

Conundrum of Autism: A Review of its Causes and Significant Impact on the Education of a School age Child

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Abstract

Autism is a brain development disorder that is characterized by impaired social interaction, communication, restricted and repetitive behavior which starts before a child is three years old. As a result of the outcome of set of signs such as restricted and repetitive behaviors, autism distinguishes itself from milder Autism Spectrum Disorders (ASD). The latter is a pervasive developmental disorder. For instance, an autistic child finds it very difficult to focus and concentrate in the classroom. According to MayoClinics research outcome, autism is one of a group of serious developmental problems encountered by children of a given age. It adversely impacts their mode of focus, communications and interactions with other children of their age and adults. According to genetic literature as documented by scholars of genetics, autism has a strong genetic basis which is considered complex. In view of series of genetic research outcomes, it is unclear whether ASD is clearly explained by multigene interactions or mainly by rare mutations. National Institute of Neurological Disorders and Stroke (NINDS) as well as Autism Research Institute (ARI) have invested time and resources over the years in an attempt to conduct clinical research on what might be the remote causes of autism. The findings of their research work published in various medical and disease control journals have gone a long way to stress the lack of causes and significant impact of the ailment to children of school age. In an attempt to address the impact of autism as a dilemma in the learning process of a school age child, this paper argued that autism as a brain development disorder could significantly affect both the developmental process and learning ability of a school age child.

Introduction

Autism sometimes referred to as “classical autism” is the most common condition in a group of developmental disorders (Asperger Syndrome, Rett Syndrome, Childhood Disintegrative Disorder, and Pervasive Developmental Disorder) known as the Autism Spectrum Disorders (ASD’s). This complex developmental disability that typically appears during the first three years of life is characterized by impaired social interaction, problems with verbal and nonverbal communication, and unusual, repetitive, or severely limited activities and interests.

According to National Institute of Neurological Disorders and Stroke Fact Sheet 2008 estimate, three to six children out of every 1,000 given births a year will have autism. With this number, male children are four times more likely to have autism than females (NINDS, 2008). The mental and social wellbeing of children with autism seem to have been grouped as challenged and impaired which obviously stigmatizes them and the way their educational curricula are packaged. As a result of what their special needs might be and in view of their basic constitutional right to be educated as others, a basic constitutional principles of the right to an appropriate education was instituted after two important Federal Court cases were won in Pennsylvania in 1971. They include: the Pennsylvania Association for Retarded Citizens (PARC) vs. Commonwealth of Pennsylvania and Mills vs. Board of Education of the District of Columbia (1972) in Washington, DC respectively.

These two separate class-action lawsuits in two separate cities within the 1970’s resulted in the establishment of a free education for children of school age in Pennsylvania and free and appropriate education for all children with disabilities between the ages of five and twenty-one in

the District of Columbia respectively (Individuals with Disabilities Education Law Report (1996).

As a result of the outcome of these class-action lawsuits, the United States Congress in 1975 passed the Education for All Handicapped Children Act (EAHCA) which was later in 2004 changed to as the Individuals with Disabilities Education Improvement Act (IDEIA). Because of the previous denial of access to a free public educational program and training, IDEIA established a legal protection against any exclusion and or discrimination of children with disabilities from public funded education (Individuals with Disabilities Education Law Report (1996).

Wright (2004) argued that due process hearings and cases regarding children with special need represent the fastest growing area of litigation in special education. The number of children diagnosed with autism served under Individuals with Disabilities Education Improvement Act (IDEIA) According to U.S. Government Accountability Office, 2005 report increased by more than 500 percent in the last decade. The contributing factor to such a phenomenal increase is attributed to a number of factors including (a) better diagnosis and (b) a broader definition of autism disorder.

While there is no cure for autism, Lovaas, (1987) argued that clinical and empirical research results have shown that early diagnosis coupled with intensive intervention campaigns can go a long way to improving the skills of many children with autism in a variety of areas. As the education of this special population has become an issue for State and Local Education Agencies, Policies have been enacted and practices have been enhanced to meet the needs and the concerns of parents with children with autism (Barber, 2009).

