

ARE SPECIAL EDUCATION TEACHERS PREPARED TO TEACH THE INCREASING NUMBER OF STUDENTS DIAGNOSED WITH AUTISM?

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In America, the number of children diagnosed with autism has increased to 1 out of every 150. The current trend in special education appears to support integrated education. Applied Behavior Analysis (ABA) is recognized by many as a very effective instructional methodology in teaching children with autism. Parents are increasingly requesting that special education teachers and general education teachers incorporate ABA into classroom instruction. It is reported that most teachers graduate from colleges with minimum training in evidence-based practices for children diagnosed with autism. Yet, as these children spend more time in integrated and inclusive settings there is a need for well trained and highly qualified teachers in keeping with the spirit of the No Child Left Behind Act of 2001. This study examines the increase of children diagnosed with autism in the Western Suffolk BOCES region in New York State (NYS) over a five year period (2002-2007); the number of ABA trained teachers in this region to meet the growing instructional demands of these children; and to what extent are randomly selected colleges and universities in NYS offering evidence-based training (ABA) to prospective special educators?

Autism is currently considered the fastest growing developmental disability and is now ranked the 6th most commonly classified disability in the United States (National Center on Birth Defects and Developmental Disabilities, 2006). The prevalence of autism appears to be increasing as much as 10% to 17% annually and could reach 4 million Americans in the next decade (Autism Society of America, NDa). Recent studies which further support the increasing prevalence of autism were conducted by Newschaffer, Falb, and Gurney (2005), and the Centers for Disease Control and Prevention as reported in *Newsday* (p. A48, 2007).

According to the Twenty-Second Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, *The number of students with disabilities served under IDEA continues to grow at a greater rate than both the resident population and school enrollment* (2000, p. xxxiii). Current data suggest that autism or other Autism Spectrum Disorders (ASDs), such as Asperger's syndrome and pervasive developmental disorders not otherwise specified (PDD-NOS), appear to affect 1 in every 294 births throughout this country (Strock, 2004). In 2006, the National Center on Birth Defects and Developmental Disabilities reported that *between 1 in 500 (2/1,000) to 1 in 166 children (6/1,000) have autism*. In February, 2007, the Centers for Disease Control and Prevention concluded that *the prevalence of autism had risen to 1 out of every 150 American children, and almost 1 in 94 boys*. (Autism Society of America, NDb).

In New York State, as in all states, local educational agencies (LEAs, otherwise known as local school districts) are making genuine attempts to educate all students with disabilities within an integrated (as opposed to segregated) environment. While this initiative is intended to provide all students with disabilities the opportunity to succeed in the least restrictive environment, it is also meant to comply with federal and (New York) state regulations which require LEAs to increase the percent of students with disabilities who are educated in an integrated environment. In addition, the consensus throughout

the field of special education appears to identify Applied Behavior Analysis (ABA) as the evidenced based research methodology to be utilized in providing instruction to children with autism in integrated environments (Rosenwasser & Axelrod, 2002).

In this article, the authors focus on the five year period (2002-2007) as they examine the increase of students with autism in inclusive and self-contained classrooms in integrated environments within the Western Suffolk BOCES region in Long Island, New York, and the degree of instructional preparation of special education teachers in the principles of ABA which include:

- (a) Discreet Trial Teaching (DTT)
- (b) Treatment & Education of Autistic and Related Communication-handicapped Children (TEACCH)
- (c) Pivotal Response Treatment (PRT)
- (d) Verbal Behavior Intervention (VBI)
- (e) Picture Exchange Communication Systems (PECS)
- (f) Incidental Teaching (IT)
- (g) Social Stories

According to the Autism Society of America (NDc), many of these interventions' underlying principles are based on ABA, a highly structured and specialized educational program. For purposes of this article, ABA is defined as the *process of applying sometimes tentative principles of behavior to the improvement of specific behaviors and simultaneously evaluating whether or not any changes noted are indeed attributable to the process of application* (Baer, Wolf, & Risley, 1968, p. 91). The implementation of this process is characterized by *discreet presentation of stimuli with responses followed by immediate feedback, an intense schedule of reinforcement, data collection, and systematic trials of instruction* (p.125, Schoen, 2003).

