

## Included Students with Autism and Access to General Curriculum: What Is Being Provided?

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Autism has increased at an unprecedented rate in recent years. The U.S. Centers for Disease Control (Centers for Disease Control [CDC], 2007) reported in a prevalence study of autism that one in 150 8-year-olds have been identified with the disorder. The 2005 U.S. Government Accountability Office (U.S. GAO, 2005) Report to the House of Representatives on Special Education reported a 500% increase in the number of students aged six to 21 identified with autism in the past 10 years. The U.S. GAO cited the following as possible reasons for the dramatic increase in autism rates: (a) improved diagnoses, (b) broader array of conditions falling within the range of autism, and (c) increased rates of autism in the general population.

Despite what seems to be an alarming surge in rates of autism, some contend that what is really being witnessed is the result of category shifting. Shattuck (2006) examined longitudinal federal and state special education disability categories. This researcher determined that students who would have previously been identified with mental retardation, specific learning disability, or other health impairments were now categorized under autism. When more conditions were included in the category of autism, there were corresponding declines in the above listed disability categories. Regardless of the possibility of disability

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category substitution, elevated rates of autism impact every aspect of our society, especially the public educational system.

Public education has worked to address the needs of all students with disabilities, although it has been a gradual process. The most pivotal change in public education for students with disabilities in general education classrooms dates to the implementation of the federal law, Education for All Handicapped Children Act of 1975 (PL 94-142), which is now known as the Individuals with Disabilities Education Act (IDEA, 2004). The law itself has undergone several revisions over the years from 1975 to 2004, including but not limited to: (a) disability category changes, (b) age group modifications, (c) a name change, and (d) expansion of services (National Information Center for Children and Youth with Disabilities, 1996). One of the most significant revisions of IDEA pertinent to autism was in 1990 when it was added as a disability category (U.S. Department of Education Office of Special Education Programs [USDE OSEP], 2006), having not been included in the law previously.

While IDEA (2004) has been a driving force for change in the education of students with disabilities, another federal law, The No Child Left Behind Act (NCLB, 2001) has also contributed to educational changes for students with disabilities. NCLB has stressed not only access to the general curriculum, but also access to all state mandated tests for students identified for special education (Karger, 2005; Karger & Hitchcock, 2003). NCLB requires state mandated assessment in the major subjects of math, reading, writing, and science. As a result of the combined requirements of IDEA and NCLB, general education teachers are required to adapt their instructional strategies in the general education classroom to accommodate students with disabilities (Karger, 2005; Simpson, de-Boer-Ott, & Smith-Myles, 2003; Wagner, 2002).

The degree of intervention needed to facilitate academic supports for students with autism in general education classrooms differs. Because of variability in manifestations of their disability, students with autism need curriculum modifications or instructional accommodations to access the general curriculum (Hanbury, 2005; Myles, 2005; U.S. Department of Health and Human Services, [U.S. DHHS], 2001; U.S. GAO 2005; Wagner, 2002). Curriculum modifications require the teacher to make adjustments to what is being taught or expected in the general education classroom, for instance a student could be given shorter assignments (National Dissemination Center for Children with Disabilities [NICHCY], n.d.). Instructional accommodations are changes in the methods used for student responses or curricular involvement (NICHCY, n.d.). For example, an accommodation for a student who has trouble writing down answers could be to give answers orally (NICHCY, n.d.). Instructional

accommodations do not inherently change the curricular content, or the length of the assignment; these accommodations only change how the content is accessed or the method of student response.

All curriculum modifications and instructional accommodations for students designated eligible for special education, as per federal law, must be outlined in the students' individualized education plan (IEP) (IDEA, 2004). According to the U.S. Department of Education, Office of Special Education and Rehabilitative Services (U.S. DE OSERS, 2000), each IEP is required to contain, among other things, the following: (a) annual measurable goals related to either the students' academic, behavioral, physical or social needs; (b) a list of special education and related services that may include supplementary aids/services for the student, curriculum modifications, or supports for staff; (c) an explanation of participation with non-disabled children in general education classes; and (d) a statement regarding student participation or non-participation in state mandated assessments, and what modifications are required. Furthermore, each student with an IEP is required to have a team of qualified school professionals and family members to make decisions about his or her IEP; this is called the IEP team (IDEA, 2004). An important 2004 IDEA revision specifies that general education teachers must be a part of the IEP team and, furthermore, their role requires them to do the following:

