware of the researcher's intent to observe them. Interrater reliability was not established with the observations because only one observer recorded the children's behaviors. However, other studies by Ladd (1983) and Richardson (1996) both established interrater reliability with the use of this measure. Ladd had a reliability judge attend 25 % of the observations performed by the observer. The mean agreement between the observer and the judge was 86 %. Richardson utilized a similar method of reliability for the behavioral codes by having a reliability judge and the observer conduct practice observations until at least 80 % agreement was achieved. The reliability judge then attended 20 % of the observations and the interrater reliability achieved was 94 %. In this study intrarater reliability was developed by having the observer partake in three practice sessions prior to the start of the study. The observer practiced observing children during free play time for fifteen minutes apiece. This helped to determine if any difficulty was encountered while assigning a play behavior to each interval observed and to assess whether modifications needed to be made to Ladd's descriptions of play. The observer concluded that it was not necessary to change any of the descriptions of play behaviors after the practice sessions.

Procedures

The checklist was sent home to the parents through the school and was either returned to the school or mailed to the researcher. The checklist took approximately five minutes to fill out. Each participant was observed during free play time in his or her

natural environment for two fifteen-minute periods on different days or at different times throughout the day. A time series technique was utilized to record each child's play behaviors. A tape recorder timed to beep every thirty seconds was used to alert the researcher to record the child's play behavior. At each beep, the researcher observed the child for two seconds; after two seconds one of the nine play behavior categories (Ladd, 1983) was recorded with comments on the number of other children with whom the child interacted and on the type of activity in which the child was engaged. This was repeated thirty times for each child over the course of fifteen minutes. A second thirty-minute observation was performed according to the same procedures; however, time and environmental context varied and were impossible to control. See Appendix E for a copy of the data entry sheet.

Research Design and Data Analysis

The average number of times each of the nine play behaviors were recorded during two fifteen-minute observations was determined for children with developmental disabilities and for the typically developing children. In addition, total mean interactive play behaviors (including social conversation, cooperative play, arguing, and rough-and-tumble play) and total non-interactive play behaviors (including unoccupied behavior, onlooking, solitary play, and parallel play) were determined for each group of children (refer to Table 1 for a description of each play behavior). This allowed the researcher to compare the two groups and conclude if there was a difference between the socialization and play interactions of children with developmental disabilities and those of typically developing children.

After being entered, data were analyzed using SPSS-version 10 software. Preliminary analysis included computation of descriptive statistics (means and standard deviations) for each group of children. Data were then pooled for each participant if a dependent t-test revealed no significant difference between the two fifteen-minute observation sessions (refer to Table 2). Separate independent t-tests were used to evaluate differences between the children with disabilities and the typically developing children for the following variables (social conversation, cooperative play, arguing, rough-and-tumble play, unoccupied behavior, onlooking, solitary play, parallel play, and interaction with an adult). The .05 level of significance was used to test all statistical hypotheses.

CHAPTER IV: RESULTS

Participant Characteristics

Three children with developmental disabilities and three typically developing classmates, matched by gender, were observed during free time at school. The children with disabilities included a female kindergartner diagnosed with developmental delay, a male kindergartner diagnosed with a pervasive developmental disability not otherwise specified (PDD-NOS), and a male second grader diagnosed as autistic. All of the children with disabilities were integrated into a regular education classroom for most of the school day and all three received some degree of special services, such as occupational therapy, speech, physical therapy, and special education. They all participated in free time with their typically developing classmates.

Analysis of the Research Question

Analysis of Interactive and Non-interactive Play

The data were categorized into interactive and non-interactive play behaviors (see Table 1) and compared among the two groups of children using an independent t-test. Interaction with an adult was formed from the "other" category and is not included into an interactive or non-interactive behavior. This category was created because four of the children had some interaction with an adult during free play time, especially one child with disabilities who had a large number of observations made in this play behavior. However, this category was not included into an interactive or non-interactive behavior because the interaction did not occur with a peer. Significant differences between children with and without disabilities were found in interactive and non-interactive play. The typically

developing children engaged in much more interactive play [t (4) = -3.93, p< .05] and the children with disabilities engaged in more non-interactive play [t (4) = 3.44, p< .05] (refer to Table 3). See Figures 1-3 for each pair of children, which demonstrates the differences in interactive and non-interactive play behaviors.

Analysis of Individual Play Behaviors

An independent t-test was also performed to compare behavior among the children with disabilities and typically developing children for each of the nine play behaviors. An examination of each category of play indicated that no significant differences were found, except in solitary play [t (4) = 3.22, p < .05]. See Table 3 for the means, standard deviations, and significance for each play behavior of both groups of children.

CHAPTER V: DISCUSSION

This study revealed a significant difference in the level of interactive play behaviors in children with disabilities compared to typically developing children. The children with disabilities demonstrated higher levels of non-interactive play whereas the typically developing children engaged in more interactive play behaviors. When behaviors for each play category among both groups of children were compared, the children with disabilities demonstrated significantly more solitary play (a form of non-interactive play) during free time than their typical peers (See Figure 4). Similar findings were found by Nabors and Badawi (1997), who determined that children with special needs played alone more frequently than their typically developing peers. The lack of significance in other play categories may be the result of the small sample size and the variability among the children. A comparison of the means and visual demonstration for each of the nine categories demonstrated differences in some of the other play behaviors. See Figures 4-10 for an example of these differences.

As seen in Figure 5 there is a difference in the level of cooperative play, a form of interactive play, among children with disabilities and their typically developing peers. As a result of the one typical child's high level of cooperative play, it caused the difference to not be significant because of the large range between the other children. Due to the loss of normality a Mann-Whitney U test was performed. The non-parametric test indicated a significant difference in the amount of cooperative play among the children with disabilities and their typically developing peers [$u = 0$, $p = .05$]. As mentioned previously, Nabors (1996) and Nabors and Badawi (1997) discovered an occurrence of less

cooperative play among children with disabilities when compared to that of typically developing children.

Figure 6 demonstrates the differences seen in parallel play, a form of non-interactive play, between the two groups of children. All of the children with disabilities engaged in more parallel play except for one child. As seen in Figure 3 that child (second grader) demonstrated no parallel play but spent more of his free play engaged in solitary play and interaction with an adult.

The play categories, social conversation (a form of interactive play) and unoccupied (a form of non-interactive play) demonstrated some differences but not enough to be significant (See Figures 7 and 8). All of the children varied in the onlooking category (a form of non-interactive play) causing no distinction to be made across the two groups (See Figure 9). Only one child with disabilities had frequent interaction with an adult and this was the only child who had a one on one aide close by during free time (See Figure 10). These results differ somewhat from the findings of Nabors and Badawi (1997). They found that children with special needs played with their teacher more frequently than their typical peers. This is where the severity of each child's diagnosis may cause different results, because not all children with disabilities require a one to one aide. Also in agreement with Altman and Kanagawa's (1994) study, the types of social interactions that occur may be very dependent on the child's individual characteristics and level of adaptive skills. The behaviors of argue and rough-and-tumble, both forms of interactive play, demonstrated very little differences among the two groups. The children did not participate in these behaviors except for only one observation made in the argue category for a typically developing child.

