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Inclusive Education for Students with Severe Disabilities in the United States: Effects on Selected Areas of Outcomes

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According to the U. S. Department of Education (2002), approximately 95% of special education students with disabilities have been receiving their special education services in general education classes and contexts for at least 80% of the day. Over the last fifteen years, these numbers increasingly have included students with severe disabilities (e.g., severe cognitive impairments, Autism Spectrum Disorder, multiple disabilities); that is, increasingly students with severe disabilities have been receiving services along with students of the same chronological age who do not have disabilities. Such services have been developing due to a number of variables, such as parental advocacy, legal litigation, changes in legislation, and research about the efficacy of educational services. The intent of this paper is to summarize the research in the United States: (a) that has led to the development of special education services for students with severe disabilities in inclusive general education contexts; and (b) that describes social and academic outcomes of inclusive educational practices both for students with severe disabilities and their classmates without disabilities. In addition, this paper will describe areas of inclusive education for students with severe disabilities in which there is need for further research in the United States.

Changes in the Nature of Special Education Services in the United States

When educational services for students with disabilities first were mandated in the United States in the mid-1970s, they predominantly were developed in self-contained special education settings that separated students with disabilities from their peers without disabilities. For students with severe disabilities these settings almost entirely were comprised of segregated schools

and segregated classrooms in general education schools. In both of these types of settings, students with severe disabilities had limited or no opportunities to interact with peers of the same age who did not have disabilities. In addition, students with mild disabilities (e.g., specific learning disabilities, mild cognitive impairments) predominantly received special education services in either in segregated classrooms in general education schools or in resource rooms. When resource rooms were used, students with disabilities would leave a general education class for a specific period of time (e.g., one hour per day; two periods three times a week; five hours per day) and adjourn in a class comprised only of students with disabilities to receive "specialized" instruction on one or more subject area. After receiving this instruction, the students with disabilities then returned to their general education class for the remainder of the day.

Because of these service delivery models, at least two decades of services in segregated settings passed prior to the initiation of services in inclusive general education contexts. In fact, the development of services in inclusive general education contexts began after reviewing outcome data for students who had received services in segregated schools, segregated classes, and resource rooms. It is important to note that a large majority of students with disabilities in the United States are identified as having mild disabilities, including specific learning disabilities, mild cognitive impairments, and emotional disabilities. Consistent with these data, the majority of students with disabilities receiving special education services in inclusive general education contexts have been students with mild disabilities. It is only logical, therefore, that the majority of initial research conducted on academic outcomes for students with disabilities in inclusive general education contexts relates to outcomes achieved by students with mild disabilities. In contrast, as students with *severe* disabilities have been included in general education contexts, research associated with their outcomes has focused on the development of social skills, rather than academics (Hunt & Goetz, 1997). This reflects many educators' initial belief that students with *severe* disabilities are being included in general education contexts to develop social skills with their typical peers, as well as the belief that academic outcomes were less likely to occur for this set of students. Academic outcomes, therefore, were less important to study. In spite of this, recent research has begun to investigate the effects of receiving special education services in inclusive general education contexts on the academic outcomes for students with severe disabilities.

Special education services in segregated settings.

Upon reviewing the data related to special education services in segregated contexts several findings called to question the efficacy of such services (Algozzine, Morsink, & Algozzine, 1988; Gelzheiser, McLane, Meyers, & Pruzek, 1998; Hollowood, Salisbury, Rainforth, & Palombaro, 1995; Logan & Keefe, 1997; Raudenbush, Rowan, & Cheong, 1992; Sontag, 1997; Vaughn, Moody & Schumm, 1998), . For instance, researchers have found that the instruction provided in resource rooms was comprised primarily of whole group reading instruction, with little evidence of the differentiated materials and instruction for which such settings originally were developed. Second, few differences were found in the instructional methods used across segregated special education

classes for students with various types of disabilities, calling to question the belief that placement in such classes would lead to specially designed individualized instruction. Third, while many IEPs for students who with disabilities who received services in segregated special education classes included goals related to increasing interactions with peers who do not have disabilities, instruction for most of these goals was never implemented in segregated settings because of the lack of access to peers without disabilities. Fourth, the labels placed on students with disabilities and their very placement in segregated special education classes resulted in teachers having lowered perceptions of the students' potential for learning, thus lowering expectations and decreasing opportunities to learn general education content. Finally, over time, the outcomes achieved by students with disabilities upon exiting educational services have been dismal.

