

Educators' Readiness to Teach Children with Autism Spectrum Disorder in an Inclusive Classroom

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Abstract: *The purpose of this study was to examine any correlations between general education teachers' perceptions of preparedness to teach students with autism spectrum disorders (ASD) and their actual knowledge in relevant areas of instruction through inclusive practice. According to results, when teachers indicated academic training or professional development regarding students with ASD, a significant positive correlation was found with their levels of actual knowledge in areas related to methods of teaching and characteristics of students with ASD. However, results also indicated academic or professional development experience did not significantly correlate with actual knowledge of general inclusive teaching practices. This finding suggests that increased training emphasis should be placed on applying knowledge of ASD in an inclusive educational setting.*

Keywords: *inclusive education, autism spectrum disorders, teacher readiness*

Special education is the teaching of children who, for a variety of reasons, may not benefit from the curriculum as it is generally presented. One of the most debated topics in the field of special education is where students with disabilities should receive their academic instruction. To address this issue, the *Individuals with Disabilities Education Improvement Act of 2004 (IDEA)* established procedures to guarantee that

...children with disabilities . . . are educated with children who are not disabled, and special classes, separate schooling or other removal of children with disabilities from the regular

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educational environment occurs only when the nature or severity of the disability is such that education in regular classes . . . cannot be achieved satisfactorily (IDEA Section 612a, 5, A).

Based on the principles of the above provision, schools have a responsibility to provide a free and appropriate public education (FAPE), in the least restrictive environment (LRE), to all individuals with disabilities (DeSimone, 2004). This mandate is often met by schools through offering inclusive classrooms intended to teach all learners regardless of special academic needs (Biklen, 1992). According to the U.S. Department of Education in 2007-08, some 6.6 million students representing 13% of the total public school enrollment received special education services (2009). The U.S. Department of Education also reported in fall 2007, some 95% of 6- to 21-year-old students with disabilities were served in typical general education settings (2009). With the rise in the inclusive classroom environment, the effectiveness of the inclusion model has been well researched with many studies consistently finding that inclusive education is beneficial for *all* students (Carter & Hughes, 2006; Downing & Peckham-Hardin, 2007; Foreman, Arthur-Kelly, Pascoe, & King, 2004). The inclusive classroom has numerous advantages for students with special needs, such as greater opportunity to develop friendships, peer role models for academic and behavior skills, increased access to the general curriculum, and higher expectations of performance. Inclusive education is not only advantageous for students with disabilities but also benefits students without disabilities as they build meaningful friendships with students different from themselves, gain an increased appreciation for individuals with different needs, acquire preparation for living in a diverse community, and show heightened levels of self-esteem as compared to their peers not in the inclusive classroom (Logan, Diaz, Piperno, Rankin, MacFarland, & Borganian, 1995). However, proponents of 'New Vocationalism' advocate that the teaching patterns of the 20th century may not match the skills needed in citizens of the 21st century (Grubb, 1996). Foundational reports such as *A Nation at Risk* (NAR; National Commission on Excellence in Education, 1983) and *What Work Requires of Schools* (Washington, D.C.: Secretary's Commission on Achieving Necessary Skills, 1991) advocated for change from the 'boxed' content of core curricular skills delivered in a Taylorist educational paradigm toward a more fluid, modern economic model of instruction (Grubb, 1996; Guthrie & Springer, 2004). Although much controversy remains over the exact influence and quality of both reports, the influence of New Vocationalism on education cannot be denied (Guthrie & Springer, 2004).

This issue is again being revisited as academic discourse converges around issues of diversity in today's classrooms. Where once, a boxed set of tools could be taught to teacher candidates within traditional teacher education programs, today's diversity among students in K-12 classrooms would seem to demand a new paradigm. Teachers of the 21st century are faced with inclusive educational settings and are required to meet strict achievement levels mandated by today's high stakes testing. The mandates of inclusion for students with disabilities further diversify an already highly diverse set of students in today's classrooms. How teacher education programs will meet the challenge of providing effective preparation to meet this challenge remains to be seen; however, one area of interest involves the teaching of special education students within such a diverse environment coupled by the rise in Autism spectrum disorders (ASD).