Purpose of Study

The purpose of this paper, therefore, is to address the impact of autism as a dilemma in the learning process of a school age child. Priority will be given to the argument made by various scholars, Autism Society of America (ASA), National Institute of Neurological Disorders and Stroke (NINDS), National Institute of Health (NIH) and many other organizations and agencies who have seen autism as a brain development disorder which could significantly affect both the developmental process and learning ability of a school age child if not diagnosed and treated on time. Literature on autism will be reviewed to ascertain how the conundrum of autism, its causes and significant impact on the education of a school age child.

Research Questions:

There have been numerous grants awarded by the National Institute of Neurological Disorders and Stroke (NINDS) in collaboration with the United States National Institute of Health (NIH) to support research at universities and other laboratory facilities on brain and nervous system disorders. Association for Science in Autism Treatment in Crosswicks, New Jersey, Autism National Committee in Forest Knolls, California, Autism Society of America in Bethesda, Maryland and a host of other associations and networks have in their numerous publications and

awareness seminars attempted to shed light on what autism is, what might be the remote causes and treatment of autism and how autism as a complex developmental disability that typically appears during the first three years of life could significantly impact the learning process of a school age child. This paper, expects to contribute to the growing body of knowledge and by reviewing related literature and attendant issues on the disorder. Therefore, this paper is guided by the following research questions.

1. To what extent does the dilemma caused by autism significantly impact the learning ability of a school age child?
2. How does the role of inheritance affect the treatment of autism?
3. Do educational organizations and various agencies that support research on autism provide educational/behavioral interventions for autistic school age child?

Significance of the Paper

As part of the Children's Health Act of 2000, the National Institute of Neurological Disorders and Stroke (NINDS) and three other institutes have formed the NIH Autism Coordinating Committee to expand, intensify, and coordinate NIH's autism research. Looking at the extensive nature of this committee's research and global awareness of autism disorder, this paper, therefore, supports the validity of the research done on autism by the Centers of Excellence in Autism Research to bring detection, prevention, and early treatment.

This paper, therefore, will play a relevant role in informing families with children with autism seeking answers to issues regarding the dilemma of autism and its impact on their children's learning ability. Understanding that autism disorder may have no significant causes and reading through many researches conducted in the area and where necessary to obtain information for possible treatment as well as being aware of possible symptoms may help parents who have children with autism. The outcome of this paper may also be an opportunity to special education directors and administrators who are given the task to design and manage special education programs for students with autism in their units.

Review of Literature

Extrapolating from relevant literature on autism, this review looked at the conundrum of the disorder with a view of acquainting parents, and teachers of the significant impact of autism on children of school age.

Autism Research Institute report (2008) in its various investigations has used animal models to study how the neurotransmitter serotonin establishes connections between neurons in hopes of discovering why the connections are impaired in autism.

Just, M. & Minshew, N. (2009) in their research findings have documented that autism results from failure of brain areas to work together. They have also argued that children with autism remember letters of the alphabet in the part of the brain that processes shapes. Just and Minshew hold the view that the brain of a child with autism has distinct brain areas that work

independently of each other. This finding supports Dr. Minshew's earlier position that children with autism have their brains wired differently.

There has been numerous studies and intervention regimen clinically identified and funded by a combination of Autism Society of America (ASA), National Institute of Health (NIH), The National Institute of Neurological Disorders and Stroke (NINDS) some of which are still in the works while others have been completed. Intensive Intervention for Toddlers with Autism; A Pilot study of Daytrana TM in Children with Autism Co-Morbid for Attention Deficit Hyperactivity Disorder (ADHD) Symptoms; Minocycline to Treat Childhood Regressive Autism; Effectiveness of Atomoxetine in Treating Attention Deficit Hyperactivity Disorder Symptoms in Children and Adolescents with Autism; Comparing Parent-Implemented Interventions for Toddlers with Autism Spectrum Disorders and A Pilot Trial of Mecamylamine for the Treatment of Autism are just few clinical studies and intervention regimen on autism currently funded by the United States National Institute of Health (<http://clinicaltrials.gov>).