The following assumptions made in this study were accurate, but some considerations should be made about how they may have limited the study. The children with developmental disabilities were all integrated into a regular education classroom to socialize with their peers. However, none of the children were included for purely social purposes. They were all involved in the academic instruction of the classroom and received some special services to further enhance their performance. The typically developing children's play interactions represented age-appropriate social and play skills. It was necessary to match individuals according to their grade level because age-appropriate skills may have varied. The observations assessed the quality of the play interactions, but the reliability of the researcher may be of concern. Although the researcher performed three training observation sessions to insure reliability, intra-rater reliability could not be measured.

The children were observed in their natural environments, engaged in indoor and outdoor activities. It may have been more accurate to either observe all of the children in one type of environment or to have one observation indoors and one outdoors. It is believed that the observations by the researcher did not affect the children's behavior, especially due to the fact that they were not made aware of the researcher's intent to observe them. It was assumed that the children would interact in the same manner as any other day. However, play behaviors were only recorded for two fifteen minute sessions either outdoors or indoors. The environmental context for each child was not consistent and was impossible to control. Most of the children were observed one time indoors and once outdoors. Longer time samples may have offered more diversity in play behaviors.

Some children participated in an activity that encompassed the majority of the recording, but this may have differed on another day.

A number of other limitations should also be considered. The small sample size of only three children with developmental disabilities and three typically developing children may affect the generalization to other children with disabilities. It may also be difficult to generalize the results because each child was diagnosed with a different developmental disability, the severity of each disability varied, and the children were only in kindergarten or second grade.

This study evidenced that the children with developmental disabilities displayed social play interactions that were not as interactive as those of typically developing classmates. This may be the result of decreased social skills or peer rejection. The finding that children with developmental disabilities demonstrated decreased play skills supports Altman and Kanagawa's (1994) and Reynolds and Holdgrafer's (1998) argument that inclusion into a regular education environment is not enough to foster socialization with peers. Social intervention programs need to be utilized in integrated classroom settings to promote social interaction and adequate social engagement for children with disabilities. Due to the lack of knowledge regarding the quality of social interactions among children with disabilities it has been difficult to develop successful intervention programs. Interventions that promote social skills and competence for children with disabilities have failed to remain effective over time (Guralnick, 2001). The children have a great deal of difficulty generalizing the skills learned and maintaining them upon completion of the intervention program (2001). As more studies emphasize areas of concern in the quality

of social interactions of children with disabilities among all ages and severities, more effective programs can be developed.

CHAPTER VI: SUMMARY

A major reason children with disabilities are included into regular education is for socialization with their typically developing classmates. Past research has indicated that children with disabilities demonstrate fewer interactive play behaviors than their typically developing peers in inclusive classrooms (Nabors, 1996; Nabors & Badawi, 1997; Bandyk & Diamond, 1997). The present study supports this research, with the findings that children with developmental disabilities in inclusive classrooms demonstrated significantly less interactive play and significantly more non-interactive play than typically developing children. These findings also suggest that placement in inclusive settings alone is not sufficient for the development of age-appropriate play skills in children with developmental disabilities. As others have suggested (Buysse & Bailey, 1993; Altman & Kanagawa, 1994; Reynolds & Holdgrafer, 1998; Wolfberg et al., 1999), it may be necessary to intervene to aid in the development of age-appropriate social skills and interactive behaviors. Implementing social intervention programs may help to promote socialization between children with disabilities and their typically developing classmates. A number of studies will need to be conducted in order to develop effective social intervention programs.

Future research is necessary to further differentiate the quality of social interactions between typically developing children and children with disabilities by utilizing a larger sample size and a greater number of observations with each child. Future research should attempt to identify why differences occur in the amount of interactive play behaviors between children with disabilities and typically developing children. For

example, correlating developmental skill levels with the amount of interactive play behavior demonstrated by each child might help define those areas of development that are most strongly related to deficits in interactive play. Future research might compare a child's skill level in expressive language, receptive language, mobility, and social appropriateness to the degree of interactive play behaviors. A child's skill level in these areas may help to explain why any differences are apparent. An assessment of these skills may also determine what types of interventions may be useful for specific children. Knowing what deficits a child has will help to create a social intervention program that focuses on those areas.

In addition, looking at the differences between younger and older children could be helpful to see if the gap in the amount of interactive and non-interactive play behaviors between younger and older age groups of children with disabilities and typically developing children widens or improves. It may be most beneficial to perform longitudinal quantitative studies to follow the same children at different ages. Because disabilities are so diverse, this will help to justify whether difficulty interacting or decreased tendencies to socialize with typically developing peers becomes more pronounced as children grow older. Longer studies could also note changes in a child's skill level and be correlated with their degree of interactive behavior. A longitudinal study may be more beneficial to demonstrate any improvements made in the interactive play behaviors between children with disabilities and typically developing children. Such a study might delineate specific components of social intervention programs that promote the development of social skills and interactive play behaviors, therefore supporting a particular method of effectiveness for the socialization of children with disabilities who are included into regular education.

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Table 1. Nine Play Behavioral Categories

Behavior Category	Description
Interactive	
Social Conversation	Child is engaged in positive or neutral talk with others in the absence of play activity (i.e., exchanging information, asking questions, joking, discussing activities)
Cooperative Play	Child is engaged in organized activity with others (i.e., playing formal games, sports, building together, acting out roles)
Argue	Child is engaged in hostile talk with others (i.e., insults, threats, contentious remarks)
Rough-and- Tumble	Child is engaged in unorganized agonistic activity with others (i.e., fights, or mock-fights, wrestling, pushing/shoving)
Non-Interactive	
Unoccupied	Child is alone, at considerable distance from peers, and appears to be "doing nothing" (i.e., staring off into space, plays with own body, wanders aimlessly)
Onlooking	Child is alone, in close proximity to peers, and watching others' activity (i.e., observing but not joining peers at play)
Solitary Play	Child is alone, but occupied or centered on a constructive activity (i.e., playing alone with toys or sports equipment, fixing something)
Parallel Play	Child is engaged in independent or similar activity in the vicinity of others (i.e. shooting baskets on a court adjacent to peers engaged in a basketball game, building a "road" near peers, playing "trucks," swinging next to others on a swing set)
Extraneous	
Other	Child is engaged in interactive or non-interactive behaviors that are not defined by the above categories (i.e., talking to the teacher, crying alone)

Note. From "Social Networks of Popular, Average, and Rejected Children in School Settings," by G. W. Ladd, 1983, Merrill-Palmer Quarterly, 29, p. 291. Copyright 1983 by Wayne State University Press, Detroit.

