Assessing the Social Interactions of Students with Severe Disabilities and their Typical Peers in an Inclusive Setting

Purpose
The inclusion of students with severe disabilities in the general education classroom has become a frequent occurrence since the passing of the Education for All Handicapped Children Act (PL 94-142) in 1975. Public Law 94-142 provides students with disabilities the right to be educated in their home school with age appropriate peers (Barbacovi & Clelland, n.d.). Proponents of inclusion (Sailor, 1989; Stainback, 1988) suggest that typical students in the general education classroom can model appropriate social behaviors that are not easily observed in the self-contained classroom or a separate facility. Observing appropriate behavior may help prepare students with severe disabilities for work as adults in their communities. In addition, friendships may develop between students with disabilities and their typical peers that may be enjoyed for a lifetime. Since 1975, various studies focused on the interactions between students with disabilities and non-disabled students in the integrated general education setting, and more recently, the inclusive setting. This review of the literature explores the kinds of social interactions studied and the methods and instruments for measuring the outcomes of interaction among students with and without disabilities in an inclusive setting.

Literature Review
The social interaction with typical peers is a strong component of inclusion for students with severe disabilities (Aefsky, 1995; Sailor, 1994; Sale & Carey, 1995; Salend & Duhaney, 1999). The integration of students with handicaps has evolved from mainstreaming students only
into classes that were academically appropriate to complete immersion as a full time participant of the general education classroom. Advocates of inclusive education suggest that the typical peers in the general education setting provide appropriate social models for students with severe disabilities and possible opportunities for friendships as well (Sailor, 1989; Villa, Thousand, Stainback, & Stainback, 1992).

Efforts to increase social interactions between students with disabilities and their non-disabled peers appear to be effective. Studies report that students with disabilities have increased social contact with students without disabilities in the general education classroom (Fryxell & Kennedy, 1995; Hunt, Farron-Davis, Beckstead, Curtis, & Goetz, 1994). Inquiries reveal positive responses from general education staff and that non-handicapped students were willing to be friends with students with disabilities (Grenot-Scheyer, 1994; Helmstetter, Peck, & Giangreco, 1994; Hendrickson, Shokoohi-Yekta, Hamre-Nietupski, & Gable, 1996; York, Vandercook, MacDonald, Heise-Neff, & Caughey, 1992). In spite of the positive responses to inclusion, it was soon recognized that systemized planning was needed to effectively encourage reciprocal interactions between students with disabilities and non-handicapped students.

Implementation of strategies to increase interactive participation between students with and without handicaps was explored in classrooms (Hunt, Alwell, Farron-Davis, & Goetz, 1996; Hunt, Farron-Davis, Wrenn, Hirose-Hatae, & Goetz, 1997; Janney & Snell, 1996; Salisbury, Gallucci, Palombaro, & Peck, 1995). Studies reported positive social interactions between students with disabilities and their non-handicapped peers. However, studies were not consistent with defining the social interactions being assessed.
Investigations to assess frequency of contact and social interchange between students have used varied criteria to evaluate the interactions. Fryxell and Kennedy (1995) described interaction as “a student and peer(s) spending time with each other (≥15 min.) and included verbal/gestural interaction and ongoing physical proximity within the context of a particular activity” (p.262). The study reported more social contact between students with severe disabilities and students without disabilities. Helmstetter, Peck and Giangreco’s (1994) study required that interactions with students had to occur at least once a week for a minimum of three months for at least fifteen minutes for each interaction. Helmstetter et al. (1994) reported positive responses from students regarding relationships, but many typical students admitted that they considered themselves “peer teachers” rather than friends. Hendrickson, Shokoohi-Yekta, Hamre-Nietupski, and Gable (1996) described the participation of students with disabilities in the general education setting as merely attending the general education school. These studies describe only a few of the various inquiries of social contacts and interactions between students with severe disabilities and their typical peers.

Investigations of social interactions also involved several methods of measurement such as observations, interviews, surveys, questionnaires, and peer nominations to determine interactions. Hendrickson et al. (1996) used a survey to obtain perceptions of friendships of general education students in middle and high school with students with severe disabilities. Hunt, Farron-Davis, Wrenn, Hirose-Hatae and Goetz used an interactive partnership scale to measure frequency of interactions between students with and without disabilities in the general education classroom. Observations were used in other studies (Grenot-Scheyer, 1994; Hunt et
al., 1996; Hunt & Goetz, 1997; Janney & Snell, 1996; Janney & Snell, 1997; Salisbury et al., 1995). Questionnaires, interviews and peer nominations were additional methods to measure interactions between students with and without disabilities (Fryxell & Kennedy, 1995; Grenot-Scheyer, 1994; Janney & Snell, 1997; Salisbury et al., 1995; York et al., 1992).

As mentioned earlier, it has been established that the social interaction of students with disabilities is an important factor of inclusive education ((Aefsky, 1995; Hall, 1994; Sailor, 1989; Stainback, 1988; Villa et al., 1992; Wisniewski & Alper, 1994). Describing the social interaction has ranged from willingness to develop friendships (Hendrickson et al., 1996) and proximity (Fryxell & Kennedy, 1995) to reciprocal interactions between students with and without disabilities (Hunt et al., 1996; Hunt & Goetz, 1997). Is inclusive education providing the social benefits as suggested by its proponents? Are the students with disabilities socially interacting with students without disabilities? How are the social interactions between students with and without disabilities measured? How are the interactions, the frequency of interactions, and the meaning of friendship described? This review compares the methods of assessment for the social interactions between students with severe disabilities and their non-handicapped peers in the general education classroom.

**Method**

**Data selection.** Studies investigating the social interaction of students with severe disabilities in K-12 general education settings will be selected. For the purposes of this study, students with severe disabilities are students who are trainable mentally impaired, severely mentally impaired, severely multiply impaired, physically or otherwise health impaired, and
students with autism. Social outcomes and/or the procedures or methods to measure social interaction are criteria for selection of the studies to be examined.

A computer-search employing ERIC will be used for an initial search for literature that investigates the social interaction of students with severe disabilities in the general education classroom. In addition, the Psychology database, Web of Science citation database, Current Contents, Medline, Social Work database, Contents First, First Search, as well as reference lists from studies will be investigated for social outcomes of included students. Inclusion, mainstreaming, and inclusive education will be the subject/key words used for the search. Hand searches of *The Journal of Special Education, Exceptional Children, Remedial and Special Education* and *The Journal of the Association for Persons with Severe Handicaps* will be conducted. The Table of Contents of these journals will be explored for relevant studies. References from selected studies will be searched for related studies that may fit the criteria for selection.