AUTISM SPECTRUM DISORDERS

In recent years, the number of individuals diagnosed with ASD, including autism, Asperger syndrome, and pervasive developmental disorder not otherwise specified (PDDNOS), have increased considerably (King, 2009). According to the Centers for Disease Control and Prevention (CDC), ASD has risen to 1 in every 88 births (Autism Society of America, 2013). The onset of ASD is usually at birth and is typically diagnosed during the first three years of life; however, problems may begin in later childhood (Wing, 1996). According to the American Psychiatric Association (DSM-IV-TR, 2000), the essential characteristics of ASD include impairments of social communication, impairments of social interaction, and often restricted and/or repetitive activities and interests.

Current treatments for ASD typically include multiple hours of specialized treatment therapies on a weekly or even daily basis. These therapies are usually provided by an array of highly specialized individuals. Some common therapy recommendations include behavior therapy, physical therapy, speech and language therapy, occupational therapy and social skills training. These therapies often comprise the majority of these students' days, as some pediatricians and experts in the area of ASD continue to recommend up to 40 hours per week of Applied Behavior Analysis (ABA; Lovaas, 1987) alone. Because such a large number of hours may be needed, best practice for teachers suggests that teachers of inclusive classrooms become well versed and trained in evidence-based instruction and behavioral techniques in order to help the child obtain his or her therapeutic and educational goals.

Current research indicates that 27% of students with ASD spend 79% of their school day in the general education classroom and 44% spend 40% of their day in the general education classroom (McLeskey et al., 2010). Thus, with the majority of students with ASD spending large portions of their school day in general education settings, inclusive educators must be knowledgeable of ASD's core characteristics, relevant evidence based teaching strategies, as well general strategies for educating within an inclusive classroom to ensure that all students succeed.

Acknowledging considerable benefits of inclusive education while understanding the research based need for students with ASD to receive multiple hours of specific interventions and therapies, the current researchers sought to understand how prepared general education teachers are to implement an educational program for students with ASD in an inclusive setting. The study was framed around the following premises: (a) the increase in inclusive education across the nation (Brownell, Adams, Sindelar, Waldron, & Vanhover, 2006; Cameron & Cook, 2007; Goodman & Williams, 2007; Hamre & Oyler, 2004); (b) the rise in Autism Spectrum Disorders (Harrower & Dunlap, 2001; Leach & Duffy, 2009; McLeskey, Rosenberg, & Westling, 2010; Vaughn, Bos, & Schumm, 2007); (c) previous research indicated that even when general education teachers do report receiving academic instruction and/or professional development training related to the inclusive classroom, they still do not feel completely prepared to instruct children with special needs in inclusive education settings (DeSimone & Parmar, 2006; Ford, Pugach, & Otis-Wilborn, 2001; Hamre, 2004; Pavri, 2004; Yellin et al., 2003). Thus, the current researchers sought to understand teachers' perceptions of their own preparation for teaching and seek any correlation with their actual knowledge regarding one subset of ASD, Asperger Syndrome (AS). Three areas were identified that can be considered foundational to providing an appropriate education to students with AS in an inclusive setting. These included a teacher's ability to identify students with AS, to teach students with AS using evidence-based practices, and to implement

strategies that support the success of this population (both academic and behavioral) in the inclusive classroom.

METHOD

PARTICIPANTS

The participants for this study were 204 general education teachers from both public (88%) and private (12%) schools in an urban school district in the southeastern United States. The participants included 38 males and 166 females. In the sample of 204 educators, ethnicity was reported as follows: 66% Caucasian, 29% African American, 1% Asian, 1% Native American and 3% other. The highest level of education for the participants was reported as bachelor’s degree 53%, master’s degree 45%, and doctoral degree 2%. Teaching experience for these participants ranged from one year to more than 17 years in the general education classroom and included teachers teaching pre-k through grade twelve. According to the surveys, 0-8 years of teaching experience was reported by 39%, 9-16 years teaching reported by 36%, and 25% reported 17 years or more teaching experience. The participants taught in the following settings: Pre-k (1%), Elementary (43%), Middle (39%), and high school (17%).