There are quite a considerable number of clinical studies that had long been completed with identified conditions and interventions. Some of those studies are: Relationship Training for Children with Autism and Their Peers; The Development of Autistic Children based on Mothers' Response in Autism Behavior Checklist; Dimercaptosuccinic Acid (DMSA) Treatment of Children with Autism and Heavy Metal Toxicity and Early intervention Program for Children with Autism (<http://clinicaltrials.gov>).

In an effort to provide lasting solutions to the challenges faced by children with autism who are of school age, their parents and teachers, empirical clinical research results has provided interventions. Some of them has been in the form of using effective drugs or behavioral skills and in some cases both drugs and behavioral skills to condition autism patients. Another area of interest to bringing awareness to autism disorder is by demonstrating effective practices for assessing and evaluating students with autism. In the present day school system, school districts should be held to a higher standard in providing special educational programs for challenged cohorts of students most importantly those with autism disorder. The provision of this special educational programs which includes interventions and necessary resources pertinent to students need has gone a long way to changing the paradigm of special education programs with emphasis leaning more towards the quality of such special education outcomes than emphasis on access.

Characteristics of Autism

Autism is a complex disorder that challenges the education of a school age child. It varies widely in its severity and symptoms and in most instances may go undetected in mildly affected children or at a time period when the disorder is clouded by other debilitating handicaps. There are three distinctive behaviors that characterize children with autism:

1. *They have difficulties with social interaction—According to varied research* outcomes by National Institute of Health (NIH) in conjunction with studies by the National Institute of Neurological Disorders and Stroke, impaired social interaction is among other

features that characterize autism. As the first direct caregivers, parents are the first to notice symptoms of autism in their children because of their initial unresponsive behavior to people. A child with autism may appear to develop normally and then as time progresses he/she withdraws and becomes indifferent to social engagement. He or she may also focus intently on a particular item to the exclusion of others for long periods of time.

2. *They have problems with verbal and non-verbal communication—Autism fact sheet report* (2008) has confirmed that children with autism fail to respond to their name and often avoid eye contact with other people. They also have difficulty interpreting what others are thinking or feeling because of their inability to understand social cues, such as tone of voice or facial expressions. Children with autism have trouble with language, they suffer from increased sensitivity and emotional volatility. They also lack empathy and the coordination to watch other children or even people's faces for clues about appropriate behavior.

3. *They have repetitive behaviors or narrow, obsessive interests—*Many children with autism engage in repetitive movements such as rocking and twirling, or in self-abusive behavior such as biting or head-banging. They are very slow to speaking and would always refer themselves by their name instead of "I" or "me." Children with autism find it very hard to play interactively with other children because of their shortfall, and in most cases, some of them speak in a sing-song voice about a narrow range of favorite topics, with little or no interest of the person for whom they are speaking about.

As a complex disorder which invariably affects the mental and social well-being of the affected, children with autism generally appear to have a reduced sensitivity to pain. However, they are abnormally sensitive to touch, sound and other relative stimulation. A normal child would react differently when stimulated by touch or sound which support various research outcome that candidly found children with autism to be resistance to being cuddled or hugged. It is believed that their unusual reactions to the sensory nerves may be the contributing factor to some of their unwelcome and strange, violent or aggressive behaviors.

*Researchers have discovered a wide range of both structural and chemical differences in human brains with autism—*which had continued to stir considerable concerns and challenges as to whether (i) these differences found in the brains of people with autism are scientifically associated with autism or (ii) whether these differences are the cause of autism. These considerable challenges as to what may be the remote causes of autism, have resulted to researchers asking questions as to whether autistic brains are wired differently when contrasted with typical brains. In her research on the connection between brain structures, functioning and autism, Dr. Nancy Minshew of the University of Pittsburg in her findings suggested in affirmation that autistic brains are wired differently.