Three decades of strong empirical evidence have demonstrated the efficacy of ABA methods in the education of children with autism (National Institute of Mental Health, 1999; Heflin & Alaimo, 2007). Among the studies that support its efficacy are those conducted by Repp, Felce, & Barton, 1988; Matson, Sevin, Fridley, & Love, 1990; Adair & Schneider, 1993; Bay-Hinitz, Peterson, & Quilitch, 1994; Davis & Chittum, 1994; Fad, Ross, & Boston, 1995; Belfiore, Skinner, & Ferkis, 1995; Mason & Egel, 1995; Schloss, Alper, Watkins, & Petrechko, 1996; Smith, Groen, & Wynn, 2000; Eikeseth, Smith, Jahr, & Eldevik, 2002; and Sallows & Grauper, 2005. Despite all of this support, Schloss & Smith (1998) reported that ABA methodology is not consistently utilized by teachers. One reason may be due to a lack of training and preparation.

According to Rosenwasser & Axelrod (2002), and the Verbal Behavior Institute (ND), the U.S. Surgeon General has reported that children with autism receive optimum classroom instruction when ABA is utilized and implemented. Jacobsen (2000), and Rosenwasser & Axelrod (2002) also note that in comparison to other methodologies ABA maintains the most significant amount of data supporting this claim. However, while ABA is recognized by many as a very effective methodology in teaching children with autism, it is important to understand that various forms of this technique may facilitate, as well as enhance, their successful instructional outcomes, thereby demonstrating that different forms of ABA may be more beneficial than others.

The current trend in special education appears to support integrated education. Yet, parents of children with autism, whose children are placed by their respective Committees on Special Education in district based inclusive and self-contained classrooms, are asking (upon advisement from the National Institute of Mental Health) if special educators have received the necessary training and experience to successfully work with children and adolescents with autism? (Strock, 2004). In addition, these parents are increasingly requesting that special education teachers and general education teachers incorporate ABA into classroom instruction (Lerman, Vorndran, Addison, & Kuhn, 2004).

The National Research Council (2001) has reported that most teachers graduate from colleges or universities receiving minimum to no training in evidence-based research practices for students diagnosed with autism. The National Research Council (2001) also noted that there is a paucity of specialized training in autism in higher education. Yet, *the demand for teachers who have expertise in applied behavior analysis will continue to grow as more young children with autism receive the majority of their education in public schools* (p. 510, Lerman et al, 2004).

In NYS new legislation which took effect on July 1, 2006 now requires special education teachers and school administrators to have coursework or training in the area of autism (ABA or evidenced-based research methodologies are not specifically noted) to be eligible for their respective certifications after February 2, 2007 (New York State Education Department, 2006). Although new and experienced teachers are becoming more aware of diversity in classrooms, they appear to be *instructionally* challenged in meeting the needs of all students (Friend & Bursuck, 2002). Clearly, teacher training and preparation to work with students with autism would apply to both the special educator and the general educator (Arthaud, Aram, Breck, Doelling, & Bushrow, 2007). Furthermore, *meeting the increased demand for services and well-trained practitioners created by heightened public recognition of ABA benefits requires more scalable training programs* (p.5, Rosenwasser & Axelrod, 2002).

Consequently, it is believed that special education teachers who are trained in ABA methodology will be able to effectively facilitate the instructional process for children with autism and document student outcomes as evidence of learning for parents and school personnel (Alberto & Troutman, 2003). One would therefore expect that special education teachers, in particular, would receive training in ABA as part of their undergraduate or graduate studies to meet the needs of a rapidly growing population of children with autism within our community schools. We believe this training would qualify them as *highly qualified* teachers and meet the *spirit* of the No Child Left Behind Act of 2001.

Needless to say, educating students with autism presents a challenge for parents and special educators as well as general educators. According to Lerman et al., (2004) *efforts to transfer findings on autism into public schools would benefit from further evaluation of teacher preparation models*. Therefore, undergraduate and graduate school teacher training programs have been scrutinized to determine if any offer a course in ABA to their prospective special education teachers to ensure that *evidenced based training* to work with students classified with autism is indeed occurring.

This article first addresses the concern of increasing numbers of children diagnosed with autism by examining the New York State Pupil with Disabilities Data System (PD-1/4) over five school years (2002-2007), within the eighteen school districts in the Western Suffolk BOCES region in New York State (NYS). The PD-1/4 data are submitted annually by public school districts to report the number of students with disabilities who are provided special education in regular school-based programs and in special settings. This information is submitted by the school districts to their respective BOCES (considered an extension of the local constituent districts) who in turn compile all the information and then send it to the State Education Department for review and analysis. Specifically, the data will support or refute the position that children diagnosed with autism are increasing in numbers within integrated school environments over the five year period.