**Data analysis.** Each study will be read for the purpose of research, context of inclusion, the descriptions of social interaction, and the selection of measurement of social interaction. To compare and contrast the

**Findings**

The findings will be described in two sections. The descriptions of social interaction provided by the selected empirical studies and how the social interaction is measured will be in each section. The first section, General Education—Just Another Place, consists of studies of inclusive practices that examine the appropriateness of the general setting for students with
severe disabilities. The studies examine the perspective of typical students’ experiences with students with severe disabilities in the general education setting and compare students with severe disabilities in the self-contained classroom and the general education classroom. The next section, Probing for Appropriate Modifications/Adjustments, consists of investigations that examine strategies to include students with severe disabilities, the characteristics of friends of students with disabilities, and peer culture and how it may affect the social relationships of students with severe disabilities in the general education classroom.

The results of all ten studies reveal more frequent social contacts and social interactions between students with severe disabilities and their non-handicapped peers. The studies use qualitative and/or quantitative research methods to examine the social interactions. In addition to the definition of social interactions for each study and how it is measured, the studies are examined for purpose, inclusion context, and the findings.

**General Education—Just Another Place?**

**Student Perspectives**

Helmstetter, Peck, and Giangreco (1994) randomly selected 166 10th, 11th, and 12th graders without disabilities from 45 high schools in the state of Washington to examine their perceptions of integration experiences with students with severe disabilities. Schools were eligible to participate at least one student with severe disabilities was enrolled, at least two typical students had regular interactions with students with disabilities, and interactions were at
least once a week for at least 15 minutes (example: lunch, buddy system, special friends program, tutoring).

The high schools students who met the interaction criteria were given a survey that questioned their relationships with students with severe disabilities. The survey consisted of 29 items that required agreement or disagreement with positive and negative outcome statements regarding experiences with students with severe disabilities. The survey included a five-point Likert scale that ranged from strongly agree to strongly disagree as a response. In addition, three open-ended questions were included to acquire descriptions of the students’ interactions, the benefits of their interactions, and any difficulties that occurred during the interactions.

The survey items revealed responses from the students that addressed their perceptions of their likeliness to help others, their open-mindedness to diversity, and their personal growth and development because of their experiences with students with disabilities. These responses were grouped into categories of responsiveness to the needs of others, valuing relationships with persons who have disabilities, personal development, tolerance of others, increased appreciation of diversity, and change in personal status (less status among typical peers because of interactions). The survey’s very structured format acquired perceptions of the students’ encounters with students with disabilities and were analyzed quantitatively; however, the three open-ended questions provided students’ descriptions of the actual interactions between the two groups of students that rendered relevant information for this manuscript.

Descriptions of social relationships were derived from the responses to the open-ended questions and were coded into six categories by the researcher. Typical students’ descriptions of
their relationships with students with severe disabilities were coded as either a tutor (43%), a helper (25%), having a natural relationship (11%), an observer (1% \[ADD \%\] symbol), sharing a class (6% \[ADD \%\]), or a combination of natural relationship and other (13%). Natural relationship was not specifically described in the study. The researcher and a person unfamiliar with the study categorized the students’ responses using the six definitions. The researcher states that the coding reliability ranged from .65 to 1.00 for the six categories with overall reliability at .76. Methods to obtain the degree of reliability for the categories were not stated in the study.

Results of survey responses suggest that, in general, the present sample of students did not experience difficulties in their relationships. Students who had more contact and direct interaction with students with severe disabilities because of opportunities to tutor, help, or have natural friendships reported more positive social outcomes of integration experiences than those students who merely shared a class with disabled students. Students who had more hours of contact with students with disabilities had more positive outcomes on the factor of diversity and responsiveness to needs of others. Forty-seven percent of the respondents reported no contact and 25% reported less than one hour of contact with students with disabilities outside of school. Fifty-eight percent of the respondents received course credit for their involvement with students with disabilities. Many peers considered themselves “peer teachers” rather than friends. More than 60% of the students considered themselves either a tutor or a helper.

The use of a survey allowed the researchers to get a statewide perception of social interaction from 45 schools. Among the 45 schools, the number of participants only averaged
three students per school, which implies a small number of students interacting with students with disabilities in the general education setting. Yet, results imply that this number is an increase from the number of interactions with typical peers in a self-contained setting. The open-ended questions of the survey provided students the opportunity to elaborate on their interactions with students with disabilities. The descriptions of these interactions provided categories of relationships that were more assistive (helper/tutor) than reciprocal between the two groups of students. More than half of the typical students interacted with students with disabilities for class credit that ranged from 1 to 5 hours a week.

Educational Placements.

Kennedy and colleagues explored the effects of educational placement on the social relationships of students with severe disabilities (Kennedy & Itkonen, 1994; Fryxell & Kennedy, 1995). The studies explored the frequency of contact between students with disabilities and their typical peers. For example, Kennedy and Itkonen (1994) investigated the social contacts and social networks of three high school students with severe disabilities in self-contained classrooms, but integrated into one regular education classroom during the school day. The regular education participation was examined in relation to baseline condition of the community-based curriculum implemented in the high school special education classroom. Baseline involved students with disabilities and non-disabled peers through peer tutoring or friendship programs during off-campus activities, lunch and break times, and campus related activities such as a pep rally. Regular class participation consisted of attending one general education class per day comprised of peer group activities with non-handicapped peers. Regular and special
education teachers recruited non-handicapped peers for peer group activities in the regular classroom, who had expressed an interest in working with students with severe disabilities. Staff supported non-handicapped peers with information for adapting materials, instructional techniques, and when necessary assisting directly with the student with disabilities (behavior management). Data were collected throughout the school day for one school year.

Results indicated that regular classroom participation increased social interaction with typical peers. There were increases in the frequency of student contacts with typical peers as well as an increase in the number of peers without disabilities participating in those contacts. Approximately half of the social network members of students with disabilities were in the regular education classroom. Findings also indicated that overall the social contacts were perceived as being positive.

Fryxell and Kennedy (1995) examined how placement in self-contained and general education classrooms affects the social relationships of students with severe disabilities. Participants were nine students with severe disabilities included for the entire school day in the general education setting in their neighborhood schools. Nine additional students with severe disabilities from the special education self-contained classroom also participated in the study. Social contact information was collected between February and May for interactions between students with severe disabilities and their non-handicapped peers.

Findings revealed that students in general education settings had more social contact with peers. The number of social contacts per day with peers without disabilities, the number of social contacts with different peers without disabilities, the number of activities with peers
without disabilities, and the number of different settings with peers without disabilities were significantly different. In addition, students with disabilities in the general education setting had higher levels of social support and a greater number of people nominated as friends than students in the self-contained classroom.

The methods of investigation were similar for the two studies. Both studies used the same definitions of social interactions and the same measurement instruments. Kennedy and Itkonen (1994) and Fryxell and Kennedy (1995) explain interaction as “verbal and gestural interaction and ongoing physical proximity within the context of an activity” (Kennedy & Itkonen, 1994, p. 3). Greeting peers in the hallway, interacting with special education staff, or attending a general education class without working with peers for fifteen minutes or more were not considered examples of interactions. In addition, descriptions of a social contact, an activity, and social networks were included in the studies to characterize social interactions. A social contact was described as “a student with severe disabilities interacting with a peer(s) without disabilities within the context of an activity for 15 minutes or longer.” An activity involved a sequence of responses that had a direct outcome for the participants engaged in it. Examples of activities were shopping, eating lunch, or completing a school project.