Such findings over time have led many researchers to question the efficacy of special education services provided in segregated special education settings. As an alternative, special education services increasingly are being provided for students with disabilities in inclusive general education contexts.

Changes to special education services in inclusive contexts.

Before considering the efficacy of providing special education services in inclusive general education contexts, let's first consider what constitutes inclusive education services. When analyzing definitions of school inclusion submitted by experts in inclusive education for students with severe disabilities, Ryndak, Jackson, and Billingsley (2000) found that five components were present in every definition. These components are listed below, along with a description of each component, based on the component analyses completed of the submitted definitions

- 1) **Placement in natural typical settings:** Placement of all student with disabilities is (a) in age-appropriate general education classes, (b) in natural proportions, © in schools they would attend if they did not have a disability, (d) for most or all of the school day, (e) on an ongoing daily basis, (f) for instructional and noninstructional activities, (g) during classes and other school activities. Pullout from such placement occurs for community-based instruction or other activities, as it occurs for classmates without disabilities.
- 2) **All students together for instruction and learning:** All students with and without disabilities receive instruction and learn together during the same academic and nonacademic general education activities within general education classes and throughout the school community. Access to nondisabled classmates, and positive interactions between peers with and without disabilities, are maximized throughout educational activities and the school community.
- 3) **Supports and modifications within general education to meet appropriate learner outcomes:** Supports, services, and modifications, including necessary accommodations related to curriculum and instruction, occur within general education classes and the school community, to ensure effective instruction for all students with and without disabilities, such that the learning

environments (a) support students' needs and the diversity of each student's contribution to the school community, (b) facilitate learning for all students, and © optimize each student's potential. This results in real contributions by all students and instruction on meaningful, individually appropriate learner outcomes for all students. For students with disabilities, those learning outcomes are in accordance with IEP content, the district curriculum, or both.

4) **Belongingness, equal membership, acceptance, and being valued:** All classmates with and without disabilities share a sense of belongingness and equal membership in general education environments and activities. Students with disabilities and from other minorities are accepted and valued by both adults and students without disabilities throughout their educational environments.

5) **Collaborative integrated services by education teams:** Education teams collaboratively plan, implement, and evaluate instruction that is integrated throughout general education activities for each student.

In addition to these five components found in each definition, additional components that related to systemic inclusion were identified in several, but not all, of the definitions. These components are:

1) **Systemic philosophy or belief system:** Inclusion of all students is a systemic philosophy or belief system that pervades the educational system.

2) **Meshing general and special education into one unified system:** General and special education are meshed into one unified system of service delivery.

Enhanced instruction in inclusive classrooms.

Being included in general education contexts has led to improved quality of instruction for students with severe disabilities, as demonstrated by several variables. First, Hunt and Farron-Davis (1992) and Hunt, Farron-Davis, Beckstead, Curtis, & Goetz (1994) evaluated the effects of educational placement while measuring the IEP quality, overall program quality, and student outcomes. They found that when compared with the IEPs of students with severe disabilities receiving instruction in segregated special education classes, students with severe disabilities receiving services in inclusive general education contexts had more opportunities for instruction on age-appropriate goals and more goals related to basic skills. In addition, Logan and Malone (1998) found that students with severe disabilities who were included in general education contexts (a) had higher amounts of time engaged in classroom activities, (b) participated more in a variety of types of activities with students who did not have disabilities, © interacted more socially with their classmates, and (d) participated more in activities throughout the school and in community environments. In addition, students with severe disabilities who were included in general education contexts showed more social and task-related reciprocal interactions with their peers. Finally, in their case study describing the use of literacy before and after inclusion, Ryndak, Morrison, and Sommerstein (1999) found that when the

services for a student with moderate to severe disabilities were changed from segregated special education classes to inclusive general education contexts, the student's IEPs were designed better, her curriculum content was more consistent with the curriculum content of her peers without disabilities, and her instructional activities were more meaningful to her. Concomitantly, changes were observed in the student's (a) behaviors related to learning (e.g., time-in-instruction, time-on-task during instruction, motivation to acquire new skills), and (b) rate of learning over time.