Table 2

Comparing the Play Behaviors seen in the 1st and 2nd Observations according to the Means, Standard Deviations, and Significance in a Dependent t-test

Play Behaviors	Observation 1		Observation 2			
	M	S.D.	M	S.D.	t	p
Social Conversation	6.00	5.22	3.33	2.80	1.56	.18
Cooperative Play	8.67	10.95	7.67	9.33	0.48	.65
Argue	0.17	0.41	0.00	0.00	1.00	.36
Rough and Tumble	0.00	0.00	0.00	0.00	NA	NA
Unoccupied	1.67	4.08	2.17	2.32	-0.26	.81
Onlooking	2.67	3.08	2.00	1.41	0.45	.67
Solitary Play	3.33	2.50	5.50	5.50	-1.30	.25
Parallel Play	5.50	9.38	7.17	8.21	-0.38	.72
Other Behaviors	2.00	2.19	2.17	4.83	-0.09	.93

Table 3

Means, Standard Deviations, and Significance of Independent t-tests of the Observed Play Behaviors

Play Behaviors	Children with Disabilities n = 3		Typically Developing Children n = 3			
	M[a]	S.D.	M[a]	S.D.	t	p
Interactive Play (total)	9.33	8.08	42.33	12.10	3.93	.02*
Social Conversation	7.33	6.11	11.33	9.07	-0.63	.56
Cooperative Play	2.00	2.00	30.67	18.72	-2.64	.06
Argue	0.00	0.00	0.33	0.58	-1.00	.37
Rough and Tumble	0.00	0.00	0.00	0.00	NA	NA
Non-interactive Play (total)	44.00	7.21	16.00	12.12	-3.44	.03*
Unoccupied	5.67	6.03	2.00	2.65	0.97	.39
Onlooking	4.00	4.36	5.33	2.08	-0.48	.66
Solitary Play	14.67	5.51	3.00	3.00	3.22	.03*
Parallel Play	19.67	17.62	5.67	6.03	1.30	.26
Other Category						
Interaction with Adult	6.33	8.50	1.67	2.08	0.92	.41

[a] values represent mean number of observations of the play behaviors listed

* indicates significance at the .05 level

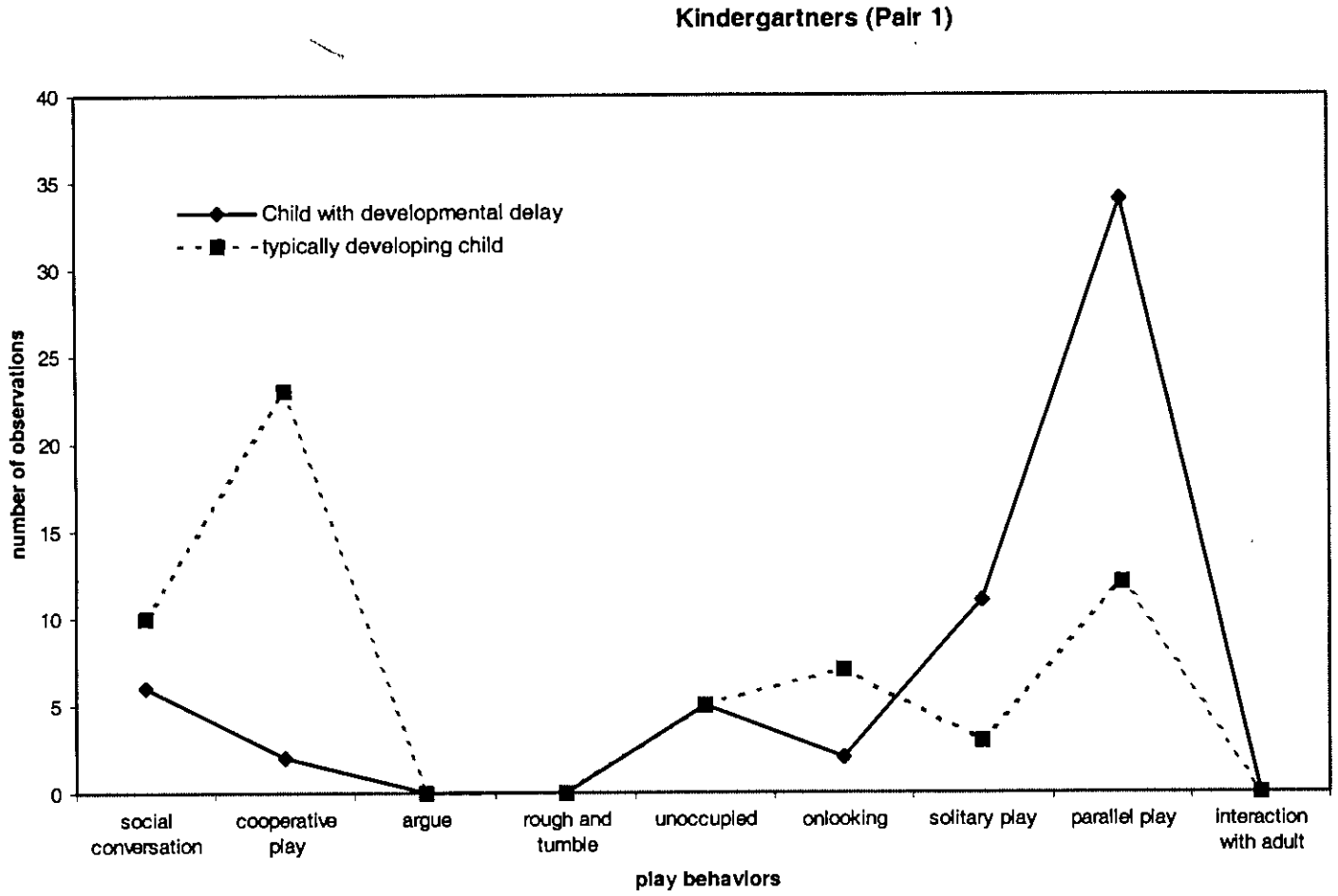

Figure 1. Comparison of the number of observed play behaviors in interactive and non-interactive play categories between a kindergartner with developmental delay and a typically developing kindergartner during free time at school.