PROCEDURES

Study participants were recruited through listserves, mass emails, and public postings which outlined the premise of the research and directed them to the website. The researchers developed a survey composed of fifty questions aimed at assessing the teachers’ overall perception of readiness to teach children with ASD in the inclusive classroom. Survey responses utilized the Likert scale and questions were based on the current ASD research surrounding evidence-based practices and best practices in inclusive classrooms. The survey was comprised of three scales that measured the teacher’s perceived preparedness to work with students with ASD. The scales sought to measure each respondent’s knowledge of best practices in inclusive classrooms (see Table 1), evidence-based teaching strategies for students’ with ASD (see Table 2), and

Table 1. *Inclusion Related Survey Items*

Item	Content
1	Inclusion means that most students with disabilities are educated for most of the school day in the general education classroom
2	In an inclusion classroom, teachers adapt the general education curriculum to meet the needs of all students
3	In an inclusion classroom, teachers provide classroom support that is natural and unobtrusive
4	In an inclusion classroom, teachers plan instruction so that most students’ needs are met as a natural part of the school day.

their knowledge of the general characteristics of children with ASD (see Table 3). The survey questions that measured best practices of an inclusive classroom were based primarily on the research of McLeskey, Rosenberg, and Westling (2010). To ensure the items in each scale were valid, all items were then vetted by a group of experts in the area of ASD, including leading researchers and university professors. These individuals deemed each item as relevant and accurate to obtain an understanding of a respondent’s

knowledge in each of the target topic areas. Those questions designed to measure evidence-based teaching strategies for individuals with ASD were based on the work of Goodman and Williams (2007), Harrower and Dunlap (2001), and Leach and Duffy (2009).

Those questions dealing with the general characteristics of ASD were based on the criteria outlined in the diagnostic and statistical manual of mental disorders (DSM-TR-IV; APA, 2000) and a questionnaire designed by Ross and Cuskelly (2006) also based on the DSM-TR-IV which included questions on prevalence and characteristics common to individuals on the spectrum such as communication and social delays.

The survey was posted on Survey Monkey (<http://www.surveymonkey.com>). Survey Monkey is an Internet site that enables researchers to create and post surveys that can be statistically analyzed for research. Each subject’s participation was voluntary. All 204 participants remained confidential to the researchers as no identifying information was collected. There were no incentives offered for completing the survey, which took approximately 20-30 minutes to complete.

Table 2. *Methods Related Survey Items*

Item	Content
1	I am familiar with using social stories with children with autism spectrum disorders
2	I am familiar with using picture exchange communication systems with children with autism spectrum disorders
3	I am familiar with using visual schedules with children with autism spectrum disorders
4	I am familiar with arranging the classroom environment to accommodate sensory challenges often associates with children with autism spectrum disorders
5	I am familiar with using guided notes with children with autism spectrum disorders
6	I am familiar with using graphic organizers with children with autism spectrum disorders
7	I am familiar how to set clear behavioral and social expectations for children with autism spectrum disorders
8	I am familiar with differentiating instruction for children with autism spectrum disorders
9	I am familiar with how to use differential reinforcement of incompatible behaviors with children with autism spectrum disorders
10	I am familiar with the use of differential reinforcement of zero levels or low levels of behaviors with children with autism spectrum disorders
11	I am familiar how to use differential reinforcement of communicative behaviors with children with autism spectrum disorders
12	I am familiar with how to use prompting strategies with children with autism spectrum disorders

Table 3. *Knowledge of Autism/Asperger Syndrome (Asperger)*

Questions for Knowledge of Asperger Syndrome	
1	More girls have Asperger’s than boys.
2	Many children with Asperger’s get upset if there are changes to routines at home