Second, within inclusive contexts, teachers of students with severe disabilities were more focused on general education content, while they embedded instruction on functional activities within general education activities that were already scheduled or community activities. Because of this, there was an increase in the amount of instruction on both functional activities and basic academic skills (e.g., literacy) for students with severe disabilities (Fisher & Frey, 2001; Hunt & Farron-Davis, 1992; Hunt, Farron-Davis, et al., 1994; Ryndak, et al., 1999).

Third, as an effort to engage students with severe disabilities in general education activities, classroom teachers have implemented accommodations and modifications to class routines, instructional activities, and environments (Fisher & Frey, 2001; Janney & Snell, 1997; McDonnell, Mathot-Buckner, Thorson, & Fister, 2001; Ryndak, et al., 1999). Researchers have reported that secondary school-aged students with severe disabilities are more involved in general education class activities when accommodations and modifications were provided by general and/or special education teachers (Fisher & Frey; McDonnell, et al.; Ryndak, et al.). Also, educators made several modifications to classroom routines and physical environments in order to increase opportunities for social or task-related interactions with peers (Janney & Snell, 1996). These accommodations and modifications helped students with severe disabilities become more involved in age-appropriate and general education curricular activities.

Fourth, in spite of the better teacher-student ratio in segregated special education classes, there was a higher rate of time in instruction and more 1:1 instruction for students with disabilities in inclusive general education contexts. Potentially this could be due to the high rate of student-centered instructional activities and the possibility of classmates without disabilities providing instructional opportunities for the students with disabilities in the inclusive contexts.

Encouraged interactions with classmates and adults without disabilities.

As students with severe disabilities have been included in general education contexts, many teachers have encouraged their students with severe disabilities to work cooperatively with their classmates who do not have disabilities, and with adults who do not have disabilities in the community (Ferguson, Meyer, Jeanchild, Juniper, & Zingo, 1992; Fisher & Frey, 2001; Hunt, Staub, Alwell, & Goetz, 1994). According to studies that incorporate cooperative learning strategies, students with moderate to severe disabilities at various age levels

and subject areas have shown improved outcomes in learning and interacting with classmates and adults who do not have disabilities. Hunt, Staub and their colleagues found that elementary students with severe disabilities acquired and generalized basic communication and motor skills (e.g., requesting, grasping) with the assistance of adults under cooperative learning group situations. Furthermore, when compared with similar students in segregated special education settings, students with severe disabilities in inclusive high schools were more involved in general education activities and interactions with their classmates who do not have disabilities (Fisher & Frey). These classmates helped students with severe disabilities participate in class activities and become full contributing members of the general education classes. In addition, special educators collaborated with general educators in order to encourage the participation of students both with and without disabilities in cooperative learning and reciprocal interactions.

In addition to cooperative learning, students with severe disabilities worked with their classmates who do not have disabilities through peer-tutoring. Gilbert, Agran, Hughes, and Wehmeyer (2001) found that peer-delivered self-monitoring instruction for five middle school students with severe disabilities enhanced those students' academic survival skills. These skills were based on a teacher survey about priority classroom survival skills (e.g., greeting, asking and answering questions, recording classwork in a calendar). In this study, students with severe disabilities were taught how to evaluate their own behavior and learned appropriate classroom behavior in order to participate in more classroom activities. Four of these five students showed positive changes in their behaviors and classroom involvement. Also, the classroom teachers of these students recognized a higher frequency of survival skill behavior. In other junior high school classes, students with severe disabilities showed increased academic responses and higher weekly test scores while receiving an instructional package that included class-wide peer-tutoring (McDonnell, et al., 2001). Although direct instructional assistance by peers impacted students' response rates and test scores, other elements of the instructional package (i.e., accommodations and multi-element curricula) also may have influenced student performance.