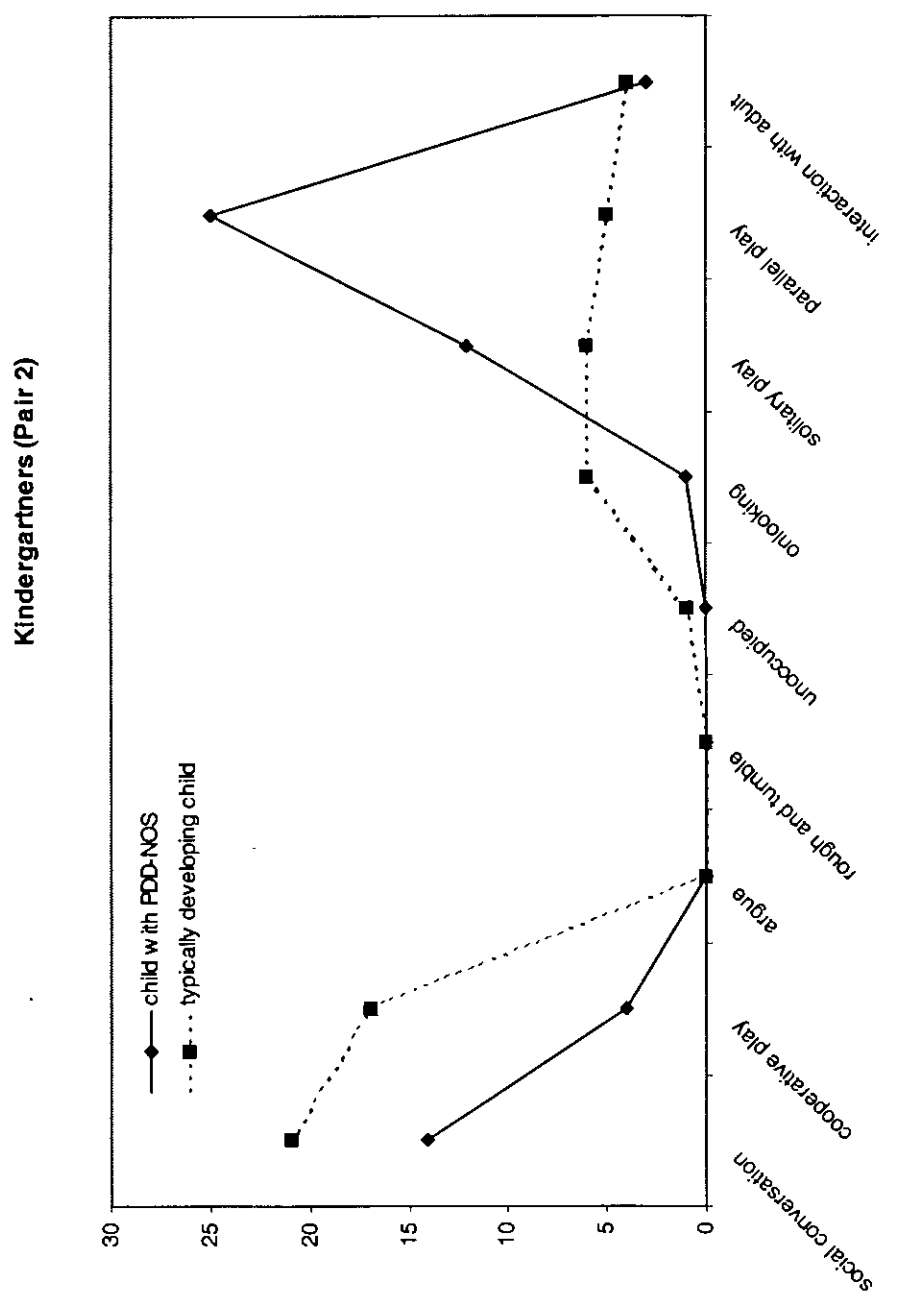

Figure 2. Comparison of the number of observed play behaviors in interactive and non-interactive play categories between a kindergartner with PDD-NOS and a typically developing kindergartner during free time at school.

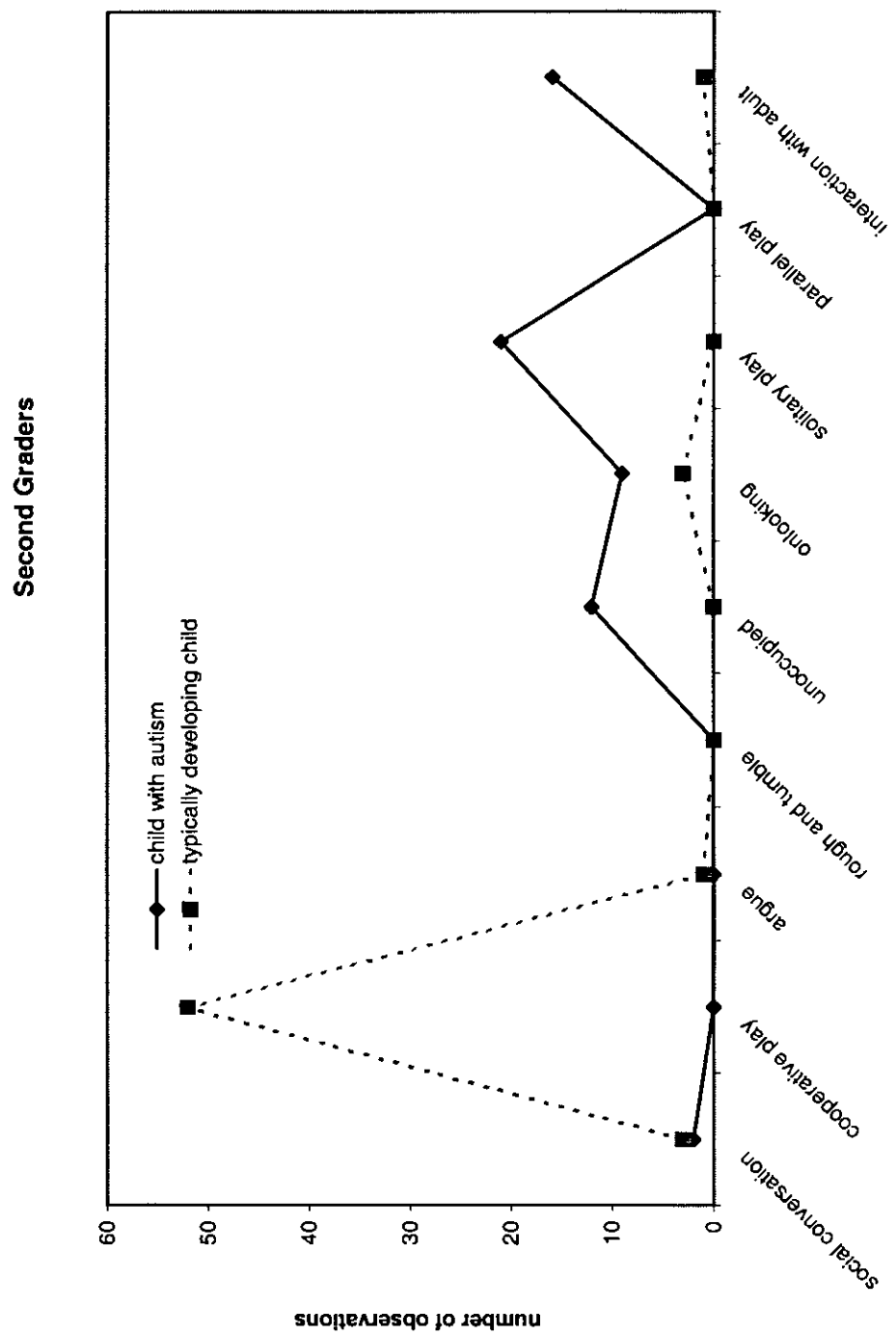

Figure 3. Comparison of the number of observed play behaviors in interactive and non-interactive play categories between a second grader with autism and a typically developing second grader during free time at school.