Participate in the development of the IEP of the child including the determination of appropriate supports, and other strategies, and the determination of appropriate positive behavioral supports, and other strategies, and the determination of supplementary aids and services, program modifications, and support for school.... (20 U.S.C. § 1414(1)(A)(i)(IV))

Unfortunately, according to an investigation by the U.S. DE OSERS (2002), most general education teachers did not feel they were adequately prepared to work with or provide instructional accommodations for students who have disabilities. In addition, Robertson, Chamberlain, and Kasaril (2003) interviewed 187 second- and third-grade children and their teachers in general education classrooms regarding their relationships with included students who have autism. The researchers found that increased behavioral symptoms led to decreased levels of social inclusion and acceptance by peers and general education teachers. Moreover, general education teachers reported the need for supplemental training and support to successfully include the students with autism (Robertson et al.).

Research studies that examine how general education teachers adapt their instructional strategies to accommodate students with dis-

abilities are few; and fewer still are studies focused on general education teachers' use of instructional strategies for students with autism. Given the scarcity of studies examining access to the general curriculum for students with autism, this literature review was expanded to look at the following: (a) a description of the landscape of curriculum modifications and instructional accommodations for students with autism; (b) a review of research conducted on the meaning and degree of access to the general curriculum for students with disabilities, since there were none specifically for students with autism; and (c) specific studies on the inclusion of students with autism.

### Literature Landscape of the Literature on Curriculum Modifications and Instructional Accommodations

An abundance of descriptive "how-to" articles and teacher/administrator advice commentaries pervade the literature on curriculum modifications and instructional accommodations. Most articles are directed to general education teachers and school administrators focusing on descriptions of the behavioral manifestations of autism, considerations for inclusion, and instructional recommendations for students with autism (e.g., Dahle & Gargiulo, 2004; Harrower & Dunlap, 2001; Mastergeorge, 2007; Safran, 2002) as well as access to the general curriculum for students with various other disabilities (Connor & Lagares, 2007; Godek, 2008; Worrel, 2008). However, research on these topics is sparse. In order to provide a full understanding of the literature on curriculum modifications and instructional accommodations, this section will include a brief overview on the landscape of articles that appear in the literature. Thereafter, focus will shift to research studies on the meaning and definition of access to the general curriculum, and research studies on instructional supports.

Dahle and Gargiulo (2004) provide an example of a how-to article that promotes the use of structured teaching approaches integrating academic and learning accommodations tailored for students with autism. Another article for teachers contained in a Phi Delta Kappa Fastback (2004), which is an informative booklet on education topics, includes detailed instructional implications and strategies in domains such as social interaction, academic obstacles, and instructional accommodations for students with autism. Similarly, Safran (2002) provides general education teachers ideas on how to set up a classroom, how to help students transition and develop social skills, and concludes with recommendations for instructional accommodations and accessing resources.

In addition to articles offering general education teachers ideas about

instructional accommodations for students with autism, other articles offer general education teachers and administrators tips on what to do and what not to do when it comes to inclusion of students with disabilities in general. For example, Worrel (2008) explained seven potential barriers to secondary school inclusion and their remedies. Similarly, Connor and Lagares (2007) provided 25 instructional strategies for social studies teachers to use that improve access to the general curriculum and success on state assessments for included high school students with disabilities. In addition to articles for teachers, there are also articles that come from the administrative point of view. For instance, Master-george (2007) examined inclusion and gave administrators, as well as teachers, guidelines to promote the academic success of students with autism. The article incorporated topics like social and environmental classroom considerations, how to establish routines, and how to use students' restricted interests in the classroom.

When one examines the landscape of how-to articles for teachers and administrators, one finds that some authors direct their articles towards schools. For example Godek (2008) offered tips for schools on how to provide the necessary supports for a student with autism. The author related the story of a student with disabilities named William from pre-kindergarten through high school. For each school level there were multiple ideas on how to support this type of student in a general education classroom. While the article is informative and brings to light many important considerations for schools, it fails to address access to the general curriculum and instead focuses exclusively on individual student goals.