One of two assessment instruments in each study was the Social Contact Assessment Form (SCAF) used to measure the frequency of social contact between students with and without disabilities. Each observed social contact was recorded using the SCAF (See Figure 1). Data included with whom, when, and where a social contact transpired. The school period, persons involved, setting, activity, and the perceived quality of the interaction were also noted. The
quality was rated using a 4 or 5 Likert-type scale by talking with students with and without disabilities and educational staff after an activity. A “great” activity was one with frequent and positive interactions. Participants would likely enjoy repeating the activity in the future. A “bad” activity was one that was disliked and involved infrequent and/or negative interactions.

The other measurement instrument, the School Based Social Network Form (SSNF), was used to collect information on students during the interview process of their investigation. The SSNF has a nomination format used to collect information on perceived members of a student’s social network. The student with disabilities, the special educator, and at least one teacher assistant were asked to nominate special and general education staff, peers with and without disabilities, and members of the community perceived to be socially important to the student with disabilities. A Likert-type scale of 7 was used to rank each nominee with a range from not very important to very important. Frequency of contact and length of time of interaction was also recorded.

To address credibility, both studies employed an inter-observer agreement (IOA) for observations and interviews by having two people independently score the same event. The formula for agreement of social contacts and quality ratings was calculated by agreements plus disagreements and multiplying by 100%.

The examination of social contacts with typical peers in the self-contained and general education placements with findings of more frequent contacts was probably not unexpected for either study. The definition criteria of ≥15 minutes and ongoing proximity within an activity suggest that the interaction or contact may merely consist of being physically present for an
extended period of time during an activity. Specific details of the occurrence of the interaction were not measured. The SCAF measured who, when, what, and where of a contact; the perceived quality of the interaction was ranked using a four-point Likert scale from great to bad. Moreover, Kennedy and colleagues revealed in their study that the increase in student contact might have been associated with the fact that the students with severe disabilities were in a self-contained classroom, and participation in the general education classroom would allow more opportunities for contact with students without disabilities. Proximity and the participation in the general education setting may also explain findings of increased new typical peer contacts for students with disabilities.

The findings provided by Helmstetter et al. and Kennedy and colleagues suggest that the general education setting can provide increased interactions between students with and without disabilities. Other studies investigate strategies to cultivate reciprocal social interactions that may enhance relationships between students with disabilities and their non-handicapped peers.

Probing for Appropriate Modifications/Adjustments

Interventions/Strategies.

Hunt collaborated with several researchers to look at the effectiveness of strategies to improve social interactions between students with severe disabilities and students without disabilities in the general education setting (Hunt & Staub, 1993; Hunt, Morgan-Alwell, Farron-Davis, and Goetz, 1996; Hunt, Farron-Davis, Wrenn, Hirose-Hatae, and Goetz, 1997). In one
study, Staub and Hunt (1993) examined the extent social interaction training would improve frequency and quality of interactions between high school students with and without severe disabilities. Four students with severe disabilities and eight students without disabilities participated in the study. The students with disabilities attended a self-contained class for students with severe and profound multiple disabilities on the high school campus. The eight students without disabilities were selected because of their participation with the tutoring program. Students received class credit as a peer tutor.

The training intervention consisted of a five-day training session with 30 to 40 minutes per session. The training included behavior strategies, communication techniques, information sharing, and self-confrontation exercises. Four peer tutors were trained and four served as control.

The findings showed that during the baseline, there were no significant differences of frequencies of initiations or expansions between partners of students with disabilities and the trained and non-trained peer tutors. The data revealed an increase in initiations, an increase in interactions that were social rather than task-related, and an increase in frequency of the targeted behavior of the student with disabilities who was paired with a trained partner. Expansions were not shown to be statistically significant. The results would suggest that social interaction training might be effective with increasing the social interactions of high school students with severe disabilities.

Hunt, Alwell, Farron-Davis, and Goetz (1996) examined the effectiveness of an intervention package to promote peer interaction between students with disabilities and their
non-handicapped peers. The school district provided opportunities for full time placement of
students with severe disability in general education classroom in their neighborhood school or
the school of their choice. Three students with severe disabilities who were fully included in two
first grade classrooms and a fourth grade classroom participated in the study. The intervention
package included friendship programs, activities to promote interaction, buddy systems, and
prompting to promote interactions.

Findings showed that there were more frequent reciprocal interactions with peers after the
implementation of the multi-component interventions. Students with disabilities initiated more
contacts and interactions were more balanced.

Hunt, Farron-Davis, Wrenn, Hirose-Hatae, and Goetz (1997) explored the effectiveness
of strategies to increase interactive participation between students with severe disabilities and
their typical peers. Three students with severe disabilities in kindergarten, fourth grade, and fifth
grade in three elementary schools participated in the study. The students attended full time in
their neighbor schools with age appropriate peers. Multi-component intervention strategies that
included weekly class meetings, shared computer activities, toys, games, and a conversation
book were implemented in the three classrooms to increase interaction between students with
disabilities and their non-handicapped peers.

Findings revealed increases in reciprocal interaction between students with severe
disabilities and their typical peers following implementation of the intervention package. There
was an increase in initiations, an increase of comments to included students, and a decrease of
assistance from the special education staff.
Hunt et al. (1997) and Hunt et al. (1996) employed the Interaction Partnership Scale (IPS) in their investigations (see Figure 1). The IPS measured the type, quantity, quality, and function of social interactions. It also very specifically described the observed behaviors. Verbal initiations consisted of behaviors that engaged or attempted to engage another person, as well as a response consisted of a verbal reply to the initiation. Staub and Hunt (1993) describe initiations as any statement that began a conversation (such as a greeting) or that changed a topic. Definitions for nonverbal responses from the Interactive Partnership Scale were: “gazing at the initiation; nodding (yes/no) in response to an initiation; carrying out a direction that has been given; physically resisting the initiation; significantly changing expression or intentional eye contact; and responding to physical assistance” (Hunt et al., 1996, p. 57).

Staub & Hunt (1993) studied a self-contained classroom and the training of peer tutors/helpers with information sharing and communication techniques to improve the quality and frequency of social interactions with students with disabilities. Hunt et al. (1996) and Hunt et al. (1997) social interactions in an inclusive classroom with strategies to promote more balanced relationships between students with and without disabilities. While Hunt et al. developed and evaluated intervention strategies to encourage reciprocal relationships between students with handicaps and their non-handicapped peers, other studies investigated strategies used in inclusive classrooms to explore common themes and patterns of interventions.

Janney and Snell (1996) examined strategies that promote peer interaction between students with severe disabilities and their non-handicapped peers. Six students with disabilities in five elementary general education classrooms in three school districts were selected to
participate. The classes were either partially integrated (student with disability integrated from a special education classroom), full integration (all day, but not in neighborhood school), full inclusion (attending the full school day in the neighborhood school).