Many studies indicated that cooperative learning and peer-tutoring are effective approaches to increase student performance and encourage positive interactions among peers. In inclusive classrooms, instructional approaches that encouraged classmates without disabilities to help enhance the academic achievement of their classmates with severe disabilities increased the students' acquisition of basic skills, self-regulatory skills, and general education curriculum content.

Increased student participation and engagement. Students with severe disabilities in general education contexts were involved in more general education activities after being included. Hollowood, et al., (1994) investigated teacher and student time in elementary inclusive classes and found that the group including students with severe disabilities allocated and spent a larger amount of time for instruction than a group with only students who did not have disabilities, as well as a group of same-aged students with severe disabilities in segregated settings. In addition, the students with severe disabilities who were

included in general education contexts showed higher levels of engagement in those classroom activities. Moreover, both students with severe disabilities and their classmates without disabilities in general education contexts showed a high percentage of intervals engaged in academic activities (Logan & Malone, 1998). Interestingly, students with severe disabilities were mainly engaged in independent work, while those without disabilities participated in more small group and one-to-one instruction than independent work. Finally, adolescents with severe disabilities in inclusive contexts participated in most of the classroom activities with non-disabled peers with accommodations and modifications of curriculum and classroom routines (Fisher & Frey, 2001). While teachers provide supportive and encouraging circumstances to students with severe disabilities in inclusive contexts, encouraging those students to adapt themselves to the general education environments is one approach to increasing their learning opportunities with classmates who do not have disabilities (Gilberts, et al., 2001). Teaching those students self-determination skills (e.g., self-monitoring) facilitates the students' engagement and participation in general education learning activities. In the Gilberts, et al., study, students with severe disabilities learned how to behave appropriately in order to increase their participation in instructional activities in the general education contexts.

Increased overall learning.

When looking at learning that occurred over time, students with severe disabilities in inclusive general education contexts learned more than students with similar diagnoses who were served in segregated settings (Fisher & Meyer, 2002). In addition, initial data has begun to indicate that students with severe disabilities who receive services in inclusive general education contexts have better life outcomes than similar students who received services in segregated special education settings (Ryndak, Ward, Frenchman, Montgomery, & Billingsley, in preparation).

Social Outcomes for Students with Severe Disabilities

Benefits for Typical Peers

Research conducted on the benefits of inclusion for the typical peers of students with severe disabilities has spanned the school continuum from elementary to high school, and has included ethnically and socioeconomically heterogeneous groups (Favazza & Odom, 1997; Fisher, Pumpian, & Sax, 1998). The literature to date suggests that gender and both length and amount of exposure to students with severe disabilities affect typical peers' ability to realize social benefits. Females appear to have higher levels of acceptance and tolerance after interacting with students with disabilities (Fisher et al., 1998; Kishi & Meyer, 1994; Voeltz, 1982), however, increased levels of exposure and contact result in more positive outcomes for students regardless of gender (Helmstetter, Peck, & Giangreco, 1994; Staub, Schwartz, Gallucci, & Peck, 1990). There are three overarching social benefits of inclusion for typical peers (a) increased acceptance and tolerance of others (Favazza & Odom; Helmstetter, et al.; Kishi & Meyer; Voeltz), (b) growth in the areas of responsibility and self-concept (Peck, Donaldson, & Pezzoli, 1990; Staub, et

al.), and © more realistic expectations and perceptions of students with disabilities (Evans, Salisbury, Palombaro, & Goldberg, 1994; Fisher et al.).