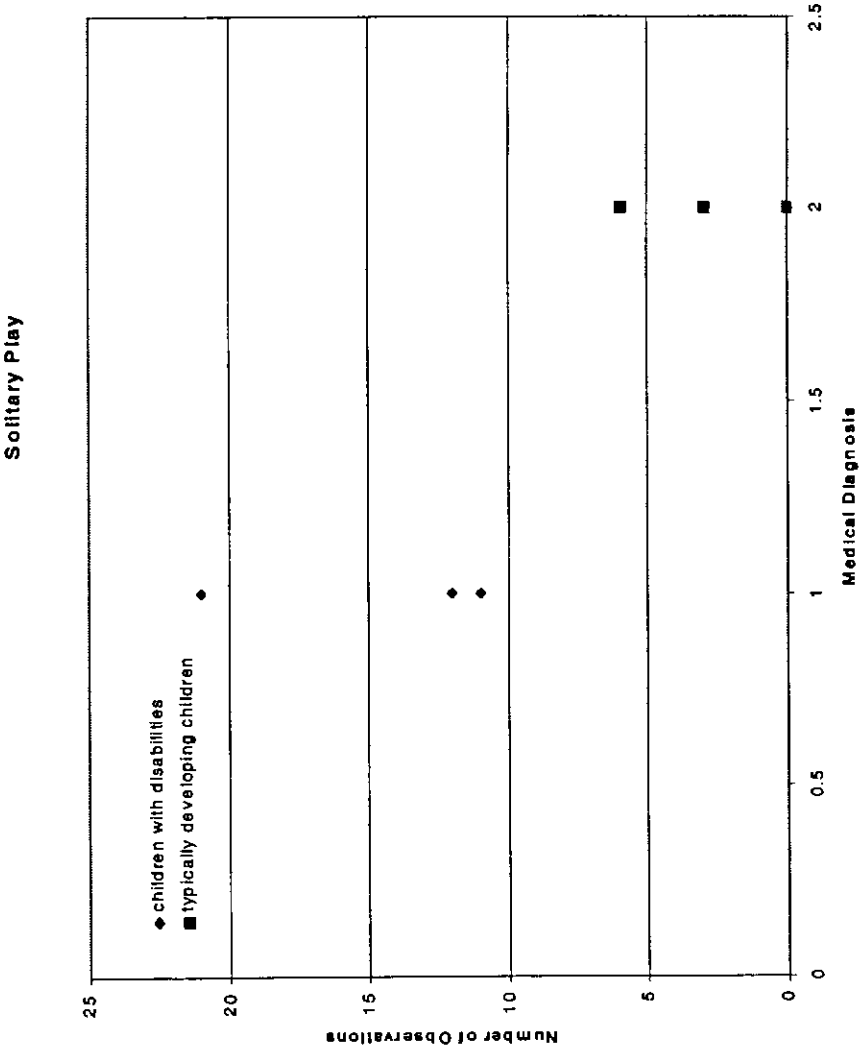

Figure 4. Comparison of the number of observations in solitary play between the children with disabilities and the typically developing children during free time at school.

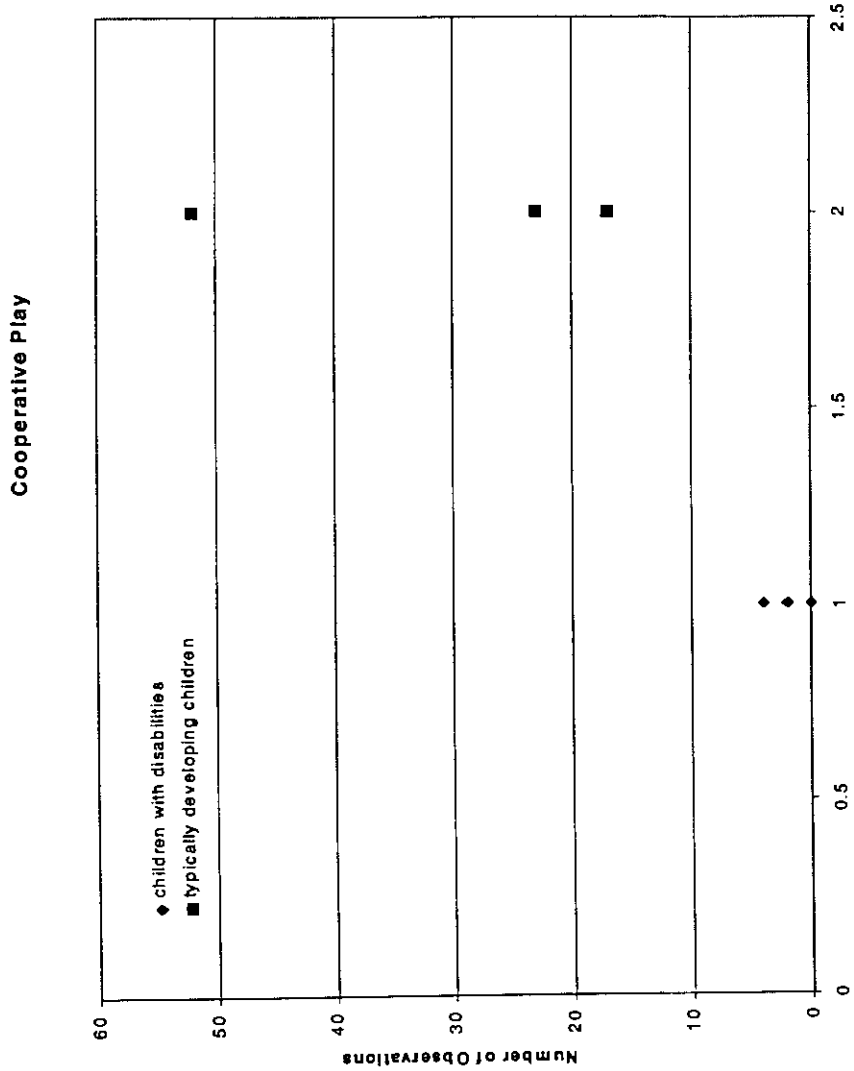

Figure 5. Comparison of the number of observations in cooperative play between the children with disabilities and the typically developing children during free time at school.