- or school (e.g. usually on Tuesday's they go swimming, but one day they can't).
- 3 All children with Asperger's deliberately hurt themselves.
 - 4 Many children with Asperger's will become adults who have a job and live on their own (i.e. be independent).
 - 5 Asperger's is more common in families who have a history of the disorder (e.g. more likely to have Asperger's if grandparents were diagnosed with it).
 - 6 Lots of people have Asperger's in the world – it is very common.
 - 7 All children with Asperger's aren't very smart – they do poorly at school.
 - 8 Many children with Asperger's don't seem to know how other people are feeling (e.g. they can't tell when you are feeling angry or sad).
 - 9 You can “catch” Asperger's from children who have it – it's a disease like chicken pox.
 - 10 Many children with Asperger's have problems looking at you in the eye when you are talking to them.
 - 11 All children with Asperger's will eventually “grow out” of the disorder and no longer have Asperger's when they are adults.
 - 12 Some children with Asperger's have problems with motor coordination – they appear clumsy (e.g. John isn't very good at sports and has problems catching balls).
 - 13 All children with Asperger's have difficulty with talking.
 - 14 All children with Asperger's are very good at making and keeping friends.
 - 15 Some children with Asperger's move their body in unusual ways – e.g. flap their hands.
 - 16 Many children with Asperger's spend lots and lots of time on specific activities or things that interest them (e.g. Tom spends hours and hours playing with his train set).
 - 17 Many children with Asperger's can talk about a particular topic for a long time (e.g. Jane is interested in ants and can talk about them for hours with her friends).
 - 18 All children with Asperger's understand how other people are feeling (e.g., Nathan knows that Sally is sad because he broke her pen).
 - 19 Many children with Asperger's talk only about what interests them – they aren't good at listening and letting the other person talk – they have one-sided conversations.
 - 20 Most children with Asperger's will always have problems making and keeping friends – even when they are adults.
 - 21 Many children with Asperger's like to share their interests or enjoyment in activities with other people.

Ross & Cuskelly (2006)

RESEARCH QUESTIONS

The present study examined the following research questions:

- (a) Is there a significant correlation between a teacher's self-rating of academic training regarding students with ASD and their actual reported knowledge in each of the following areas:
 1. evidence-based methods of teaching children with ASD
 2. teaching in an inclusive environment
 3. characteristics of students with ASD
- (b) Is there a significant correlation between a teacher's self-rating of professional

development training regarding students with ASD and their actual reported knowledge in each of the following areas:

1. evidence-based methods of teaching children with ASD
2. teaching in an inclusive environment
3. characteristics of students with ASD

STATISTICAL ANALYSES

A preliminary reliability analysis was conducted to ensure that the items on each of the three categorical areas of the survey were consistent with one another and that they were representing one area of interest by computing the Chronbach's alpha for each categorical area of questions. Next, scores were assigned to each respondent based on the summed responses each made to questions in the specified categorical area. In this way, each participant was rated as to their knowledge in each categorical area based on their responses to the questions dealing with, and assigned to, the categorical area for which the score was obtained. Any reversal questions (i.e., questions where an answer closer to 5 would be interpreted as closer to the researched correct response) were recoded to account for the reversed nature of the question prior to analysis.

Next, a series of one-way analysis of variance (ANOVA) tests were conducted to compare the means of participant responses regarding their perceived academic preparedness with their actual knowledge of the corresponding three categorical areas addressed in the survey. This same ANOVA procedure was applied to compare the means of participant responses to their perceived preparedness through professional development training with their summed scores in each of the three categorical areas. This analysis was conducted in an effort to ascertain any significant correlations between respondents perceived preparedness (measured in relation to academic or professional development training) and their actual knowledge of best practices for inclusive teaching, teaching students with ASD, and knowledge of the characteristics of ASD.

Lastly, respondent answers to preparedness were re-coded to indicate membership in one of two groups in two different training categories. Those respondents that indicated a one (strongly agree) or two (agree) were recoded to included their membership in a group that indicated they had received academic training on how to instruct children with autism. Those indicating a three, four or five were deemed to have not received academic training on how to instruct children with autism. The same recoding was applied to participant responses as to their perceived training via professional development regarding the instruction of children with ASD.

After recoding, a statistical binary logistic regression analysis was conducted utilizing the three categorical area scores in an effort to obtain any correlation analysis as to if knowledge of any one of the three categorical areas could statistically predict inclusion in their actual training group as coded.

RESULTS

RELIABILITY

Chronbach's alpha (α) is the most common scale of reliability (Field, 2009). Scores between .7 and .8 generally indicate acceptable values to indicate that an analyzed scale is sufficiently reliable (Field, 2009). All three sets of survey question categories received adequate reliabilities ($\alpha > .7$). Reliability within the knowledge of methods in teaching

students with ASD received the highest score ($\alpha = .958$). Knowledge of inclusive practice received the lowest score ($\alpha = .711$) while knowledge of the characteristics of ASD received a score of $\alpha = .817$.