Kishi and Meyer (1994) and Voeltz (1982) conducted two of the most comprehensive studies concerning the social benefits of inclusion for typical peers. Voeltz surveyed 817 fourth through sixth graders on the island of Oahu using the Acceptance Scale, a group administered, self-report attitudinal scale of acceptance and tolerance of diversity. The research study utilized a pre and post experimental design to demonstrate the effects of varying degrees of social contact (high, low, and no) on typical peers' attitudes towards students with severe disabilities. Students with the longest amount of contact (i.e., inclusive model practiced at school for two or more years) had the highest acceptance scores followed in descending order by the low and no contact groups. Kishi and Meyer's follow-up study found similar results when 183 of those students were surveyed in high school. Only typical peers who maintained some form of contact (casual or formal) with a student with severe disabilities participated in the follow-up study. However, the external validity of both studies is diminished because the researchers only surveyed students from the state of Hawaii. Furthermore, neither study included direct observational measures of student interactions to validate their conclusions. To date a number of studies reporting on the social benefits of inclusion for typical peers have used only indirect measures to determine those benefits. One exception is the work of Staub and colleagues (1990) who investigated contextual factors that promote or inhibit friendship formation between elementary-aged students with and without disabilities. The researchers used semi-structured interviews in conjunction with video samples and weekly direct observations of peer social interactions.

Staub and colleagues (1990) found that if friendships developed outside of nontutorial contexts and interactions, typical peers voluntarily took on the role of helper and tutor to the student with disability. Typical peers have directly commented on such growth in social responsibility and self-perception (see Peck, et al., 1990). In addition, typical peers who interact with students with severe disabilities develop more realistic expectations and perceptions of student behavior (Evans, et al., 1994; Fisher, et al., 1998; Kishi & Meyer, 1994). Evans, et al., reported on the use of hypothetical scenarios involving typical peers or students with disabilities to determine the ability of students in kindergarten to second grade to judge fairness in social situations. No significant differences in judgment were found irrespective of the scenario involving a typical peer or a student with disabilities, although second graders were more likely to "excuse" the actions of students with disabilities. Again, this study lacked direct observation measures and it failed to include a comparison group even though it was conducted in a school with a history of including students with disabilities.

Benefits for Students with Severe Disabilities

Studies addressing the benefits of inclusion for students with severe disabilities have incorporated more robust experimental methods by utilizing standardized assessments (see Fisher & Meyer, 2002), direct observation methods (Fryxell & Kennedy, 1995; Kennedy, Shukla, & Fryxell, 1997), and single subject research designs (Logan, Jacobs, Gast, Murray, Daino, & Skala,

1997). Empirical investigations by Fryxell and Kennedy, and Kennedy, et al., reveal that included students (a) have more contact with typical peers across a wider range of settings and activities, (b) receive and provide higher levels of social support, (c) enjoy larger friendship networks, and (d) engage in relationships that are more durable with their typical peers. Perhaps as a direct consequent, included students with disabilities have higher scores on measures of social competence (Fisher & Meyer, 2002), and display more happiness behaviors (Logan, et al.). Logan and colleagues used an alternating treatments design to evaluate the effect of type of peer group, either comprised of students with disabilities or typical peers, on the happiness behaviors of five students with profound multiple disabilities. Happiness behaviors were operationally defined as the student smiling, opening his or her eyes, or vocalizing during small group activities. All five participants displayed higher and more stable rates of happiness behaviors during group activities with typical peers when compared to group activities with other students with disabilities. Inclusive environments appear to not only positively influence the expression of social behavior, but also influence the actual development of social skills for individuals with severe disabilities.

Fisher and Meyer's (2002) two-year longitudinal study compared the social competence of 40 students with severe disabilities, equally divided in number into self-contained or inclusive classrooms, using the Assessment of Social Competence (ASC). The ASC measures 11 aspects of social competence (e.g., initiates contact, provides positive feedback), and has high test-retest and interrater reliability. The students were located in four states representing different geographic locations, and were matched on two variables: (1) chronological age at the time of the first administration of the ASC, and (2) their initial broad independence score on the Scales of Independent Behavior (SIB), a nationally standardized scale that measures developmental functioning. The researchers found that students in the inclusive settings had significantly higher mean scores on the ASC after a two-year period, and although students in self-contained classrooms made gains, they were not statistically significant. Social benefits of inclusion for students with severe disabilities are not just confined to the classroom, but are generalized to home and community environments as well. Parents have reported increases in their children's participation in extra-curricular activities and concomitant decreases in inappropriate social behaviors (Ryndak, Downing, Jacqueline, & Morrison, 1995).