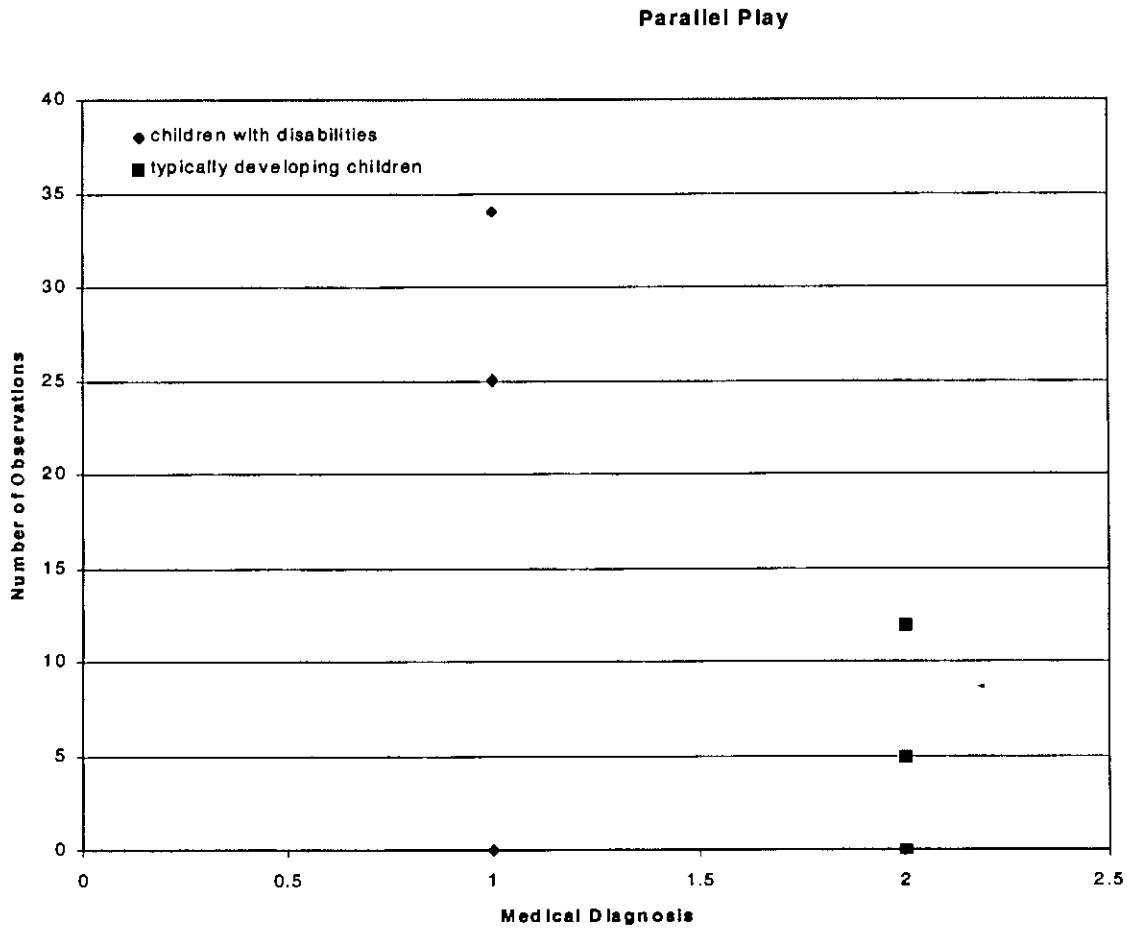

Figure 6. Comparison of the number of observations in parallel play between the children with disabilities and the typically developing children during free time at school.

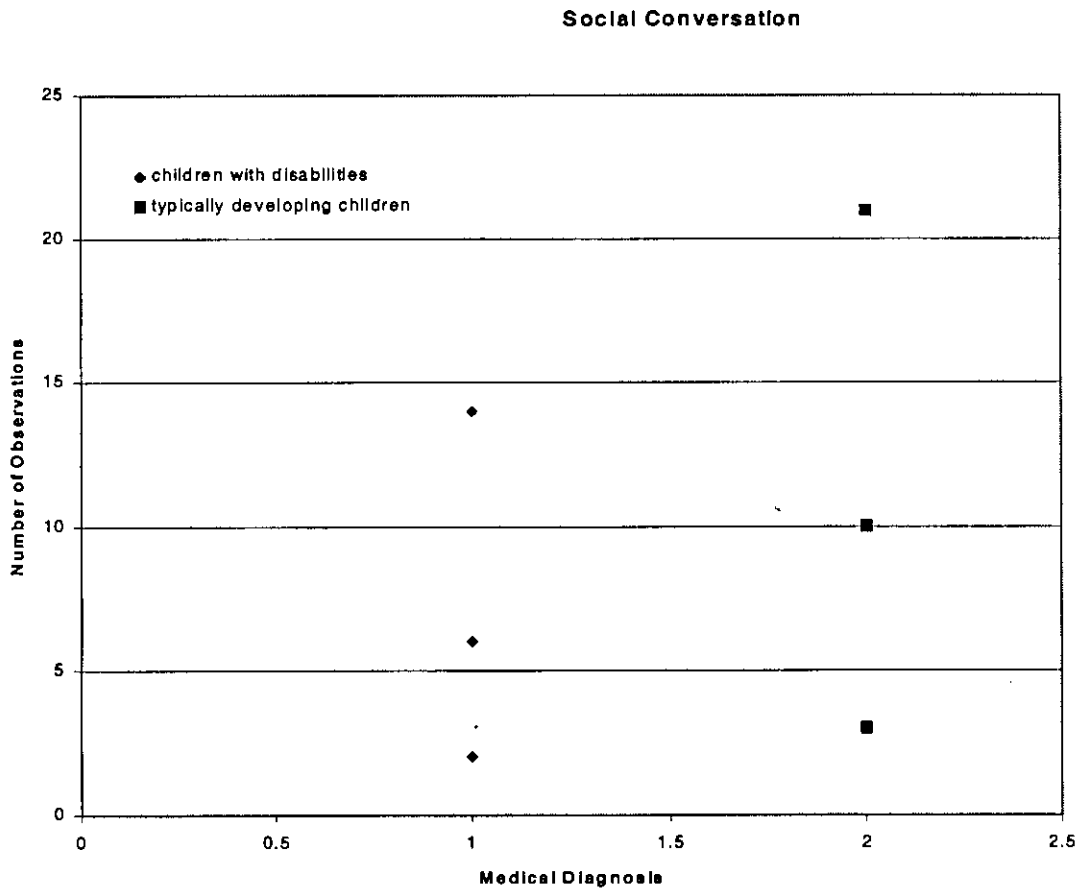

Figure 7. Comparison of the number of observations in social conversation between the children with disabilities and they typically developing children during free time at school.