Causes of Autism

Rudy (2008), Powers (2009), Croen (2008) and Minshew (2009) in their various research outcomes have not been able to narrow down what might be the remote causes of autism disorder which affects a child's ability to communicate and interact with others.

In their ongoing clinical and empirical research endeavors geared towards the findings of possible causes of autism, they have been challenged to identify a remote cause, however they have identified both genetics and environment as contributing factors which has played some considerable role in autism disorder. Rudy (2008) opined that there are irregularities found in several regions of the brain of children with autism by several studies which suggested that children with autism have abnormal levels of serotonin or other neurotransmitters in the brain. These abnormalities could result from the disruption of normal brain development early during the pregnancy of a child as the fetal develops. Rudy (2008) also suggested that the disruption of normal brain could be caused by defects in genes that control brain growth which is responsible for regulating how the neurons in the brain communicate with each other.

These findings may not be an end in themselves since there has not been specific causes of autism, and regardless of how interesting and intriguing they may be, they are still considered preliminary and require further study. The intense research engagements by various agencies and organizations to find causes of autism may have in the past proposed a theory that parental practices might be a possible cause of autism has been disproved.

According to Rudy (2008), it has been a common saying that autism runs in families. Siblings of people with autism are more likely to be autistic and twins are more likely to share autistic traits. These statements, therefore, suggest that there is a genetic component to autism, which does not necessarily mean that a single gene or genetics is the only risk factor for autism. In keeping with the second research question posed: *how does the role of inheritance affect the treatment of autism* becomes very obvious based on empirical research evidence that inheritance may significantly impact both the way autism is contracted and subsequent treatment. Croen (2008) in an interview with About.com, a free autism newsletter on the state of genetic research and autism concluded that there may have been zillion genetic studies conducted in the recent past, but no single gene has been identified as an autism gene.” The truth of the matter is that while genetics was almost certainly a causative factor in autism, any useful treatments based on genetics are a long way off.

As a result of her extensive research experience on autism, Croen, L. (2008) indicated the following:

1. that autism no doubts has a genetic component.
2. that if autism runs in a family, a member of that family have an increased risk of having a child with autism.
3. that if one have one child with autism, he has an increased risk of having another child with autism.
4. that the genes associated with autism are complex and a genetic inclination toward autism may require an environmental “trigger” to cause symptoms.

She opined that people think about autism as “many concentric circles” of symptoms, and rather suggested that it is possible that many different genes are implicated in autism and that different sets of genes may be implicated for different people with autism.

Although there is no specific cause of autism disorder but many controversial questions has been asked as to how the disorder came about. Researchers to a certain degree have linked vaccines, genetics, bad parenting, brain development, Immune Deficiency Problem, food allergies, and poor nutrition as a remote cause of autism. Some of these reasons may have not been the true causes of autism to certain degree but atypical brain development is a sure cause of autism.

The National Institute of Health (NIH) Report (2008) on the possible causes of autism has continued to advance various studies on autism and discovered a wide range of structural and chemical differences in the brains of children of school age and adults with autism. There are various claims that some form of environmental causes may contribute to autism. Considering the various prognosis and the probable causes of autism, it seems likely, given the amount of research so far conducted by several organizations that several factors are combined to cause autism. For example, it may be that certain children are genetically more susceptible to certain types of food allergies, or more likely to react badly to certain environmental toxins. Until we have more definitive answers, though, it seems to make sense to focus more on treatments and to support researchers as they learn more about causes of autism.