Fostering Membership and Belonging in Inclusive Classrooms

Developing friendships and relationships with typical peers is an essential part of achieving social benefits for students with severe disabilities. Often students with disabilities have consistent access to those peers in both school and community settings. If classroom environments are not conducive to facilitating opportunities for social interactions, students with disabilities may become socially rejected. Odom, Zercher, Li, Marquart, and Sandall (in preparation) examined the social acceptance and rejection of preschool-age children with disabilities enrolled in inclusive classrooms. The inclusive programs spanned five states and varied in their organizational structure (e.g., community-based, public school-based, head start, etc.). The programs

represented “national diversity in geography, population density of the community, socioeconomic status of families, culture, and language use” (Odom, et al., in preparation). Each program recruited five children with special needs (total of 80) and two typical peers (total of 32) to participate in the study. Odom and colleagues found that only 28% of the preschool students with disabilities were socially accepted in comparison to 63% of their typical peers, and although an equal amount of students with disabilities were socially rejected only one typical peer fell into that category. However, 44% of students with disabilities were classified as neutral, meaning they were neither socially accepted nor rejected. Evans, Salisbury, Palombaro, Berryman, and Hollowood (1992) reported similar findings for students with disabilities in kindergarten to third grade. Some students in the class were popular, and others were not, however, the number of interactions received from typical peers declined over time. Researchers have identified methods and strategies that foster class membership and social belonging for students with severe disabilities.

Odom and colleagues (in preparation) identified three clusters of characteristics that led to the social rejection of students with disabilities (a) socially withdrawn or isolated, (b) display of aggressive and/or conflictive qualities, and © absence of a communication system. Students who display these characteristics are most at-risk for exclusion from peer groups, and thus truly establishing class membership. However, classrooms that promote cooperation among all students facilitate more naturally occurring social interactions (Staub, et al., 1990). Janney and Snell (1996) found that classrooms that maintained an aura of competition between typical peers, yet promoted cooperation when typical peers interacted with students with disabilities placed peers in the role of teacher and manager of student behavior. This occurred because teachers encouraged typical peers to “work with” and “help” the student with disabilities, but not each other. Such roles are not conducive to facilitating friendships and may overwhelm the peer producing dissonance in their perceived roles of tutor and friend (Staub, et al., 1990).

In order for the student with disabilities to achieve class membership”, he or she must have access to typical peers during social times and be provided meaningful ways to participate (Schnorr, 1990, 1997). In addition, Schnorr (1997) found that class membership depended upon students’ abilities to form peer networks with small subgroups within and outside of the classroom context. Teachers can foster social interaction between students with disabilities and their peers through particular instructional strategies, such as cooperative groups, project-based activities, and child-directed learning activities (Staub, et al., 1990). Treating the student as “just another student” by encouraging him or her to follow class rules and expectations, and providing the student age-appropriate materials also contribute to the development of peer relationships (Janney & Snell, 1996). Furthermore, Janney and Snell discovered in their observations of teacher behavior that teachers must be able to identify when to “back off”, and allow children to naturally interact.

Academic Outcomes in General Education Contexts

In studies comparing student performance between inclusive and segregated settings, students with severe disabilities in general education classrooms have shown similar or even better achievement in skill development and curriculum content than those in special education settings (Fisher & Meyer, 2002; Hunt, Staub, et al., 1994; Miles, Cole, Jenkins, & Dale, 1998; Ryndak, et al., 1999). The students' academic success in inclusive settings was recognized by parents and was measured in research studies. Parents of students with severe disabilities who were learning in general education classrooms perceived that those students showed better performance in academics compared to their previous achievement in segregated settings (Ryndak, et al., 1995). Furthermore, a large N study measuring independence skills and social skills using standardized tests found that preschool to high school students with moderate to severe disabilities in inclusive settings yielded similar or even higher scores on their independence and social skill assessments than counterparts in segregated classrooms (Fisher & Meyer, 2002). This finding is similar to previous studies examining academic outcomes of small numbers of students with severe disabilities (e.g., Hunt, Staub, et al., 1994; Ryndak, et al., 1999).