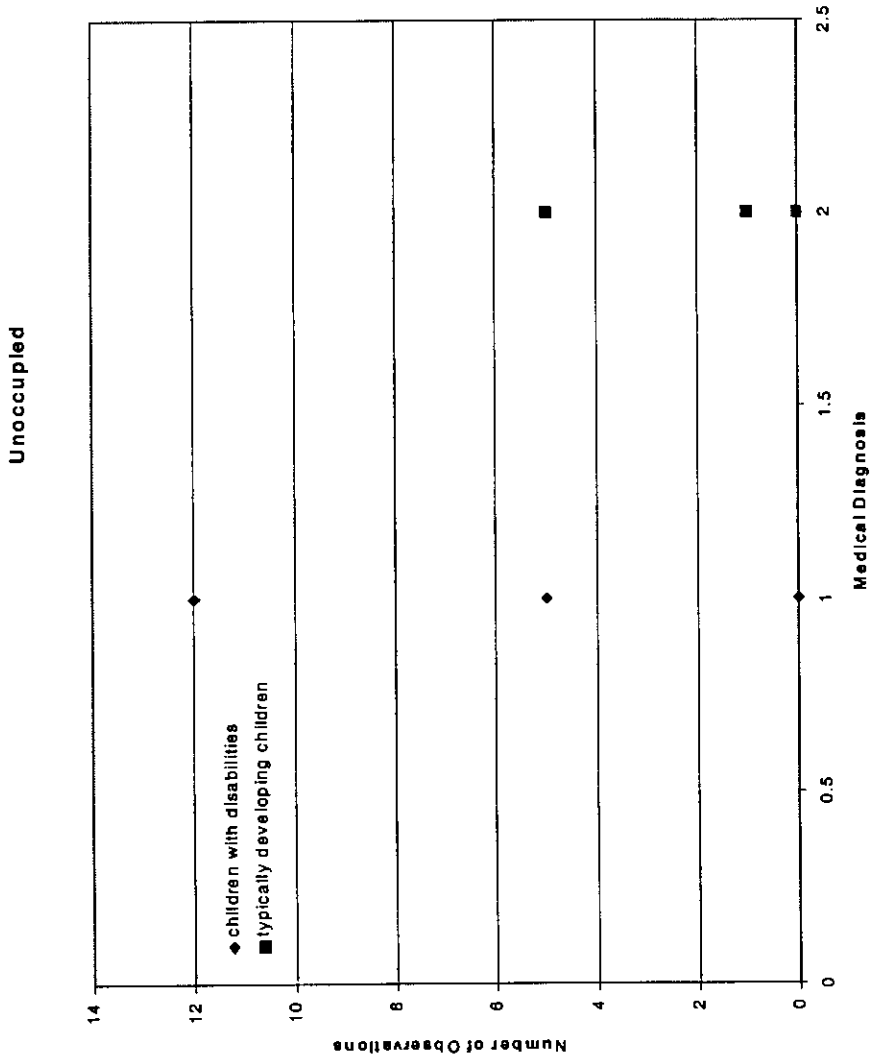

Figure 8. Comparison of the number of observations in unoccupied time between the children with disabilities and the typically developing children during free time at school.

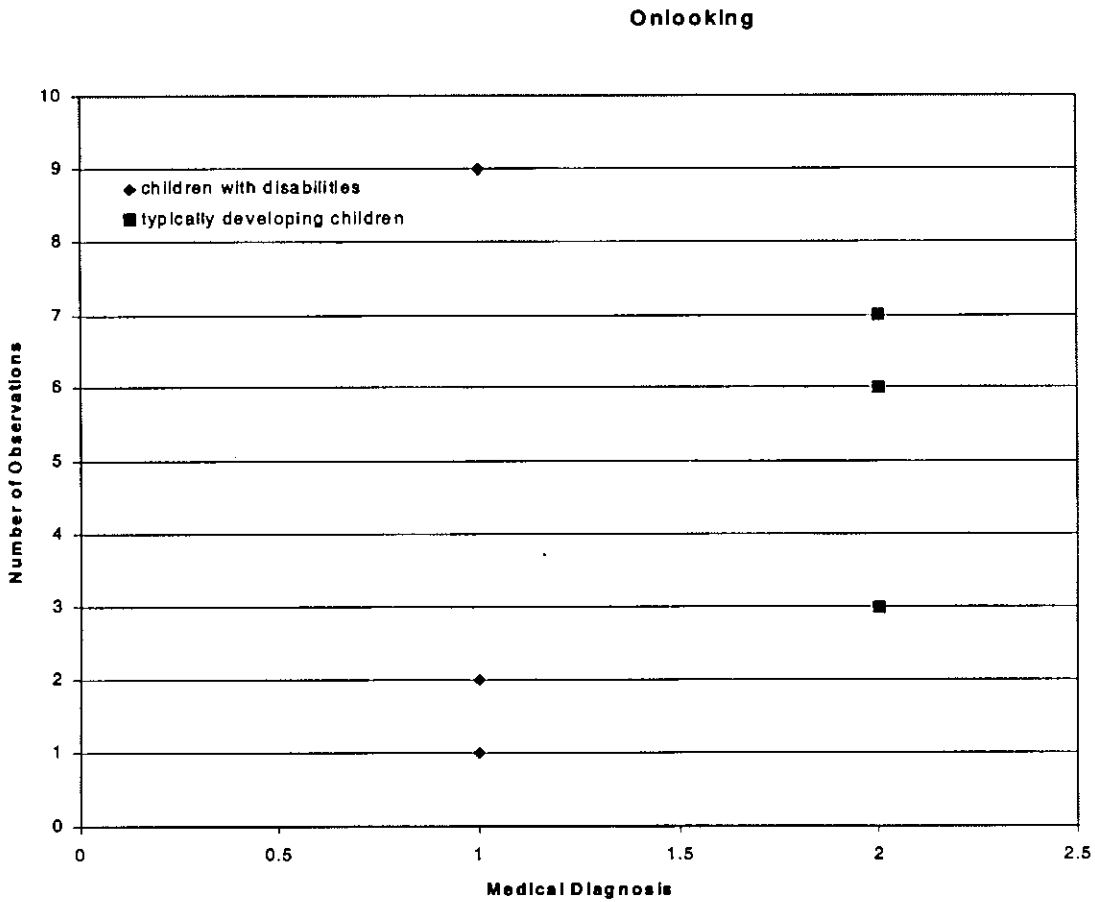

Figure 9. Comparison of the number of observations in onlooking behavior between the children with disabilities and the typically developing children during free time at school.

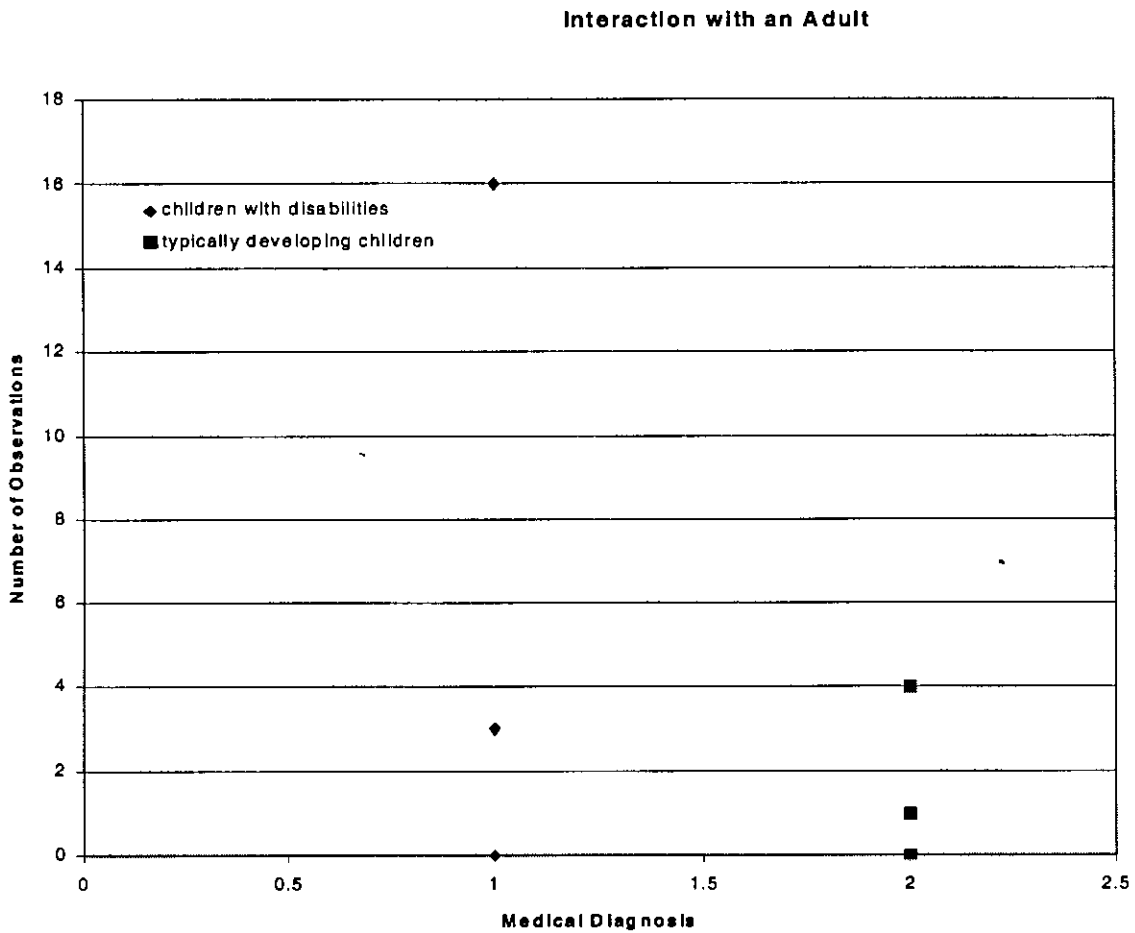

Figure 10. Comparison of the number of observations involving interaction with an adult between the children with disabilities and the typically developing children during free time at school.