Cost of Educating Children with Autism

The price of paying for the education of children with autism is very costly and poses a considerable challenge for families who have such children. In New York City for instance, eight children whose ages ranges from 5 to 11 who attend the Brooklyn Autism Center Academy needed intensive individual instruction to cope with a neurological disorder that can make achieving academic progress slow and grueling (Fairbanks, 2009). During the course of a school day, a teacher is paired with each child. After successful completion of a task, students are rewarded with goodies ranging from a spoonful of vanilla pudding, time on a piano or a few minutes in a bouncy castle. According to the school's educational director, "every child with autism can learn and in a situation where they are not, it becomes the responsibility of the school system to intervene and provide resourceful teaching procedure or focused instructions that would make it possible for these children to learn."

This special educational instruction comes with a high price. For instance, The Brooklyn Autism Center Academy's annual tuition is \$85,000. The public school system in New York City is required by law to provide an appropriate education for children with autism, even if it means paying for private school tuition if there is no public school option. As a result of school system's obligation to provide educational cost to families of children with autism, the cost continues to rise astronomically and has become a growing point of contention in the city. In 2001, for instance, the city's Department of Education listed 3,278 students with autism; by 2008, that figure had more than doubled to 6,877 (Fairbanks, 2009).

As the fastest growing special education eligibility category for public education in the state of California, Powers (2009) opined that the statistics of children with autism have continued to rise. Records have also shown that between 1998 through 2002, the number of

students receiving services in California almost doubled, from 10,360 to 20,377 and the numbers have continued to rise at an alarming rate. Between 1987 and 2002, the population of children with autism served by the state Department of Developmental Services increased by 634 percent. In January of 2003, the Department of Developmental Services showed a significant figure that autism epidemic accounts for 40 percent of new intakes entering the developmental services in 2002 (Powers, 2009). The educational and financial impact of these special education services on California school districts is staggering. Powers (2009) asserts that Research and best practices showed that a successful educational program for students with autism requires a comprehensive assessment and intensive services by highly trained professional. These services sometimes are very pricy.

According to Gil Eyal, a sociologist at Columbia University cited by Fairbanks (2009) who has done research on autism, whether the number of children with autism is rising both in numbers and cost, “the crux of the matter is that we need to have a public debate about how much are we willing to invest in making individuals who are disabled, and sometimes profoundly disabled, have a meaningful level of membership in society.” (Fairbanks, 2009). Of the more than 6,800 children with autism recorded by the city’s public schools, 4,200 are enrolled in special education classes with a small student-to-teacher ratio, 285 students are part of a program where children with autism are taught alongside regular education students and 28 are in a charter school with one-to-one ratio between teachers and students (Fairbanks, 2009).

A considerable number of other students who attend private schools from a list of state approved schools have tuition ranging from \$30,800 to \$48,100 which is paid by the city’s Education Department. In 2007 and 2008, the department paid \$57.6 million and \$88.9 million in tuition respectively. Tuition for these children with special attention has continued to be a growing burden for the city said Michael Best, the Education Department’s general counsel. During the 2007/2008 school year, there were 4,375 reimbursement hearing requests for special education students, 462 of these requests were for children with autism (Fairbanks, 2009).

The Impact of Autism in the Learning Process of a School-Age Child

According to American Heritage College Dictionary, education is defined as the field of study concerned with the pedagogy of teaching and learning. It is the acquisition of skills or knowledge developed through a learning process. This learning process is pivotal in the development of social, emotional, political and spiritual well-being of a person. This definition indicates that the purpose of education is to develop the knowledge, skill, or character of a person. As a result, the opportunity of acquisition of skills and knowledge through learning (education) should be given to any child of school age. In a situation where such an opportunity is in place, students are educated in different environment by different teachers based on the learning level and special need of such students. Some children with special need such as those with autism are mentally retarded. This argument is in keeping with the National Institute of Mental Health reports which indicated that 75-80% of people with autism are mentally retarded to some extent. With this considerable percentage, it is believed that those with Aspergers Disorder may have needs

but to certain extent a sound mental disposition that may allow them the opportunity to do school work that requires mental alertness. In some cases, children with Asperger's Syndrome who received early intervention have done very well in gradual transitioning to a mainstream or typical classroom.