A significant correlation was noted between the perceived levels of academic training and actual knowledge of teaching methods effective for students with ASD $F(5,197)=13.595, p<.01$ and actual knowledge of the characteristics of ASD $F(5,198)=6.883, p<.01$. These findings indicate that as respondent's perceived levels of academic training increased, their levels of actual knowledge in the two noted categories increased in proportion. This correlation was not found to be significant with regard to perceived levels of academic training and actual knowledge of inclusive practice $F(5,198)=0.955, p>.01$.

Similar to the findings regarding the correlation stemming from perceived levels of academic training, a significant correlation was noted between perceived levels of professional development training and knowledge of teaching methods effective for students with ASD $F(4,198)=61.224, p<.01$. Likewise, a significant correlation was noted between perceived levels of professional development training and knowledge of the general characteristics of ASD $F(4,199)=12.326, p<.01$. Again, knowledge of inclusive practice was not shown to correlate significantly with regard to perceived levels of professional development $F(4,199)=0.538, p>.01$.

Binary logistic regression analysis is used to predict the extent to which respondents may be predicted to belong to one of two (binary) categories given predictor variables that can be continuous or categorical. In this case, prediction variables consisted of summed scores in each of the three categorical areas measuring actual knowledge and our outcome variables were designated as having belonged to the group that received academic training or had not received academic training. The same analysis was conducted on the binary outcome variables of belonging to the group that indicated it had received professional development training or had not received professional development training regarding the teaching of students with ASD.

Results of the logistic binary regression analysis indicated that scores on actual knowledge of methods to teach students with ASD could predict ($p<.01$) membership in the group indicating they had received academic training $B(SE)=-0.160(.023)$; $Exp(B)=0.852$. Likewise, the same analysis applied to the characteristics of ASD scale also indicated a predictive membership ($p<.01$) in the group that had received academic training $B(SE)=-.066(.022)$; $Exp(B)=.936$. When this analysis was applied to the knowledge of inclusive practice scale, no predictive ability was indicated at the ($p<.01$) level $B(SE)=0.080(0.057)$; $Exp(B)=1.083$.

Results of the logistic binary regression analysis indicated that scores on actual knowledge of methods to teach students with ASD could predict ($p<.01$) membership in the group indicating they had received professional development $B(SE)=-0.151(0.022)$; $Exp(B)=0.860$. Likewise, the same analysis applied to the characteristics of ASD scale also indicated a predictive membership ($p<.01$) in the group that had received academic training $B(SE)=-.066(.022)$; $Exp(B)=.936$. When this analysis was applied to the knowledge of inclusive practice scale, no predictive ability was indicated at the ($p<.01$) level $B(SE)=0.036(0.057)$; $Exp(B)=1.036$.

DISCUSSION

Research findings for the past fifty years have reported that general educators perceive that they do not have adequate training to teach children with special needs in an inclusive environment (Kilanowski, Foote, & Rinaldo, 2010). According to the results of this study, participating teachers who had received academic or in-service preparation did possess the knowledge necessary to teach students with AS but lacked an understanding of how to do so in an inclusive environment. This lack of understanding may be due to the focus or breadth of the professional development or the specific academic training provided. Possibly any training these teachers received focused only on the content noted (such as characteristics and teaching methods related to ASD) and not on the application of that knowledge. Metaphorically, one may be trained on how to use multiple building tools but this training will have little practical value in building a birdhouse unless one understands how to use the tools together and practices with the tools following the training. In other words, lack of generalization back to the classroom seems to be the lesson learned from the current study.

Several options could remedy this situation and improvements in the application of the principles learned could be seen either through professional development or academic course work. Most notable would be engaging the teachers in practice of the techniques learned through role-play prior to leaving training. Another training plan option may be to require training participants to demonstrate learned techniques with a child with ASD along-side a typical child before obtaining continuing education or completing a course for credit. Most notably, training regarding the use of Universal Design for Learning (UDL) principles during the acquisition phase of the training would seem to be especially relevant. Understanding UDL principles would help a teacher to provide multiple presentation strategies of any lesson's content to ensure that the participants received multiple and varied methods of instruction in a flexible, not a one-size fits all, lesson (Turnbull, Turnbull, & Wehmeyer, 2010). This additional training, or portion of training, may assist teachers with making meaningful connections back to their inclusive classrooms.