APPENDICES

Appendix A

ITHACA

Ithaca College
350 Job Hall
Ithaca, NY 14850-7012
(607) 274-3113
(607) 274-3064 (Fax)

Office of the Provost and
Vice President for
Academic Affairs

DATE: December 7, 2000

TO: Jennifer Kinsley
Department of Occupational Therapy
School of Health Sciences and Human Performance
Ithaca College

FROM: Garry L. Brodhead, Associate Provost
All-College Review Board for Human Subjects Research

SUBJECT: **The Quality of the Social Interactions Between Children with Developmental Disabilities and Their Peers**

Thank you for responding to the stipulations made by the All-College Review Board for Human Subjects Research. You are authorized to begin your project at any time. This approval will remain in effect for a period of one year from the date of authorization.

After you have finished the study, please complete the attached Notice-of-Completion Form and return it to my office for our files.

Best wishes for a successful study.

/lw

Attachment

c: Carole Dennis, Faculty Advisor

Appendix B

Letter to School Administrators

January 22, 2001

Dear School Administrator,

I am currently a graduate student at Ithaca College. I am conducting research for my Masters Thesis in occupational therapy. My study involves observing the quality of the social interactions between children with developmental disabilities and their typically developing peers during free time to see if there is a difference between the two groups. The observations will consist of two fifteen minute sessions during free time at school. I am looking to observe children in kindergarten through third grade. This will include five children diagnosed with a developmental disability and integrated into a regular education classroom for at least part of the school day, including recess. Five typically developing children of the same gender and in the same classroom as a child with a developmental disability will also be observed.

Once permission is obtained from the administration I will need to contact a director of special education or an occupational therapist in the school district. I will be inquiring about any possible participants for my study and who their classroom teachers are. The child's classroom teacher would then be contacted to see if they agree to the study. Consent forms would be sent home to the parents of a child with a developmental disability and of a typically developing child in that classroom. Once the consent forms are mailed to me with the parent's approval, the teacher will be contacted to set up times to observe the children. The names of the children will remain confidential.

If it would be possible for me to conduct my research at the elementary schools in your district it would be greatly appreciated. I have attached a copy of my human subjects proposal that was approved by the research committee at Ithaca College. Please feel free to contact me at (607) 256-8353 or e-mail me at jkinsle1@ic3.ithaca.edu with any questions you may have. Thank you for your time.

Sincerely,

Jennifer Kinsley
Occupational Therapy Dept.
Ithaca College

Appendix C

January 22, 2001

Dear Parent or Guardian,

I am currently a graduate student at Ithaca College. I am conducting research for my Masters Thesis in occupational therapy. My study has been approved by the All-College Review Board for Human Subjects Research at Ithaca College and the school principal. The attached sheets include a consent form explaining my study and asking you to allow me to observe your child during recess or other free time at school. A short checklist is also included to provide me with some background information on your child.

If you agree to your child's participation, please sign the consent form, complete the checklist, and mail them both to me in the stamped envelope provided as soon as possible. Please feel free to contact me at (607) 256-8353 or e-mail me at jkinsle1@ic3.ithaca.edu with any questions you may have. Thank you for your time, it is much appreciated.

Sincerely,

Jennifer Kinsley
Occupational Therapy Dept.
Ithaca College

INFORMED CONSENT FORM

The quality of the social interactions between children with developmental disabilities and their typical peers

1. Purpose of the Study: This study involves observing the quality of the social interactions between elementary school-age children with developmental disabilities and their typically developing peers during free time.

2. Benefits of the Study: This study may lead to the development of programs by occupational therapists that focus on promoting socialization between children with disabilities and their peers. Very little research has been done in this area and the results will be very useful for individuals interested in child interaction and development.

3. What Your Child Will Be Asked to Do: If your child participates in the study, he/she will be observed during free time at school for 30 minutes. Your child will not be made aware of the intent of the observer in order to maintain a natural environment.

4. Risks: There is a possible risk of embarrassment for the child if he/she becomes aware that the observer is watching him/her. This will be minimized because the child will not be aware of the observer's intent and the observer will only be within ear shot of the child.

5. If You Would Like More Information about the Study: If you would like more information on this study and have any questions before or after the study takes place, please feel free to contact me, Jennifer Kinsley, at (607) 256-8353 or e-mail me at jkinsle1@ic3.ithaca.edu.

6. Withdrawal from the Study: If you would like your child withdrawn from the study at any time please feel free to contact me, Jennifer Kinsley, at (607) 256-8353 or e-mail me at jkinsle1@ic3.ithaca.edu.

7. How the Data will be Maintained in Confidence: Your child's identity will be kept confidential in this study. The full name of your child will not be used on any forms and will not be referred to in the study. The researcher will keep all observational and background data confidential.

I have read the above and I understand its contents. I agree to allow my child to participate in the study.

Print or Type Name	Child's Name
Signature	Date

Appendix D

Child's Name (first only and last initial):_____
Date of Birth and Grade:_____
Medical Diagnosis (if any):_____
Educational Diagnosis (if any):_____
Name of School and Classroom teacher:_____

Please check yes or no
Feel free to omit any questions you do not feel comfortable answering

	Yes	No
1. Does your child have friends from his/her elementary school classroom?	_____	_____
2. Is your child able to communicate effectively with others?	_____	_____
3. Does your child play with children with disabilities?	_____	_____
4. Does your child play with typically developing friends?	_____	_____
5. Is your child at the same academic level as other children his/her age?	_____	_____
6. Does the regular education classroom help your child academically?	_____	_____
7. Is the regular education classroom important for your child's social development?	_____	_____
8. Do you agree to allow your child's classroom teacher to expand on any of these questions if helpful for this research?	_____	_____

9. Are there any areas of daily life your child has significant difficulty in?

10. How much of the school day does your child spend in a regular education classroom?

11. How much of the school day does your child spend in special services?

Additional Comments (optional)

Appendix E

Code #:

Observation Data Sheet

Child's initials: Date:
Grade: Observation: 1st / 2nd

Interval	SC	CP	A	RT	UN	ON	SP	PP	oth	Comments
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