Children with autism lack two basic skills that are essential to learning:

- (1) imitation skills, which are the ability to watch another person do an action and imitate that action. It is of course obvious to claim that much of what a young child learns to do, especially a child who lacks expressive or receptive language skills, is through imitation.
- (2) joint attention skills, which are the ability to focus attention on something that is pointed out to the child by another.

Educating children with autism has continued to pose challenges to both parents, teachers and to some extent community members where autistic children are raised. Children with Autism have disability which comes with unique strengths and weaknesses. Some of these children according to Autism Society of America's report (2007) may have an average to above average intelligence, while others may be below average. As a result of the disability that comes with autism, a brain development disorder, children with autism find it very challenging to learn in the same classroom settings with children without autism because of their lack of imitation and joint attention skills. These two basic skills are relevant in the process of learning.

Since one of the dilemmas of autism disorder spectrum is the inability of the child with autism to communicate, and interact with others, the tendency to process and react to learning as observational participant (Observational learner) is very minimal at most not there at all. The brain development disorder in a child with autism significantly impacts both the developmental process and learning ability of the child.

When a child with autism cannot communicate, it means he is unable to understand a teacher or be understood under a normal school classroom setting where a teacher stands in front of the classroom. Education and the process of learning require interaction, patience and most of all absolute focus and participation on the part of the school child. It also requires the processing of information, skills and valid resources necessary to acquire knowledge. The acquisition of knowledge, therefore, is the key factor in education and it is said to arise in the mind of an individual when that person interacts with an idea, skill or experience he/she comes in contact with.

Addressing the first research question posed by this paper: *to what extent does the dilemma caused by autism significantly impact the learning ability of a school age child?*

It is pertinent to note, therefore, that autism, a brain development disorder constitutes both development and learning challenges for a child with autism. In keeping with the position taken by this paper and from considerable literature reviewed, supports the argument that the brain of a child with autism must have been wired differently which significantly affects the processing of information associated with learning most essential in a typical classroom setting.

Autism Society of America (ASA), National Institute of Health (NIH), The National Institute of Neurological Disorder and Strokes (NINDS); Autism Research Institute (ARI);

Pennsylvania Association for Retarded Citizens (PARC); The National Dissemination Center for Children with Disability (NDCCD) have all supported the argument through their various researches that children with autism should be taught differently by special trained teachers who understand the special need of children with autism disorder spectrum. Peggy Halliday, program director for outreach services at Virginia Institute of Autism supports the argument that children with autism learn differently and should be taught in a different setting with different teaching and learning modalities.

According to the Individual with Disabilities Education Law Report (1996), children with autism should be educated with Treatment and Education of Autistic and related Communication-Handicapped Children or TEACCH Method in a short form. This method is used as a way of educating children with autistic learning styles by taking advantage of the relative strengths that a child with autism may exhibit through structured teaching that leverages a preference for routine and predictability, and relative ability to succeed in a visually-based rather than auditory-based environment. The goals of TEACCH are to provide strategies that support autistic persons throughout their lives and that facilitate autonomy at all levels of functioning (Individual with Disabilities Education Law Report, 1996).

Lovaas (1987) therapy, a combination of Applied Behavioral Analysis (ABA), Discrete Trial Training (DTT), and Intensive Behavior Intervention (IBI) is another encouraging method of teaching autistic children the basic building blocks that are required for learning in the natural environment. The goal of this method named after its pioneer Ivar Lovaas is to teach children with autism how to learn focusing on developing skills in attending, imitation, receptive/expressive language, pre-academics, and self-help (Lovaas, 1987).