As students with severe to moderate disabilities have been taught with their non-disabled peers during most of their school time, those students with disabilities may experience more natural, diverse, interactive, and rich learning environments. In general education classrooms, many students with severe disabilities have been provided well-designed adapted instruction and were stimulated by high expectations and multiple resources, materials, and interactions with people. Instruction in inclusive environments with appropriate support may help students with severe disabilities generalize what they learned in classrooms. In a longitudinal case study of a woman with severe disabilities (Ryndak, et al., 1999), the subject showed significant progress (e.g., writing a newspaper article with a facilitative writing process) in her literacy-related skills after receiving 7 years of inclusive education. Before inclusion, at the age of 15, this student had a second grade level of reading comprehension and a very low level of vocabulary development (i.e., 3 years 5 months of oral vocabulary and 6 years 10 months of receptive vocabulary). However, during her inclusive education, this student received comprehensive and collaborative educational support based on the student's needs, including functional literacy skills for her independent living. This instruction also emphasized oral and written literacy strategies, thus strategy-focused instruction enhanced generalization of learned literacy skills across settings, situations, and people. Furthermore, Kliever and Biklen (2001) investigated the literacy outcomes of students with severe disabilities in natural and rich learning environments, environment which most schools might not provide to those students. While reviewing literature related to the literacy of students with moderate to severe disabilities, these researchers found that inclusive learning environments facilitated student learning in literacy and other areas (e.g., social relationships and adaptive skills) and thus resulted in successful student outcomes. Those two studies have shown that the intensive literacy instruction in natural educational settings led to increasing the potential to learn and increased learning opportunities. Also this instruction helped those students with severe disabilities live their life independently.

Nonetheless, Miles, et al., (1998) indicated somewhat different findings related to the developmental progress of preschoolers with disabilities in special education classrooms and in integrative classrooms. These researchers compared intelligence and language development of 66 young children with disabilities in three different classrooms separated by levels of inclusion (special education only, integrated special education, and mainstreamed classes). According to pre-and post-tests among these three settings, those children's performance was dependent on the preschoolers' ability regardless of educational placement. That is, higher performing students yield relatively better outcomes in integrative classrooms, while lower performing counterparts showed greater gains in special education-only classrooms. However, the levels of inclusion in this study were simply defined as the proportion of children with disabilities. The integrated classroom had 3 typical students and 11 with disabilities and the mainstreamed classrooms had 9 typical children and 5 children with disabilities. Also these settings provided different curricula for the students although there were no significant influences on student performance. This finding should be interpreted carefully in terms of student ability and expectations toward student performance. Specifically, children with severe disabilities may be considered to be low performing students, thus expectations toward these students achievement in inclusive settings may be relatively lower than that of other students. Therefore, acting on the findings of this study may discourage students with severe disabilities to have various learning opportunities while receiving adequate service and support.

Future Research

Future studies on the social benefits of inclusion for typical peers should employ direct observation and measurement of social behaviors to validate the findings of indirect assessment measures. Currently, it is difficult to determine the extent to which social desirability influences the responses of typical peers on those measures. Also, researchers must examine the complexities of the friendship and/or tutor role for typical peers in order to facilitate friendship formation. In addition, research should address the gender effects of social acceptance, specifically, how to increase interactions between typical males and students with disabilities. Future studies on the benefits of inclusion for students with severe disabilities can be addressed by researching additional strategies and practices that foster classroom belonging and membership for those students. Specific interventions must be developed to prevent the social rejection of students with severe disabilities, and help them establish peer networks. Other contextual factors (e.g., teacher behavior, classroom climate) also should be evaluated to determine their role in facilitating social interactions.

Future research also is needed in relation to the academic outcomes of inclusive educational practices for students with severe disabilities. The extent to which students with severe disabilities can acquire and use knowledge from the general education curriculum is unknown, as are the specific instructional practices and collaboration strategies that maximize students' learning. Consistent with this, additional research also is needed to determine the longterm outcomes for students with severe disabilities who receive their special education and related services in inclusive general education contexts for

multiple years, compared with similar students who receive services in segregated special education settings.

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