In addition, the same eighteen school districts within the Western Suffolk BOCES region were again selected to respond to the following two questions:

- (a) How many special education teachers does your school district currently employ?
- (b) How many of these special educators took a course in ABA as either an undergraduate or graduate student or received district in-service training in ABA?

Finally, for purposes of this study, the authors randomly surveyed thirty (30) four-year undergraduate colleges and universities in urban, suburban, and rural communities, as well as graduate schools throughout NYS to determine which schools either required or offered prospective special education teachers the opportunity to take a course in ABA. For those colleges and universities that did not require or offer prospective special educators the opportunity to take an ABA course, the question was then asked if they had future plans to offer ABA to their prospective special education teachers.

Findings:

The results of the PD-1/4 data over the five year period (2002-2007), within the eighteen school districts in the Western Suffolk BOCES region, are noted in Table I. Clearly, the number of students classified with autism increased in this region from 218 in 2002 to 687 in 2007. This represents an increase of students with autism collectively by 212% over the five year period. As the authors examined the increase by district they noted that each of the eighteen districts increased in numbers and that the increase ranged from 33% to 560% during the five year period. These numbers appear to support the

research cited earlier stating that the prevalence of autism appears to be increasing by 10% to 17% annually.

Table I
Number of Autistic Children

School Districts	2002	2007
Amityville	2	19
Babylon	5	22
Cold Spring Harbor	1	15
Commack	11	40
Copiague	3	12
Deer Park	5	28
Elwood	4	17
Half Hollow Hills	42	144
Harborfields	7	26
Huntington	24	37
King's Park	11	42
Lindenhurst	18	43
North Babylon	15	34
Northport	18	56
Smithtown	18	60
South Huntington	32	70
West Babylon	1	17
Wyandach	1	5
Totals	218	687

One reason for this increase may be due to the exemplary *reputation* of many of the eighteen districts relative to their educational offerings for students with disabilities. While a specific number is unavailable, one might ask how many families of children with autism relocated to this region, by district, because of the superlative educational programs for children diagnosed with autism. Although this factor alone would not explain the significant increase in numbers of children with autism over the five year period (2002-2007), it may be a part of the explanation for this dramatic increase in addition to hereditary and environmental factors.

Nevertheless, given the significant increase of children with autism in this region, the question remains, *Are Special Education Teachers Prepared To Teach The Increasing Number Of Students Diagnosed With Autism?* Within the Western Suffolk BOCES region sixteen of the eighteen districts responded to both questions in this survey. The two districts who did not respond offered no explanation for not participating.

The results of this survey, which are noted in Table II, clearly indicate that *11.24%* of the special education teachers have received ABA training and would be considered to be prepared to teach children with autism while *88.76%* have not received ABA training, and therefore would be considered unprepared based upon the research to teach children with autism, although all are certified by New York State to provide instruction to this population. Seven of the sixteen districts who responded to the survey have more than 10% of their special education teachers trained in ABA while the remaining nine districts have less than 10% trained in ABA. Despite the efforts that the LEAs are putting forth relative to staff development it appears that colleges and universities, on both the undergraduate and graduate levels, are falling short of their responsibilities to adequately train prospective special education teachers to work with students with autism.

Table II

Percentage of ABA Teachers to SPD Teachers			
School District	Total Special Education Teachers	Special Education Teachers Trained in ABA Methodology	Overall % of SPD Teachers trained in ABA
Amityville	50	15	30
Babylon	-	-	-
Cold Spring Harbor	-	-	-
Commack	80	5	6.25
Copiague	37	0	0
Deer Park	70	8	11.4
Elwood	18	8	44.4
Half Hollow Hills	112	6	5.36
Harborfields	45	15	33.3
Huntington	52	5	9.62
King's Park	40	2	0.05
Lindenhurst	85	10	11.8
North Babylon	65	6	9.23
Northport	72	16	22.2
Smithtown	105	6	5.71
South Huntington	100	4	4
West Babylon	55	6	10.9
Wyandach	28	2	7.14
TOTAL	1014	114	11.24