The how-to articles and the teacher/administrator advice commentaries follow similar formats and are abundant in education journals. Generally present in these articles are descriptions of behavioral manifestations of various disabilities and prescriptions for ameliorating challenges of inclusion by detailing strategies general education teachers can use to successfully include students with autism or other disabilities. Despite the fact that these types of articles permeate the literature on curriculum modifications and instructional accommodations, all of the articles failed to support their recommendations with research.

### Research on the Meaning and Degree of Access to the General Curriculum

Access to the general curriculum is interpreted in many school districts as simply a student with disabilities being placed in a general education classroom (Soukup, Wehmeyer, Bashinski, & Boviard,

2007). Placement does not necessarily equate with access to the general curriculum (Browder, Wakeman, & Floweres, 2006; Newman, 2006; Wehmeyer, 2006) and most school districts do not have clear policies on strategies to promote access to the general curriculum for students with disabilities (Soukup et al., 2007). Research on curriculum modifications and instructional accommodations has been limited to the meaning and degree of access to the general education curriculum for students with disabilities, and to types of curriculum modifications and instructional accommodations offered to students with disabilities.

Research on the definition of access to the general curriculum was conducted by Dymond, Renzaglia, Gilson, and Slagor (2007). Dymond et al. conducted a mixed methods study in an urban school in a small mid-western state and interviewed 20 general education social studies/science teachers and 15 special education teachers to explore their definitions of access to the general curriculum. General education social studies/science teachers defined access for these students as being able to use the same curriculum and materials as students without disabilities. In contrast, special education teachers' defined access to the general curriculum as the use of an adapted curriculum tailored to individual student needs that also developed appropriate life skills. All of the interviewees believed that special education teachers were responsible for providing access to the general curriculum. Half of the general educators and only 8% of special educators interviewed defined access to the general curriculum for students with significant cognitive disabilities as having access to the same curriculum content as those students without disabilities. The limitations of this study included the small sample size and the fact that teachers from only one school were interviewed.

The degree of classroom participation and access to the general curriculum that middle school students with a cognitive disability have in relation to their classroom setting, meaning inclusive or self-contained, was the subject of a study conducted by Wehmeyer, Lattin, Lapp-Rincker, and Agran (2003). Participants included 33 middle school students in grades six through nine at two schools. A time sample observation coded the subject content being taught, the type of setting, and whether or not there was a peer without a disability present in the classroom. Accommodations, adaptations and augmentations were coded broadly, not by specific types. For example, if an accommodation was documented, it was not stated if it was extended time, reduction in amount of work, and so forth. It was only noted that an accommodation, adaptation or augmentation was provided to a student. Wehmeyer et al. also examined school records to uncover anecdotal data such as IQ-test scores, accommodations, and goals and objectives to provide a picture of study participants.



Wehmeyer et al. (2003) analyzed variances across 439 observations first to determine if there was a difference between inclusion status of a student and what they were studying, either IEP goals or general curriculum, and to what degree accommodations, modifications, and augmentations were present. A second variance analysis performed by Wehmeyer et al. examined class content being studied in different types of general education classes (like math, science/health, social studies, art/music, English/language arts, and history) which were then grouped with special education classes to assess each type of class and its impact on access to the general curriculum for students with a cognitive disability. The researchers found variances were based on amount of support required for a student and were correlated to amount of time spent on accessing the general curriculum. Students requiring limited support were engaged in activities related to the general curriculum in 87% of the intervals. Yet students requiring intensive support were engaged in activities related to accessing the general curriculum in only 55% of the intervals. Students in inclusive settings were 40% more likely to be working on general curriculum than their counterparts in self-contained classrooms. In contrast, students in self-contained classrooms were more likely to be working on IEP goals than students in inclusive settings.

In a similar study to that of Wehmeyer et al. (2003), Soukup et al. (2007) investigated levels of general curriculum access for elementary students with a cognitive disability. Access to the general curriculum was determined by variables such as type of classroom, meaning either being in a general education classroom or a self-contained classroom, and what type of work was being done by students. Included in the sample were 19 elementary school students aged seven to 12 years old who were observed in either science or social studies class. Classroom observation data on accommodations and adaptations, as well as access to the general curriculum, were collected using the Access Code for Instructional Structure and Academic Response (CISSAR), a computer-based time sampling program.