Data collection consisted of observations of class periods, lunch, recess, and informal meetings. Students without disabilities were involved in informal discussions of modifications and supports for students with severe disabilities. Staff and classroom teachers also informally discussed strategies to promote social interaction between students, and their perceptions of peers’ relationships with students with disabilities. The data were coded and organized into categories that represented strategies used by staff to encourage peer social interaction. Credibility was addressed by having several data sources, several collection measures, and by using two investigators.

Social interaction was defined by the observed students’ behaviors between typical peers and students with disabilities. The students’ role was often that of a peer helper or tutor. As a peer tutor, typical students would correct, reward, or verbally or physically prompt the student with disabilities. At times students would touch or show physical affection that was not age-appropriate towards the students with disabilities. Observed interactions that were social and not assistive consisted of greetings, choosing to sit close, laughing, joking, playing games, showing pleasure or comfort, and sharing personal information.

Findings revealed that the general education classrooms implemented similar strategies to promote interaction among students. All five classrooms had rules about who, when, and how to help students with disabilities. Classroom teachers encouraged age-appropriate interactions
between students with severe handicaps and their non-handicapped peers. In addition, classroom teachers provided time and opportunities for peers to interact with each other without adult interference.

The classrooms observed by Janney and Snell (1996) incorporated similar intervention strategies and behavioral definitions as those described by Hunt et al. (1996), Hunt et al. (1997), and Staub and Hunt (1993). Buddy systems, providing activities such as toys, games and computer activities, and time to interact with minimal adult interference were similar strategies. Prompting, touching, and physical interaction were social behaviors observed in the studies. The IPS used by Hunt, however, provided a more structured method of observing, defining, and evaluating the intervention strategies.

Strategies that provide opportunities for social interactions between students with disabilities and their non-handicapped peers appear to effectively bolster intercommunication between the two groups of students. Yet, other social indicators such as the characteristics of typical students and students with severe disabilities who socially interact with each other were also examined.

Characteristics.

Grenot-Scheyer (1994) explored children’s characteristics that might contribute to friendships between students with and without disabilities as well as children’s interactions with friends and acquaintances. Six general education teachers from five schools identified 20 students with severe disabilities and 11 children without disabilities to participate in the study. The students spent a minimum of 30 minutes daily with students without disabilities. The
teachers nominated children in triads consisting of one student with severe disabilities as a friend and one student with severe disabilities as an acquaintance. Therefore, these children participated in two different triads. The students with severe disabilities were observed in a triad as a friend or as an acquaintance during two 15-minute videotaped play sessions with a non-disabled peer. The interactions of the students with disabilities were compared between groups.

The Inventory of Friends’ Interaction (IFI) was used to measure the frequency and quality of interactions observed on the videotape. Initiations, responses, interactions, and elaborated interactions were coded using the IFI (see Table 2). In addition, the IFI allowed observers to code the type of interaction and whether the interactions were positive or negative. Data collection also consisted of the Assessment of Social Competence and Functional Motor Inventory, the Gesell Developmental Schedules to assess developmental age and the Peabody Picture Vocabulary Test – Revised to assess language abilities. An inter-observer agreement (IOA) with four trained observers who worked independently to code and compare tapes was used for reliability.

An ANOVA was completed to analyze initiations, responses, and interactions for peers with and without disabilities for both videotaping sessions. The ANOVA revealed no significant effect for the status of the play sessions. Independent T Tests were completed to determine any differences between friends and acquaintances dyads. There were no statistical differences between the two groups.

Findings suggest that the number of initiations for friends was significantly higher than for acquaintances. Also, the friend dyads had higher means of positive exchanges than
acquaintances. Acquaintances had a higher mean of complementary play than did friends. Characteristics of children without disabilities who were friends were “persistent, helpful, considerate, and demonstrated a high self-concept.” Typical children who were considered acquaintances were “more directive, louder, delivered more reprimands, and were not as engaged in the play activity with students with disabilities.” Children with disabilities who were perceived as friends had a range of cognitive and language abilities, and they were “engaging, responsive, and skilled” in social interactions.

The next section examines the peer cultures of a preschool classroom and high school setting.

Peer Cultures.

Schnorr (1997) examined the meaning of belonging or membership in general education secondary classrooms. The study consisted of four general education middle and high school classrooms in two urban secondary schools that mainstreamed six students with moderate to severe disabilities. The students with disabilities were enrolled in a self-contained classroom, but attended one general education class per day. Other participants included the general education students in the classrooms.

Data collection consisted of participant observations and semi-structured interviews with staff and typical students for a five month period. Fieldnotes of the observations and informal discussions with students were also collected. The data were closely read for common themes and coded into categories. Credibility was addressed by collecting several sources of data (observations, interviews, fieldnotes) and collecting the data over an extended period of time. In
addition, an experienced qualitative researcher collaborated as an independent reader and de-briefer during data collection and data analysis. Descriptions of social interactions were derived from the observations and interview as class related interactions and informal interactions. Class related interactions were brief exchanges or comments, sharing materials, helping with a common activity, and rescuing peers from getting caught by teachers. Greetings, personal or shared interests, humor, shared materials, support, observing another student, imitating a student, physical interaction (hand slap, tapping to get attention) between students, and teasing were considered forms of informal interactions.

Findings indicate that belonging is a process and should not be expected to just happen. In addition, classrooms are made up of partners and small groups of students. Most students in the classroom had membership in a subgroup of 2 to 4 students. Only two of the six students with disabilities who participated in the study belonged to a subgroup. Several suggestions were mentioned to facilitate friendships of students with disabilities or at risk for isolation. It may be important at the beginning of the school year to interpret unusual behaviors of students with disabilities. Students with disabilities may need guidance in approaching, greeting, and socially interacting with typical peers. Similar tasks or shared tasks may be important in initiating and maintaining membership in a subgroup. Also, peak times for interaction between members of subgroups tended to be before or after class, at the beginning of class, during breaks and transitions (while papers were collected), and/or during shared work or activities.

Wolfberg, Zercher, Lieber, Capell, Matias, Hanson, and Odom (1999) investigated how children with disabilities experience peer culture in an inclusive preschool program. Six
preschool programs with a focus on ten children with disabilities and their classmates were examined.

Twelve weeks of data collection consisted of observations, surveys, interviews, and peer ratings. Parents and teachers participated in the interview process. Interviews consisted of open-ended questions regarding students’ participation in the preschool program, home, and community. The Friendship Survey was used during the interviews. In addition, sociometric ratings were conducted in the classrooms. Students sorted pictures of classmates to rank preferred playmates (a lot, a little, not at all). Document (IEP, curriculum guides, lesson plans, and policy statements) and artifacts were collected also. Data were analyzed inductively using a comparative method allowing for coding, classifying, and comparing categories to generate common themes. This investigation was part of a larger study involving four universities that allowed for the analysis within and across program and university sites. Researchers used the observed behaviors of the study in their definition of social interaction. Students with disabilities showed an interest in interacting by following peers, touching peers, imitating peers, sharing, gesturing, writing about peers, taking roles in play, or talking.