Children with autism should be given the opportunity to obtain education in a specialized program that must accommodate their challenges. Because of the dilemma associated with autism which invariably impacts the ability of the affected children to abstract educational materials like other regular children, they must be taught in a discovery than observational learning environment. The style of a teacher standing in front of a classroom to deliver instructions, with the assumption that a child with autism whose level of tolerance and patient is very minimal should cope, this style should not be encouraged. There should be interventions put in place to accommodate the challenges of these children. They should be taught in an academic setting where they will be availed with the opportunity to tell the teacher what they want to learn. There must be a behavioral intervention where they choose what they want to learn on a given day and time. If they don't have language, the teacher should teach them sign language and building blocks instead (Halliday, 2008).

As a result of the functions of the human brain, it is believed that the brain is the sensor that processes information in a human mind. It directs and predicts how and when an issue is dealt with. It is the chief coordinator of decisions made by people and since autistic brain coordinates differently, it therefore, challenges the learning process of a school age child. To assist children with autism in an educational environment, the curricula must be constructed to accommodate what skills should be taught to this group

of children. According to parents of children with autism, they easily get irritated, irate and often throw tantrum which may adversely affect instructions in the classroom.

Special education teachers of children with autism should design strategies that must determine how and what reinforces or discourages students with autism in their classroom because the method of educating them and more so keeping them focus and oriented to instruction is quite different from normal because of the deficiencies resulting from autism.

Early Intervention for School-Age Children with Autism

Schwartz, Sandall, McBride and Boulware (2004) Analyzing the importance of early intervention for children with Autism Spectrum Disorder support the assertion that it is very imperative to establish an early intervention for children with autism because of the benefits. Quoting the (1987) intervention and findings report by Lovaas, Schwartz et. al (2004) shade light on the experience of Catherine Maurice (1996) a mother of children with autism who published her book titled *Let Me Hear Your Voice: A Family's Triumph Over Autism*. Maurice saw the urgent need in early intervention because her children recovered from autism as a result of early intensive behavioral intervention (EIBI). Although the effectiveness of this early intervention has been questioned, however, Schwartz et al. (2004) suggested a 25 hours instead of 40 hours a week intervention which would minimize the level of intensity of services on the children.

In their 2001 book entitled, *Educating Children with Autism*, the National Research Council (NRC) identified effective programs for young children with Autism Spectrum Disorder (ASD). These programs include (1) a 12 months a year of systematically-planned educational activity with a minimum of 25 hours a week intervention; (2) sufficient individual attention given to the child everyday to address adequate intensity of his Individual Family Service Plan (IFSP) and the Individualized Education Program (IEP); (3) to set up an ongoing assessment; (4) have a successful interactions with typically-developing children; and (5) give instruction in the areas of functional spontaneous communication, social interaction, play skills, cognitive skills taught in a manner to facilitate generalization, proactive and effective approaches to challenging behavior, and functional academic skills.

In a Thursday February 19, 2009 article on the Gazette, a Frank Abbott, Publishers in Silver Spring Maryland, a twelve year old six grader autistic pupil of Oakland's Elementary School who had an early intervention turns to comic to express herself. She aspires to become a professional cartoonist and her ability and prolific comics caught the attention of Bloomfield organization who encouraged her to submit a piece of her work to the Prince George's County School's Annual Youth Art Month Exhibition. According to this young girl with autism who have drawn countless notebooks worth of comics about dogs, cats and dragons, draws a lot of her ideas from television, particularly programs about animals and story lines from comedy shows.

One of the successful and early intervention programs that were put in place by Schwartz et al. (2004) was Project DATA for toddlers: An inclusive approach to very young children with ASD. Project DATA which stands for Project Developmentally Appropriate Treatment for Autism has five distinct components. These components are (1) integrated early childhood

program for about 12 hours a week; (2) extended intensive instruction. Preschoolers in Project DATA attend three days a week extended school day; (3) technical and social support for families; (4) collaboration and coordination across services; and (5) transition planning and support. Project DATA which is only one example of what an effective and efficient intervention has proved not only to be successful in early intervention of children of school age with autism but also has been sustainable over time because of its outcomes. According to Schwartz and Davis (2007) significant percentage of preschoolers with autism who enrolled in Project DATA made significant progress in completing elementary and middle schools in an inclusive classroom settings. Although parents and some school systems have given Project DATA an impressive recommendation as a valuable intervention, there are various other ways by which children with autism of school age should be taught. There is no specific intervention or method of instructions to educate these children.