In addition, revamping teacher education programs that are generally geared toward preparing teachers for segregated education environment to included extensive training regarding inclusive education may be a viable solution. While the idea of a "dual program," stressing teaching techniques and strategies relevant to an inclusive, diverse classroom environment is relatively new, the idea is beginning to emerge across the nation in pre-service teacher education programs. Many programs facilitate students to major in two licensure areas such as elementary education and special education within their four-year credit limit standard. The movement of teacher preparation programs to this dual type program reflects the realities of today's classrooms and should be continued as a trend in higher education teacher preparation programs.

It should be noted that dual licensure programs should not be considered a quick solution as there continues to be a disconnect between many state licensure standards and the needs of teachers to possess an understanding of practical application techniques required in an inclusive educational setting in most U.S. states. In essence, most states license teachers with a "boxed" content area while the reality is that teachers are required to understand, apply and manage a comprehensive and fluid set of skills to meet the demands of the diverse set of students within their classes. The matching of state teacher licensure requirements and accreditation mandates from multiple teaching disciplines within teacher training programs is perhaps one of the most daunting challenges teacher education programs face when striving to create dual licensure

programs. Clearly, changes at both of these levels will need to be facilitated if the needs of future teachers are to be met.

FUTURE RESEARCH AND LIMITATIONS

Though this study did identify a disconnect between teachers' perceived knowledge of ASD and their knowledge of practically applying that understanding in an inclusive setting, the study was not without limitation. This current study did not directly measure the participants' knowledge of strategies to support success in students with ASD, but rather indirectly measured each teacher's perception of his or her knowledge. Further research might seek to assess a teacher's actual knowledge verses his or her perceptions of understanding. Further research may also benefit from collecting more demographic information concerning the participants' university program requirements and characteristics of any professional development. Lastly, limitations include that the participants were all from an urban school district in the Southeastern United States and the respondents were individuals who had access to a computer. Thus, the findings cannot be generalized to teachers without computer access as the study was an Internet based survey.

CONCLUSION

In conclusion, the success of the inclusive classroom for all children, specifically with ASD, is a problem that has been burdening the education system for decades and will not be solved overnight. However, the strategies offered in this article represent options that could assist educators in meeting the challenges that they face on a daily basis and could prevent future inclusive educators from encountering them. The challenge of how to best serve students' with ASD in an inclusive classroom will likely continue, but this study suggests that an effort should be made to adequately train the new generation of teachers and as well as those currently working in the field to provide them with the tools to meet their teaching expectations in the classroom not just during the professional development or college course.

REFERENCES

- American Psychiatric Association. (2000) *Diagnostic and statistical manual of mental disorders* (Revised 4th ed.) Washington, DC: Author.
- Autism Society of America. (2013). *About Autism*. Retrieved from http://www.autism-society.org/site/PageServer?pagename=about_home.
- Biklen, D. (1992). *Schooling without labels*. New York: Teachers College Press.
- Brownell, M. T., Adams, A., Sindelar, P., Waldron, N., & Vanhover, S. (2006). Learning from collaboration: The role of teacher qualities. *Exceptional Children*, 72, 169-85.
- Cameron, D. L. & Cook, B. G. (2007). Attitudes of preservice teachers enrolled in an infusion preparation program regarding planning and accommodations for included students with mental retardation. *Education and Training in Developmental Disabilities*, 42, 353-63.
- Carter, E., & Hughes, C. (2006). Including high school students with severe disabilities in general education classes: Perspectives of general and special educators, paraprofessionals, and administrators. *Research and Practice for Persons with Severe Disabilities*, 31, 174-185.