Findings indicate that three themes emerged: how children with disabilities express their desire to participate in peer culture; how children with disabilities are included in peer culture; and how children with disabilities are isolated or excluded from peer culture. Children with disabilities expressed an interest in participating in peer culture with subtle ways that ranged from following, touching, and imitating peers to more involved acts of sharing, gesturing or talking with a peer. It was noted that those students who were included in peer culture shared a
common interest or need. Children who experienced conflict over play space or popular play items were often excluded. Typical peers were apathetic and indifferent towards children with disabilities who were excluded from peer culture. The excluded children were least likely to be chosen by classmates as desired playmates.

Although Wolfberg et al. and Schnorr examined different age levels, their findings shared some similarities. Both studies commonly described interactions as talking, touching or physical interaction, sharing materials, and imitating peers. In addition, common themes were how children with disabilities are included and excluded from peer culture. Both studies used observations and interviews as methods of inquiry. Wolfberg et al., however, had a more structured interview process using a friendship survey to guide questions.

Summary. The methods for the ten studies involved qualitative approaches, with a few of the studies including quantitative measures. Procedures included observations, interviews, informal discussions, surveys, questionnaires, peer ratings, documents, and data collection at baseline and during treatment. Credibility was addressed by using the Inter-observer Agreement (IOA), triangulation, and/or several sources of data.

Discussion

The ten studies examined range from 1993 to 1999 and reflect emerging questions by educators and researchers for students with severe disabilities in general education settings who were primarily educated in a self-contained or segregated educational setting prior to 1987. Do students with severe disabilities benefit from integration into a general education setting with students without disabilities? And if so, how do they benefit? Research explored the frequency
of contact with typical students, intervention strategies to promote interaction with typical students, and the peer culture of classrooms for characteristics of students who interact with each other. The methodology for these studies was consistently qualitative, with a few of the studies using some quantitative measures. However, the definitions and meanings of social interactions varied from study to study. It is likely that the purpose of each study influenced how the researchers defined social interaction in their inquiries of inclusive education.

For example, Helmstetter (1995) examined the perspectives of students in high school and their willingness to interact with students with severe disabilities. The definitions or categories of social interaction emerged from the responses of the three open-ended questions of the given survey. The definitions were broad, however, and did not give specific details of occurrences during the interactions. The researcher admits that the survey was limited in that it may have acquired politically correct responses from the students. In addition, there was no control group, and students who were not associated with disabled students may have given the same responses.

Kennedy and Itkonen (1994) and Fryxell and Kennedy (1995) examined the frequency of contact between students with and without disabilities. The definitions were specifically stated, but the focus of the definition was on students’ proximity with students without disabilities for an extended (≥ 15 minutes) period of time. The SCAF was designed to record frequency of interaction. The quality of the interaction was not emphasized in the tools of measurement or in the descriptions of observable student behaviors.
The findings of studies that emphasized the willingness to interact and the frequency of interaction may have contributed to the understanding of inclusive education; however, other researchers searched deeper to explore the quality of the interactions between students with severe disabilities and their non-handicapped peers. Hunt and fellow researchers investigated the strategies that promote reciprocal interchange during task related and social related interactions and later (1997) only social interactions. The definitions were very specific and the Interactive Partnership Scale measured frequency, quality, and function of the social interactions. The findings revealed an increase in reciprocal interactions, but they did not report on the quality of social interactions between students with severe disabilities and their non-handicapped peers. Grenot-Scheyer (1994) also provided very detailed descriptions of behaviors to define interactions. These studies more clearly defined the observable behaviors, yet they did not explicitly address the quality of interactions between the two groups of students. Research such as the recent studies by Wolfberg et al. (1999) continue to examine peer culture, classroom settings, and student interactions to address how students are included and excluded by peers. Consistently and specifically defining the quality of social interactions continues to be an issue with the exploration of social reciprocity between students with and without severe disabilities; nonetheless, qualitative measures invariably appear favored in the approach to measure these behaviors.

The ten studies overwhelmingly followed a qualitative methodology of collecting and analyzing interviews, observations, and documents. With the exception of Helmstetter et al.’s (1995) survey method, each of the studies included observations in the data collection methods.
Direct observation when added with other data enhances consistency and validity (Adler & Adler, 1994, p.382). Adler and Adler (1994) suggest that multiple observers or teams can enhance the validity of observations. Nine of the studies used inter-observer agreement and/or multiple researchers in their analysis of data. The reliability was enhanced by systematic and repeated observations over an extended period of time that yielded the same findings over varying conditions such as time and place (Adler & Adler, 1994), (Denzin, 1989). The observational periods for the studies ranged from two weeks to eight months with varying class, lunchroom, recess settings and varying times of the day. Observation provides particularly good rigor when combined with other methods (Adler & Adler, 1994), p.382). In addition to the observations, researchers used semi-structured and structured interviews using tools such as the Friendship Survey (Wolfberg et al., 1999) and the School-based Social Network Form (SSNF) (Fryxell & Kennedy, 1995; Kennedy & Itkonen, 1994) as well as questionnaires, informal discussions, fieldnotes, and peer ratings.

Limitations. There are several limitations to this review. First, the review examines only ten investigations of the social integration of students with severe disabilities in the general education classroom. Although the studies selected cover several aspects of social integration between students with severe disabilities and their non-handicapped peers, there may be other examples of social interactions in the general education classroom that were not addressed.

Secondly, the studies were from one journal. In spite of an extensive search of studies that examined the social integration of students with severe disabilities in the general education classroom, the search yielded investigations only from the Journal of the Association for Persons
with Severe Handicaps which is published by the Association for Persons with Severe Handicaps. This organization advocates for the inclusion of students with severe handicaps into the general education classroom (Fuchs & Fuchs, 1994; Murphy, 1996; Rights, 1997). The positive findings of the ten studies from these journals may be biased because of the organization’s position on inclusive education. This information should be taken into consideration as these investigations are interpreted.

Implications for Future Studies

Inclusive education is becoming more prominent in schools. The need to intensely examine the quality of social interactions between students with severe disabilities and their non-handicapped peers is pertinent to successfully implementing inclusive education. Earlier studies reveal that strategies must be implemented to encourage social interaction (Janney & Snell, 1997; Salisbury et al., 1995, Hunt, 1996 #164). The implementation of strategies and interventions has improved interactions for students with severe disabilities. Yet, researchers acknowledge the continued need to examine not only the increase in reciprocal interactions, but also the quality of the social relations and peer affiliations of students with severe disabilities in the general education classroom (Cook & Semmel, 1999; Pearl et al., 1998; Williams & Downing, 1998). Furthermore, research on students with disabilities has been overwhelmingly in the social domain. Social interaction is important because of the social models that typical peers depict for students with severe disabilities (Sailor, 1989). Now that research has established that students with severe disabilities have more social contacts and increased interactions with typical peers (Fryxell & Kennedy, 1995; Hunt et al., 1997; Janney & Snell,
1996; Kennedy, Shukla, & Fryxell, 1997), it may be time to explore whether the general education setting is providing these students with the skills needed for community access. Future studies should include the exploration of life skills in the curriculum of students with severe disabilities in the general education setting.