Factors that led to increased levels of general curriculum access were determined by Soukup et al. (2007) to be instructional grouping, physical arrangements, and if it was a general education or a self-contained classroom. Students who spent a greater amount of time in general education classrooms worked 98% of the time on grade level standards, but only worked 10% of the time on IEP goals. Students in the low inclusion group spent almost 58% of their time working on IEP goals in self-contained classrooms. Accommodations, which mostly included paraprofessional or peer support, were given 67% of the time for all students and were followed by adaptations like reduced work, lower

reading levels, or key words represented in pictures 18% of the time. The researchers concluded that students included at a high or medium rate were more likely to have higher access to the general curriculum than students with low inclusion rates.

Unlike the Wehmeyer et al. (2003) researchers who did not differentiate between the types of accommodations, modifications, and augmentations, but only noted the presence of such in the classroom, the researchers in the Soukup et al. (2007) study coded three types of student interventions giving specific examples of each. These researchers coded for specific types of augmentations, modifications, and accommodations in the interval recordings. Augmentations were defined as types of strategies for learning, test taking, organization, self regulation, and other. Augmentations were never observed during the interval recordings.

Soukup et al. (2007) investigated the presence of the following adaptations or modifications in the classroom: (a) adjusted reading demand, (b) adjusted cognitive demand (not reading), (c) non-print content, (d) content through technology, (e) enhanced content, (f) non-traditional response to instruction, (g) non-traditional instructional materials, and (h) other. Only four out of the eight modifications were observed in the classroom in 17.6% of the time samples. The most frequently used modifications in descending order were adjusted cognitive demand (8.4%), then using non-print content (7.7%), adjusted reading demand (6.2%), and enhanced content (0.6%).

Accommodations in the Soukup et al. (2007) were observed 67.4% of the time, but these only included paraprofessional support (65.4%), peer support (1.0%), and a note-taker (2.7%). Based on these results, it appears that the most preferred accommodation being offered to students with cognitive disabilities to access the general curriculum was providing a paraprofessional in the general education classroom.

Limitations of the study included small sample size and possible teacher effects because most of the students had the same teachers. The researchers believed that their results were within the norm of what can be found in similar settings since both their study and the Wehmeyer et al. study (2003) found that higher rates of inclusion resulted in higher rates of access to the general curriculum.

Establishing a model instructional implementation method for access to the general curriculum for students with a cognitive disability was the goal of a study conducted by McDonnell, Mathot-Buckner, Thorson, and Fister (2001). McDonnell et al. sought to increase general education inclusion time for students with a cognitive disability. Another goal of the study was to enhance instruction by employing a single subject design to examining the use of class-wide peer tutoring (CWPT), multi-element



curriculum, and accommodations on the responding and competing patterns of included students with moderate to severe disabilities in a junior high school (McDonnell et al.). A random selection of participants in the McDonnell et al. study comprised of three students with moderate to severe disabilities, three students without disabilities, one special education teacher, and three general education teachers. Dependent measures were academic responding and student competition using the CISSAR. Experimental conditions of this single subject multiple baseline design included the baseline and intervention measurements and an instructional package.

CWPT was the first component of this study and was implemented two times per week for 15 minutes a session by general education teachers who were told to create peer tutoring teams. Each team consisted of one above average student, one average student, and one below average student. The general education teacher was instructed to develop help procedures in case any student could not fulfill his or her role. For example, if a student had difficulty performing a task like reading a set of directions, another member would assist the student having the difficulty.

The second component of this study was multi-element curriculum. Multi-element curriculum mirrors the definition of curriculum modifications. Both definitions require general education teachers to make changes to student expectations and modify instructional materials in order for students with disabilities to gain access to the general curriculum. Multi-element curriculum in this study included a change in focus on the instructional objectives for the students with disabilities to a subset of skills. For example, whereas students without disabilities were working on calculating ratios, proportions, and percents in a pre-algebra class, the student with cognitive disabilities was only required to convert numbers from percentages to decimals with the aid of a calculator. The final component of this study was focused on accommodations which were developed for each of the three students with a cognitive disability by the general education teacher and the special education teacher. Accommodations for many of the tasks these students were required to do involved reduced response demands.

As a result of the combination of CWPT, multi-element curriculum, and accommodations, the researchers found an increased participation of students with disabilities in the general education classroom. Limitations of the study included the small sample size, and the effects of implementing the instructional program with three different teachers. A recommendation for further study was to examine each strategy individually for students with disabilities that function at different levels.