- DeSimone, J. R., & Parmar, R. S. (2004). An examination of middle school mathematics teachers' beliefs and knowledge about inclusion of students with learning disabilities. Unpublished manuscript, St. John's University, New York.
- DeSimone, J. R., & Parmar, R. S. (2006). Issues and challenges for middle school mathematics teachers in inclusion classrooms. *School Science and Mathematics*, 106, 338-348. doi:10.1111/j.1949-8594.2006.tb17754.x
- Downing, J., & Peckham-Hardin, K. (2007). Inclusive education: What makes it a good education for students with moderate to severe disabilities? *Research and Practice for Persons with Severe Disabilities*, 32, 16-30.
- Field, A. (2009). *Discovering statistics using SPSS 3rd Ed.* London: Sage.
- Ford, A., Pugach, M. C., & Otis-Wilborn, A. (2001). Preparing general educators to work well with students who have disabilities: What's reasonable at the preservice level? *Learning Disability Quarterly*, 24, 275-285. doi:10.2307/1511116
- Foreman, P., Arthur-Kelly, M., Pascoe, S., & King, B. (2004). Evaluating the educational experiences of students with profound and multiple disabilities in inclusive and segregated classroom settings: An Australian perspective. *Research and Practice for Persons with Severe Disabilities*, 29, 183-193. doi:10.2511/rpsd.29.3.183
- Goodman, G., & Williams, C. M. (2007). Interventions for increasing the academic engagement of students with autism spectrum disorders in inclusive classrooms. *Teaching Exceptional Children*, 39, 53-61.
- Hamre, B. (2004). Preparing teachers for inclusive classrooms. *Journal of Teacher Education*, 55, 154-163. doi:10.1177/0022487103261588
- Harrower, J., & Dunlap, G. (2001). Including children with autism in general education classrooms: A review of effective strategies. *Behavior Modification*, 25, 762-784. doi:10.1177/0145445501255006
- Individuals with Disabilities Improvement Education Act 2004, Pub. L. No. 1446.108 § 602, 612, [On-line]. Available Internet: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_cong_public_laws&docid=f:publ446.108
- Kilanowski, L., Foote, C. J., and Rinaldo, V. J., (2010). Inclusion Classrooms and Teachers: A Survey of Current Practices. *International Journal of Special Education*, 25(3) 43-56.
- King, M.D., Fountain, C., Dakhilallal, D., & Bearman, P.S. (2009). Estimated autism risk and older reproductive age. *American Journal of Public Health*, 99(9) 1673-1679. doi:10.2105/AJPH.2008.149021
- Leach, D., & Duffy M. (2009). Supporting students with autism spectrum disorders in inclusive settings. *Intervention in School and Clinic*, 45, 31-37. doi:10.1177/1053451209338395
- Logan, K. R., Diaz, E., Piperno, M., Rankin, D., MacFarland, A. D., & Borgonian, K. (1995). How inclusion built a community of learners. *Educational Leadership*, 52(4), 42-44.
- Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology*, 55, 3-9. doi:10.1037/0022-006X.55.1.3
- McLeskey, J., Rosenberg, M., & Westling, D. (2010). *Inclusion: Effective practices for all students.* New Jersey: Prentice Hall.
- National Institute of Health (2010). Autism Spectrum Disorders. Retrieved. January 17, 2011, from <http://www.nichd.nih.gov/health/topics/asd.cfm>

- Pavri, S. (2004). General and special education teachers' preparation needs in providing social supports: A needs assessment. *Teacher Education and Special Education, 27*, 433-443. doi:10.1177/088840640402700410
- Salisbury, C. (2006). Principals' perspectives on inclusive elementary schools. *Research and Practice for Persons with Severe Disabilities, 31*, 70-82. doi:10.2511/rpsd.31.1.70
- Scheuermann, B., Webber, J., Boutot, E. A., & Goodwin, M. (2003). Problems with personnel preparation in autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 18*, 197-206. doi:10.1177/10883576030180030801
- Simpson, R. (2004). Finding effective intervention and personnel preparation practices for students with autism spectrum disorders. *Exceptional Children, 70*, 135-144.
- U.S. Department of Education, National Center for Education Statistics (2010). *Digest of Education Statistics, 2009* (NCES 2010-013), Table 50.
- Vaughn, S., Bos, C. & Schumm, J. S. (2007). *Teaching students who are exceptional, diverse, and at risk in the general education classroom* (4th ed.). New York: Pearson Education, Inc.
- Williams, P. (1998). *A glossary of special education*. Philadelphia: Open University Press.
- Wing, Lorna. (1996). Autism Spectrum Disorders: No evidence for or against an increase in prevalence. *The British Medical Journal, 312*, 327-328.
- Yellin, P. G., Yellin, D., Claypool, P. L., Mokhtari, K., Carr, R., Latiker, T., Risley, L., & Szabo, S. (2003). "I'm not sure I can handle the kids, especially, the uh, you know special ed kids." *Action in Teacher Education, 25*(1), 14-19.