Conclusion

The social component for students with severe disabilities in an inclusive classroom is an important factor of inclusive education. Surveys, interviews, questionnaires, and peer nominations have been instrumental in assessing both social contact between students and the perceptions of teachers and typical students about these social relationships in the inclusive setting. Observations have been used to measure the frequency of interactions.

References


<table>
<thead>
<tr>
<th>Author/Title Measured</th>
<th>Purpose</th>
<th>Inclusion Context</th>
<th>Procedures</th>
<th>How</th>
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<tr>
<td>Helmstetter, Peck, &amp; Giangreco (1994) “Outcomes of Interactions with Peers with Moderate or Severe disabilities: A Statewide Survey of High School Students”</td>
<td>To gain perspective of students without disabilities of relationships with students with disabilities.</td>
<td>45 schools were randomly selected that had at least one student with moderate to profound mental impairments or multiple handicaps. Participants were students without disabilities who had regular interactions with students with disabilities at least once a week for a minimum of 15 minutes for each interaction.</td>
<td>166 10th, 11th, and 12th graders without disabilities who met the interaction criteria were randomly selected to respond to a survey that questioned relationships between students with disabilities and their peers without disabilities. The survey consisted of 29 items with a five point Likert scale response (strongly agree to strongly disagree). Three open-ended questions were also included for descriptions of interactions, benefits, and difficulties.</td>
<td>Students indicated agreement or disagreement positive and negative outcome state on relationships between handi disabled and non-handicapped peers. Principal component factor analysis used to reduce raw data. The analysis produced seven-factor model with 22 items. Responses to open-ended questions were coded in categories: tutor, natural relationship, observer, sharer, class, and combination of natural relationship and other.</td>
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<tr>
<td>Hunt, Farron-Davis, Wrenn, Hirose-Hatae &amp; Goetz (1997)</td>
<td>To evaluate the effectiveness of strategies to increase interactive participation between students with severe disabilities and their typical peers.</td>
<td>Three students with severe disabilities attend full time in their home school with age appropriate peers in Kindergarten, 4th, and 5th grade classrooms in three elementary schools.</td>
<td>Implementing multi-component intervention strategies and observing classrooms for student interactions once a week from October to May. One typical classmate of each student was observed during the same observation period. Ten 10-minute observations (5 each per student) were performed in a three-hour period. Each ten-minute period included 20 intervals of 15 seconds of observation and 15 seconds of recording. Data was collected during baseline and the intervention. The intervention included information provision and weekly class meetings; computer activities, materials, toys, games, and conversation books for interactive exchange.</td>
<td>Interactive partnerships were measured using revised InteracPartnership Scale developed. A observer agreement (IOA) consists of independent observations by principal investigator and the principal investigator for a total of 37 observed days. Level of agreement was calculated by dividing the number of agreements by the number of disagreements 100%.</td>
</tr>
<tr>
<td>Fryxell &amp; Kennedy (1995)</td>
<td>To investigate how the placement in self-contained and general education classrooms affects the social relationships of students with severe disabilities.</td>
<td>Eighteen elementary Students with severe disabilities attending five inclusive schools (9) and three schools with self-contained classrooms (9). Full inclusion students participated 100% in general education classrooms in their neighborhood schools. Students in self-contained classrooms were matched controls with G.E. students for age, gender, level of disability, adaptive social behavior, and adaptive communicative behavior.</td>
<td>All data was collected between February and May during the school year. Each student was observed for a total of 24 hours across four different weekdays. Interviews of general education and special education staff and students were conducted. Inter-observer (IOA) Agreement was assessed for observations and interviews by having two people independently record the same events.</td>
<td>Classroom Observation us Social Contact Assessment Fo (SCAF). Interview the Scho Social Networl (SSNF). An IOA agree social contact \v scored if the ti peple, sett activity corres between obser Quality ratings scored it there exact match. Fi for agreement estimates of so contacts and qt ratings was cal by dividing agreements by agreements plu disagreements multiplying by</td>
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| Janney and Snell (1996) | “How Teachers Use Peer Interactions to Include Students with Moderate and Severe Disabilities in Elementary General Education Classes” | To investigate strategies to promote peer interaction between students with handicaps and their typical peers. | Five classrooms in three school districts and six students with moderate or severe disabilities in general education classrooms within three integrated program models were selected to participate in the study. The models were partial integration in a general education classroom from a self-contained classroom, full integration in GE classrooms in schools not in the students’ attendance area, and full integration in GE classrooms in schools within students’ attendance zones. | Data was collected for three days in each classroom during the spring of the school year. Data consisted of observing classrooms and out of class activities, observing formal and informal meetings and discussions with staff and teachers, questioning peers, and coding and categorizing notes. | The data analy...
<p>| Hunt, Alwell, Farron-Davis, Goetz (1996) | “Creating Socially Supportive Environments for Fully Included Students Who Experience Multiple Disabilities” | To examine the effectiveness of an intervention package to promote peer interaction between students with disabilities and their non-handicapped peers. | Three students with severe disabilities participated full time in two first grade and one-fourth grade classrooms. Academic IEP objectives implemented within the general education classroom; students with disabilities involved in school-wide activities. 55% of students with disabilities in the district participated full-time in general education classrooms. | A Third Party Facilitation Intervention package consisted of providing information, friendship programs, arranging interactive activities, buddy systems, and prompting to promote interactions. The three students were observed for ten minutes periods for each hour of the school day for a total of five observational periods in one day. Each ten-minute period included 20 intervals of 15 seconds of observation and 15 seconds of recording. Data was collected from October to June during baseline and during the intervention. | The Interactive Partnerships Scale (IPS) was used measure the communicative function and quantity each observed interaction. A three-party agreement consisted of independent observations by principal investigator and the primary collector for an average of 31% observed days. General education teachers and their students (3 friends) were interviewed (semi-structured). Interventions were coded and categorized. |</p>
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Participants</th>
<th>Procedures</th>
<th>Measures/Tools</th>
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<tbody>
<tr>
<td>Grenot-Scheyer (1994)</td>
<td>“The Nature of Interactions Between Students with Severe Disabilities and Their Friends and Acquaintances without Disabilities”</td>
<td>20 Children with severe disabilities, ages 5-12, were from five different elementary schools. The students spent at least 30 minutes daily with peers without disabilities. Eleven students without disabilities also participated. Selected teachers nominated children in 11 triads: a child without disabilities, a friend with severe disabilities, and an acquaintance with severe disabilities. Teachers were not provided a formal definition of friends (students who played and ate together). Each triad was videotaped during two 15-minute play sessions on two days in the special education classroom during a two-week period. The Inventory of Friends’ Interactions was used to code videotapes for initiations, responses, interactions, and elaborated interactions. Types of interactions were also coded: parallel, dispute, assistive and complementary. Positive and negative verbal interactions and positive and negative physical interactions were coded.</td>
<td>Two teacher questionnaires: of Social Competence Inventory. Also Developmental and The Peabody Vocabulary Tests to assess language of students with disabilities. The Inventory of Interaction was used to measure the quality of interactions observed on the two days. Observer agreement was assessed independently by a team of four trained observers.</td>
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<td><strong>Staub &amp; Hunt (1993)</strong>&lt;br&gt;“The Effects of Social Interaction Training on High School Peer Tutors of Schoolmates with Severe Disabilities”</td>
<td>To examine the extent social training would improve frequency and quality of interactions.</td>
<td>Participants were four students with severe disabilities ranging from 15 to 20 years old in a self-contained classroom in a general education high school and eight students with out impairments in the 10(^{th}), 11(^{th}) and 12(^{th}) grades in a peer tutor program for class credit. Peer tutors were selected because of willingness to volunteer and already scheduled times of involvement in the special education room.</td>
<td>Compared the number of interactions at baseline, during training, and post-training. Data was collected throughout the school day for five days a week in the special education classroom. Social interaction training was randomly provided to four of the eight peer tutors for 5 consecutive days during 30-40 minute periods. Training consisted of communication techniques, information sharing, and behavior strategies. Observations occurred randomly during 17 minutes of the 50-minute class period. The data collector observed for 15 s and recorded for 10 s for forty 25 s intervals. The investigator and the data collector made inter-observer agreement across baseline and intervention phases when both observers identified the same social behaviors during the same intervals.</td>
<td>Observers looked for interactions and initiations, expanded the frequency of targeted behaviors in a student with disabilities identified by the education teacher. The inter-observer agreement was determined by dividing the agreements by the sum of agreements plus disagreements and multiplying by 1. A statistical analysis with a one-tailed test was used to determine whether frequencies were statistically different in baseline and training phases with expansions.</td>
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<td>Schnorr (1997)</td>
<td>“From Enrollment to Membership: ‘Belonging ’ in Middle and High School Classes”</td>
<td>This study examines the meaning of belonging in four secondary general education classes. Two general education classrooms (7th grade math and 8th grade art) in the middle school and two general education classes (3-D Art and instrumental band) in the high school participated in this study. Participants consisted of six students with moderate or severe disabilities who were enrolled in the self-contained classroom and attended one of the classes mentioned above. Other participants were the general education students who attended the GE classrooms.</td>
<td>Data was collected using participant observations and semi-structured interviews during the second semester of the school year. Classrooms were observed for an average of once a week for a five-month period. Field notes of the observations and informal conversations with typical peers before or after class were also collected. Semi-structured interviews were conducted with 12 (student) key informants individually and in pairs. Each classroom teacher also participated in three to five interview sessions.</td>
<td>Qualitative study notes and interview transcriptions were coded and compared for themes across cases. The data was re-coded into major categories. The data was sorted and reflection and a Credibility was established by collecting data in regular basis over an extended period. Numerous participant observations and interviews with students were conducted. In a experienced qualitative researcher collated during data collection and debr.</td>
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<tr>
<td>Wolfberg, Zercher, Lieber, Capell, Matias, Hanson, &amp; Odom (1999)</td>
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<td><strong>“’Can I Play With You?’ Peer Culture in Inclusive Preschool Programs”</strong></td>
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<td>This study explored the peer cultures of children with diverse abilities and backgrounds in their inclusive preschool programs.</td>
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<td>6 inclusive preschool programs with 10 children with disabilities and their peers without disabilities ranging in ages from 4.3 to 5.6 years participated in the study.</td>
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<td>Data collection consisted of observations, interviews, friendship surveys, documents, and sociometric peer ratings. Investigators spent 2-3 days a week for twelve weeks collecting field data. Observations consisted of 1-5 hours per session noting with detail the environment, activities, events, children’s behavior, and conversations. Interviews (open ended questions) were with family and teachers about students’ participation in the preschool program, home and community. Individual Education Programs (IEP), curriculum guides, lesson plans, policy statements, personal artifacts and photographs of the children were collected documents.</td>
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| Data were analyzed inductively allowing coding, classifying, comparing categories in order to generate and hypothesis from the data. Researchers reviewed field research documents, interview transcripts, friendship surveys, and sociometric peer ratings data for recurring relationships, and pertinent to peer behavior. A matrix was developed to organize themes, and triangulation was used to establish credibility using multiple observation, interview, observational, and research methods. Independent observers (researchers across and with universities), and participants.
| Kennedy & Itkonen (1994) | Studied the effects of participating in the general education classroom within students’ community based curriculum looking at social contacts and social networks. | Three high school students with severe disabilities from a self-contained classroom who participated one period of the school day in a general education classroom. One student attended an English class one semester and an Art class the next semester; another student attended a family health class, and the third student attended a life science class. | Data collected during baseline consisting of community based curriculum focused on employment training at local businesses and daily living skills training with some typical peer contact through peer tutoring and “friendship” programs. Regular class participation consisted of an introduction to students without disabilities prior to class participation, typical student volunteers to work in peer group activities, and staff support to typical students working with students with disabilities. Data collection included observations and interviews. Observations were conducted continuously during the school year. Interviews were every third week. | The Social Contact Assessment Form (School-based Social Network Form) was used during interviews. Measurement began the third week of school and continued through the last week of the year. Measures were separately by the teacher (primary) and observer (secondary) and assessed. An agreement was scored if there was at least a plus agreement by multiplying by 1. |
### Definitions and Measurements