Access to the general curriculum for students with disabilities is not

only an issue with which individual schools must grapple, but also with which school districts must address. The northeastern school district began a phase out of 30-year old learning centers (LCs) for students with learning disabilities in an attempt to increase student access to the general curriculum as mandated by the NCLB (2001) and IDEA (2004). Additional factors for the LC phase-out consisted of lower academic performance for LC students than their included peers with disabilities, an overrepresentation of African American and Hispanic students, difficulty integrating LC students into inclusive settings, and excessive numbers of students in LCs as opposed to their home schools. The overall aim of the phase-out was to move students who were recipients of special education since kindergarten from the LC to more inclusive settings in their home schools. An evaluation of the phase-out process and the transition of these students into general education classrooms was conducted by Merchlinsky, Cooper-Martin, and McNary (2009).

Merchlinsky et al. (2009) utilized surveys, interviewed prime stakeholders, and performed classroom observations on inclusive practices. Evaluation results indicated that while the MCPS offered training on inclusive practices, the training was poorly attended by teachers and support staff. Classroom observations by Merchlinsky et al. found that only 27% of sixth grade and 23% of seventh grade general education teachers were using differentiated instruction to assist included students to access the general curriculum. LC transitioned students scored lower on standardized tests than students with similar disabilities. School staff expressed that included students transitions from LCs required more support in the general education classroom than other students with disabilities.

Based on the research of the meaning and degree of access to the general curriculum it is evident that there exist differing views among teachers as to who is supposed to provide access to the general curriculum for students with disabilities. It is also clear that research on the use of curriculum modifications and instructional accommodations has been limited almost exclusively to students with cognitive disability. Additionally it has been shown that with support, general education teachers can successfully offer access to the general curriculum for students with disabilities. However, many general education teachers lament that they do not have enough training to support students with disabilities in the general education classroom. As a consequence, there are compelling reasons to examine what teachers are doing in the classroom and where they have received training to provide access to the general curriculum for students with disabilities.

### Research on Instructional Accommodations That Provide General Curriculum Access

Access to the general curriculum is a national concern as evidenced by the National Longitudinal Study-2 (NLTS2) funded by the U.S. DE, Institute of Education Sciences (2009). NLTS2 researchers followed youth with disabilities for 6 years from middle school to high school. Not only was access to the general curriculum examined for students with disabilities, there were many different components to this longitudinal study, including analysis of inclusion rates for students with disabilities, substance use among students with disabilities, mobility skills of visually impaired, and general education participation/academic performance of students with Learning Disabilities (LD) and autism.

The sub-study on general education participation for students with LD reported on by Newman (2006) included more than 1,000 youths. The sample was designed to represent 1,838,848 youths. The researchers found that 94% of students with LD were taking at least one class in a general education classroom and had some type of instructional accommodation or classroom support. Conversely, of those included in general education classrooms, 35% received no curriculum modifications and instructional accommodations, 52% were reported as having some curriculum modifications, and 11% received substantial instructional modifications in the general education curriculum. The types of instructional accommodations that students received included the following: (a) 76% receiving extended time for tests and 67% receiving extended time for assignments; (b) 63% having special education teachers monitor their progress; and (c) 37% receiving more frequent feedback from their general education teachers.

It is positive that the majority of students with LD received some sort of instructional accommodation in the general education classroom. In spite of this, the fact that three-fourths of them scored below the normal sample mean across assessment subtests administered in the NLTS2 survey indicates that more should be done to increase the opportunities for academic success of these students. Finally, 80% of students with LDs have difficulty with reading (Fuchs, Fuchs, & Compton, 2004) and none of the mentioned instructional accommodations specifically addressed this particular problem.

Researchers in the NLTS2 also investigated experiences of students with autism in secondary settings. Newman (2007) reported the following in regard to access to the general curriculum and instructional accommodations for secondary students with autism: (a) 33% of students received no instructional accommodations, (b) 47% received

some accommodations, (c) 12% received substantial accommodations, and (d) 8% received a specialized curriculum. The types of instructional accommodations received by students with autism included: (a) 52% had extended time for test taking and completing assignments, (b) 49% had alternative tests or assessments, (c) 41% had slower paced instruction, (d) 38% had curriculum modifications of shorter or different assignments, (e) 33% had modified tests, and 30% had modified grading, and (f) 25% of students had tests read to them. In addition to curriculum modifications and instructional accommodations, 81% of students with autism had learning supports like a teacher's aide or peer tutor, and 57% had some sort of technology aid, like a calculator, computer, or books on tape. Lastly, the survey found that the majority of students with autism had related services like case management or speech language pathology services.