In addition, while many of the eighteen districts have been offering and continue to offer in-service workshops and staff development opportunities to special education teachers in ABA it is believed that very few general education teachers are participating in such training sessions. It would appear that the eighteen districts in the Western Suffolk BOCES region must continue their diligent efforts to train all of their special education teachers working with children diagnosed with autism, and begin to include general education teachers who are or will be working with these students in inclusive settings. Incentives such as in-service credit or accrual of additional personal time could motivate and/or encourage special education teachers as well as general education teachers to participate in future ABA workshops. Collective bargaining units, in conjunction with LEAs, could foster positive collaborative efforts on behalf of children with autism, especially those in inclusive settings, thus yielding meaningful and measurable instructional outcomes.

Finally, in randomly calling and speaking to representatives from thirty NYS colleges and universities the responses in Table III clearly indicate that only six of the thirty schools of education offer an ABA course to their prospective special education teachers on the undergraduate or graduate level. Specifically, 25% of the colleges and universities in urban settings responded affirmatively to offering an ABA course to their prospective special education teachers while 22% of the suburban colleges and universities also responded affirmatively. No rural colleges or universities responded affirmatively in offering ABA to their prospective special education teachers. Therefore, 75% of the urban setting schools and 78% of the suburban setting schools reported that they do not offer their prospective special education teachers coursework or training in ABA methodology. While rural setting colleges and universities suggested they had no plans in the future to offer ABA coursework to their students, several urban and suburban setting schools did indicate that they were contemplating such an offering as early as next semester or in the *future*.

Based on the results of the survey in Table III 80% of special education teachers who graduated from the randomly selected colleges and universities received no pedagogical training or instruction in ABA,

and therefore would appear to be lacking in their professional preparation of *evidence based research practices* to teach students with autism. Given the significant increase in the prevalence of children with autism in the Western Suffolk BOCES region, as well as across the nation, more special education teachers need to receive training in ABA, or variations of this evidenced-based practice, at the collegiate and university levels to effectively teach students with autism both in self-contained and inclusive settings.

Table III

	<i>Offer ABA</i>		<i>Plan to Offer ABA</i>	
	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
Urban Colleges/Universities	4/16	12/16	7/16	9/16
Suburban Colleges/Universities	2/9	7/9	4/9	5/9
Rural Colleges/Universities	0/5	5/5	0/5	5/5

Final Thoughts:

No Child Left Behind of 2001 requires evidence based research practices to be implemented within our instructional settings, yet higher education does not appear to be adequately preparing prospective special education teachers to meet the instructional challenges of working with the increasing number of children diagnosed with autism in either integrated or segregated settings. Therefore, a significant collaborative effort between and among colleges, universities, and LEAs should and ought to be convened, to begin necessary and urgent discussions, to brainstorm avenues on how to better prepare our special education teachers in their endeavors to provide pedagogical excellence, on a statewide level, to school aged children diagnosed with autism. General education teachers, who partner with special education teachers in inclusive settings, should also be included in the statewide teacher preparation discussions to further enhance their teaching skills and knowledge of special education strategies and ABA that would facilitate instruction in inclusive classrooms.

Further research is suggested to determine if other LEAs in different regions in New York State or elsewhere have found an increase, comparable to the Western Suffolk BOCES region in NYS, in the number of school-age children diagnosed with autism. In addition, the authors also recommend that special education teachers and general education teachers who have received undergraduate or graduate training in ABA, as well as those who have participated in in-district ABA in-service training workshops in other NYS regions as well as in other states, be assessed and evaluated by their respective LEAs and reputedly trained university personnel to determine what percent are in fact professionally prepared to teach children with autism. This information would prove to be important to colleges and universities as they embark on augmenting the preparatory programs for special education teachers who will one day provide pedagogical services to children diagnosed with autism. This study would also provide further evidence either supporting or not supporting the empirical evidence which suggests that children diagnosed with autism learn best when provided with the ABA methodology of instruction from well trained special education teachers.

Finally, a more in-depth survey of colleges and universities should be undertaken to determine what efforts are being considered to improve the training of special education teachers, and perhaps the general education teacher, in ABA. In addition, it would be of interest to research why there are differences, in particular, between rural and urban or suburban NYS schools of higher learning relative to their preparation of prospective special education teachers.

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