<table>
<thead>
<tr>
<th>Study</th>
<th>Definition of Interaction</th>
<th>How Measured?</th>
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<tbody>
<tr>
<td>Kennedy and Itkonen</td>
<td><strong>Social contact</strong>: interacting with a peer without disabilities within the context of an activity for 15 minutes or longer.</td>
<td><strong>Social Contact Assessment Form (SCAF)</strong> an event based recording system using a matrix to collect information regarding school period, person involved, setting, activity, and perceived quality of the interaction</td>
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<td>(1994)</td>
<td><strong>An interaction</strong>: verbal or gestural interaction and ongoing physical proximity within the context of an activity. (Greeting peers while passing in the hall, attending a general education classroom, but not working with a peer for $\geq 15$ minutes, or working with staff was not considered an interaction.)</td>
<td><strong>School-based Social Network Form (SSNF)</strong> a form used during an interview to collect information on peers nominated as members of student’s social network and those of perceived importance.</td>
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<tr>
<td>Fryxell and Kennedy</td>
<td><strong>Activity</strong>: a sequence of responses that involved a had a direct outcome for the participants (shopping, eating lunch, completing a school project).</td>
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<td>(1995)</td>
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<tr>
<td>Author</td>
<td>Definition</td>
<td>Developmental Scales:</td>
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</table>
| Grenot-Scheyer (1994)  | **Friend**: pairs of children who seek each other out to play, play with each other, eat lunch with each other, talk or communicate with each other  
**Acquaintance**: those students who do not have good friendships with typical peers as described above. | **The Gesell Developmental Schedules**: assesses general development (developmental age). |
|                        | **Definitions from IFI:**  
**An initiation** could be verbal (sounds/words) or non verbal (gestures, eye gaze).          | **The Peabody Picture Vocabulary Test-Revised (PPVT-R)**: assess receptive language skills and determine language age. |
|                        | **A response** - an acknowledgement of the preceding initiation or response (within 5 seconds). Responses were either verbal or nonverbal. | **Teacher Questionnaires:**  
**Assessment of Social Competence Scale (ASC)**: ranks hierarchy of social sophistication (competence) |
|                        | **An interaction**- one initiation and one response. **An elaborated interaction**- an initiation by A, response by B, response by A and a second response by B. | **The Functional Movement Inventory (FMI)**: assess the functional movement abilities of children with severe disabilities. |
|                        | **Positive verbal behavior**- a positive to neutral statement and/or laugh.                           | **Videotape Coding System:**  
**The Inventory of Friends Interactions (IFI)**: measures the quality and quantity of interactions |
<p>|                        | <strong>Negative verbal</strong> – scream, shout, name call                                                      |                                                                                                                                                  |
|                        | <strong>Positive Physical</strong> –smile, nice touch, help, offer                                               |                                                                                                                                                  |
|                        | <strong>Negative physical</strong>- hit, punch, push, pull, destroy, grab behavior                               |                                                                                                                                                  |
|                        | <strong>Parallel interaction</strong> – child playing independently                                              |                                                                                                                                                  |
|                        | <strong>Dispute interaction</strong>- a verbal or physical disagreement by one or both partners.                 |                                                                                                                                                  |
|                        | <strong>Assistive interaction</strong> – helping or teaching the partner                                         |                                                                                                                                                  |
|                        | <strong>Complementary interaction</strong> – action of one partner is the counterpart of the other (verbal and/or physical behaviors) |                                                                                                                                                  |</p>
<table>
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<tr>
<th>Helmstetter, Peck, &amp; Giangreco (1994)</th>
<th>Regular interactions for at least once a week for at least 15 minutes (Example: lunch, buddy system, special friends program, tutoring) <strong>Interactions:</strong> tutor, helper, natural relationships, observed individual, in a class together, combination of natural relationships and other</th>
<th><strong>Survey:</strong> 5-point Likert scale with responses ranging from strongly agree to strongly disagree on experiences with students with disabilities. In addition, 3 open-ended questions that included descriptions of interactions were asked. Other information included grade, age, gender, amount of time spent each week with student with disabilities and whether if not credit was given for involvement with disabled students.</th>
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<tr>
<td>Hunt, Farron-Davis, Wrenn, Hirose-Hatae, and Goetz (1997)</td>
<td>IPS defined behaviors: <strong>Initiations</strong>-verbal or nonverbal behavior that engages or attempts to engage another person <strong>Responses</strong> –verbal or nonverbal response to the initiation <strong>Reciprocal interaction</strong>-communicative exchange that has both an initiation and a response <strong>Social interaction</strong>- no task being accomplished other than social <strong>Task related</strong>-an interaction in which an outcome is accomplished beyond social contact. <em>IPS was revised in 1997 to eliminate the task related category because it was determined from the 1996 study that most school activities are task based. Also the eight qualities of reciprocal interaction were reduced to only three qualities – positive, negative, and neutral (See Figure 1).</em>*</td>
<td><strong>Interactive Partnership Scale (IPS):</strong> Baseline measures using IPS. Measures the type and quantity, equability, and function of social interactions. <strong>Semi-structured Interview</strong> with the 3 general education teachers and the 9 typical students participating in the study (only Hunt et al., 1996). <strong>Observations:</strong> Each of the participants were observed 10 minute periods each hour during the school day with 20 intervals of 15 seconds of observation and 15 seconds of recording using the IPS.</td>
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| Staub and Hunt (1993) | **Peer interactions** included frequency of initiations and expansion (task oriented or socially oriented)  
**Initiations** consist of any statement that began a conversation or changed a topic (verbal or nonverbal).  
**Expansions** - any follow-up statement, question or gesture to an initiation that continue the social interaction.  
**Social** - the interaction itself with no task involvement other than social.  
**Task related** – intended to accomplish an outcome that extended beyond social interaction  
**Target Behavior** - behavior identified by the special education teacher that’s needed to enhance social abilities of student.  