Providing access to the general curriculum for students with autism can be particularly challenging for teachers in general education classrooms. This is in part due to the individual student differences in the manifestation of autism, and also because, often, teachers do not have adequate classroom supports (Robertson, Chamberlain, & Kasaril, 2003). Research on the inclusion of students with autism has focused on a variety of issues. For instance, there have been numerous studies on early intervention for students with autism in pre-school settings (Goin-Kochel, Myers, Hendricks, Carr, & Wiley, 2007; McGee & Daly, 2007; Nelson, McDonnell, & Johnston, 2007; Schwartz, Sandall, Garfinkle, & Bauer, 1998). Other studies have been conducted on the social integration for students with autism with their peers (Boutot & Bryant, 2005; Owen-DeShryver, Carr, Cale, & Blakely-Smith, 2008). Similarly, studies on specific behavioral interventions strategies like video modeling (Banda, Matuszny, & Turkan, 2007; Delano, 2007) and social stories (Ozdemir, 2008; Spencer, Simpson, & Lynch, 2008) have been used to address social skills deficits in school settings.

Early intervention is generally recommended for students with autism. Therefore the fact that the majority of studies on instructional accommodations for students with autism focus on pre-kindergarten and kindergarten classrooms is not surprising (Alston & Kilham, 2004; Schwartz et al., 1998). One such study by Alston and Kilham (2004) investigated the use of instructional accommodations for two pre-kindergarten students with autism in both a general education classroom and a self-contained classroom. Observations were conducted two days per week for 30 minutes per day for six weeks. Although the sample size was limited, the researchers found that paraprofessionals did not use instructional accommodations with the students consistently across settings, and that inclusionary practices might improve with increased

training and support for both general education teachers and paraprofessionals.

Schwartz et al. (1998) used a case study methodology to present three case studies on included students with autism in their pre-school and kindergarten years who achieved positive outcomes as a result of early intervention. The setting was in an early childhood education center at the University of Washington. Each inclusive pre-school class contained a total of 15 students, nine of whom qualified for special education services through a diagnosis of autism or pervasive developmental disorder (PDD). The other six students were considered typically developing students. All classes followed a blend of applied behavior analysis and early childhood education/special education practices. Teachers in the program fill out an activity matrix for each child with a disability that was correlated to the objectives on the students' IEP. Adaptations and modifications are provided as dictated by the students' IEP. The researchers did not indicate which specific adaptations and modifications were used, but did state that students in some cases were given physical prompting and continuous reinforcement to facilitate participation.

Schwartz et al. (1998) selected participants based on recommendations from teachers who were asked to nominate students that showed good progress in the program. Multiple sources of data were collected including assessments, standardized tests, student IEPs, and other archival records. Initially, all of the students in the case study exhibited non-compliant and disruptive behaviors prior to entrance into the program. All three of the students in the case study entered inclusive settings upon exiting the pre-school program, and one of them even exited special education. The researchers attributed the success of the program to the focus on individualized instruction, and the use of specific instructional strategies that addressed student needs. The limitations the researchers mention are the fact that the case study was based on retrospective data, there was no random selection, and these students were not representative of all of the students in the program. Recommendations for the field included items related to the expense and the viability of such programs in a public school environment.

Progress is being made on the provision of instructional accommodations for students with disabilities that provide access to the general curriculum as indicated by the reviewed studies. While the NLTS2 study surveyed general education teachers on the curriculum modifications and instructional accommodations they use for secondary students with both LD and autism, few of the studies have actually observed what teachers are doing in the classroom to provide access to the general curriculum for students with autism. There exists an alarming absence of

any research that clarifies what general education teachers are doing to provide access to the general curriculum for students with disabilities in general. Less is known about what is being done for students with autism, which is a quickly expanding population of students. Recommendations for further research include going beyond general studies of inclusion to a thorough examination of how general education teachers are providing access to the general curriculum for students with autism and other disabilities.

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