Offering of a special autistic support classrooms which are set up to meet the specific needs of children with autism is another intervention that would a go long way to assisting a special education teacher to get a handle of the challenges posed by autistic disorders. This classroom should be staffed by teachers and school aides who are trained in autism and education. In an attempt to address the third research question: *Do educational organizations and various agencies that support research on autism provide educational/behavioral intervention for autistic school age child?* is strongly supported by the amount of various interventions and valuable resources provided to children with autism as presented in the early interventions by Project DATA, Schwartz and Davis (2007), Schwartz et.al (2007), Maurice (1996), Schwartz, Sandall, McBride and Boulware (2004). They all indicated in affirmation that early intervention is necessary for children with autism.

Kirk, S. (2008) shares the story of her journey with her son and how her discovery of biomedical interventions significantly improved his behavior and changed their lives for the better. Based on her personal experience and extensive biomedical research, she strongly advised on the importance of understanding both the mind and body of a child with autism, which will be very helpful in exploring how, when underlying physical problems are treated, brain function and troublesome behaviors often improve. It is very imperative that both caregivers and educators of special need children most importantly those with Autism Spectrum Disorder (ASD) avail themselves the opportunity to read *Hope for Autism Spectrum: A Mother and Son Journey of Insight and Biomedical Intervention*_by Kirk, S. (2008).

Conclusion

Educating children with autism can be quite challenging. It is more than a full-time task that requires an active input from the parent's as well as the teachers. As a result of the challenges that come with autism spectrum disorder, parents should be forthcoming in making sure that their child with this special educational need is provided with adequate educational support.

In today's modern society driven by technological innovations, the developments in scientific and medical research and the preparation of highly skilled doctors, nurses, caregivers

and special educational teachers have helped tremendously in gaining considerable insight into autism. Special Education instructors and researchers from various organizations and government agencies such as National Institute of Health (NIH), National Institute of Neurological Disorders and Stroke (NINDS), Autism Society of America (ASA) and Autism Research Institute (ARI) opined respectively in their various research endeavors that children with autism lack the two major skills (imitation skills and joint attention skills) relevant in the process of learning.

Imitation skills which are the ability to watch another do an action and imitate that action and the joint attention skills which are the ability to focus attention on something that is pointed out to a child by another are crucial in learning and skills acquisition process. If what a young child learns to do especially a child, who lacks expressive and receptive language skills, is through imitation, teaching children with autism to learn would be very challenging because of their difficulty with social interaction and repetitive behavior. It is also true of a child with autism's inability to focus on a subject area being addressed by a teacher in mainstream classroom. Considering the fact that those children with autism lack focus, it will be very difficult to get them to concentrate on the subject matter because of their significant deficiencies in basic attention skills.

Children with autism more often than not eclipsed in their own worlds do not pay attention to normal stimuli. They are frequently engaged in self stimulating behaviors otherwise referred to as "stimming" which may be shown in the form of rocking back and forth, flapping their hands repetitively, groaning or murmuring, or in the case of young children, mouthing objects such as toys as a means of stimulus rather than engaging in normal play activities (Individuals with Disabilities Education Law Report, 2006). According to special education instructors and a combination of both empirical and clinical research outcomes report, it has been indicated that when children with autism engages in "stimming" behaviors, and lack imitation and joint attention skills, they are not able to focus on other stimuli such as educational instructions. As a result of the aforementioned, therefore, autism significantly impacts both the developmental and learning processes of a school age child.

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