**Observations:** Randomly selected 17-minute observational periods during the 50-minute class period when peer tutors were present. The observer observed for 15 s and recorded for 10 s. A tape recorder signaled the observe and record periods. Observer scored whether initiation was social or task related and if targeted behavior had occurred. Data was collected at baseline, during social interaction training, and post training. |
| Janney & Snell (1996) | **Social relations** – interactions such as greetings, choosing to sit close, laughing, joking, or playing games, showing pleasure or comfort, and sharing personal information.  
**Assistive Behaviors** – peer helper/tutor - physical assistance (pushing wheelchair, escorting to class), verbal prompts, physical prompts, corrections, and rewards.  

**Observations** of the classroom, lunch, recess, and informal and formal meetings. Observations were conducted during all class periods and on at least three different days of the week. **Informal discussions** with teachers and staff about assigning peers to assist students with disabilities, when and how to interact with students with disabilities, and their perceptions of peers’ relationships with students with disabilities. **Informal discussions** with typical students about modifications and supports for students without disabilities |
| Schnorr (1997) | **Class related interactions:**  
Borrowing or sharing materials (paper/books/pencils)  
Helping with a common activity  
Rescue classmates from “getting caught” by teachers  
Commenting on a project  
**Informal interactions** (not related to class activities):  
Greetings, personal or shared interests, humor, shared materials, support, observing, imitating, physical interactions (giving a high five or hand slap; tapping arm to get attention) and teasing | **Observation** of each classroom for one class period once a week for a 5-month period  
**Semi-structured interviews** with 12 key informants (typical students) about how they participate in class and student interactions (some taped and transcribed if permitted).  
**Interviewed** each of the four general education teachers (taped and transcribed)  
**Fieldnotes** to reconstruct classroom observations |
| --- | --- |
| Wolfberg, Zercher, Lieber, Capell, Matias, Hanson, and Odom (1999) | **Interest in participating (students with disabilities):** – following a peer, touching, imitating peers, sharing, gesturing, writing about peers, taking roles in play, or talking  
**Friendship Survey** definition of mutual friendship “one in which the desire to be friends with a particular child was reciprocated by that child”. | **Observations** lasted 1-5 hours each session centered on children’s participation and social relations with peers.  
**Interviews** with open-ended questions for family members and caregivers focused on children’s participation in preschool (audiotaped and transcribed).  
**Friendship survey** used during interviews  
**Sociometric ratings** conducted in each classroom. Students sorted pictures of classmates indicating preference for playmates (a lot, a little, not at all) |