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Children with Autism and Fire Drills and Fire Alarms

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

Children with autism jeopardize themselves and others when the Mountain Brook Fire Department performed fire drills. The purpose of this research was to develop an educational program to assist children with autism respond to fire alarm activations. The action research method was used however, it was determined that the Mountain Brook Fire Department could not develop an educational program for children with autism. The research examined the causes of behavioral issues for children with autism and how they respond to external stimuli. How children with autism responded to fire alarms, and the behaviors they exhibited that endangered themselves or others was studied. The techniques used to educate children with autism as well as those used to educate them about fire drills was also part of the research.

Parents of children with autism, special education teachers and fire marshals were surveyed for their knowledge and experiences relating to children with autism, their behaviors and responses to external stimuli as well as fire alarms. The most significant issue for children with autism is the loud noise. Children with autism typically suffer from hyperacusis, or sensitivity to sounds. The research points to desensitization as the treatment of choice, along with a variety of educational methodologies to help the children respond correctly to fire alarm activations. These methodologies require individualized planning and implementation by qualified special education teachers or other educational specialists.

The Mountain Brook Fire Department will take a more proactive approach to fire drills in the schools, become more familiar with the needs of the students and assist the special education faculty with any fire drill issues that may arise. Further research needs to be conducted to determine the effectiveness of desensitizing in regards to fire alarms and fire drills.

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Introduction

For most children, the first day of school is an adventure. It is a day of anticipation and excitement. But Johnny was not like most children. His first day of school was a disaster. He had to be pulled and dragged, screaming into the building because he was absolutely terrified of having a fire drill. (E. Pittman, personal communication, September 7, 2011). For many children, fire drills provide excitement and a break from the routine of the classroom. It is an opportunity to go outside and maybe get a glimpse of the firefighters and the fire truck. For Johnny, fire drills are a painful and stressful event, and a break from his cherished routine. After a fire drill, Johnny will probably not be able to return to normal classroom activities. Johnny has autism (E. Pittman, personal communication, September 7, 2011).

The problem is children with autism jeopardize themselves and others when the Mountain Brook Fire Department performs fire drills. The purpose of this research is to develop an educational program to assist children with autism to respond to fire alarm activations.

Action research methods will be utilized to answer the following questions: (a) What triggers behavioral issues for children with autism? (b) How do children with autism respond to external stimuli? (c) How do children with autism respond to fire alarms? (d) What behaviors do children with autism exhibit that endanger themselves or others? (e) What techniques are used in educating children with autism? (f) What techniques are used in educating children with autism regarding fire drills? Data will be gathered through interviews, surveys and observing children with autism during fire drills.

Background and Significance

Autism Spectrum Disorder (ASD) is comprised of a group of developmental disabilities characterized by deficiencies in development in social skills, communication and behavior

(CDC, 2009). Sears defines ASD as a "neurological and medical disorder in which parts of the brain that control communication, behavior, social interaction, learning, sensation, and motor coordination aren't functioning properly" (pg. 5). Dr. Stacy Ladden, clinical psychologist at Mitchell's Place, defines autism as a wide spectrum developmental disability involving impairments in communication, social skills and restricted repetitive behaviors (Personal communication, January 18, 2012). ASD, according to the CDC, is a processing disorder where people handle information in the brain differently than other people (CDC, 2010).

The Alabama Administrative Code (AAC) defines autism as "a developmental disability that significantly affects verbal and nonverbal communication and social interaction evident before age three that adversely affects educational performance" (2011, pg. 8-9-26, 27). One difference between the AAC and the DSM-IV definition is that the AAC does allow for a child who exhibits autism characteristics after age 3 to be diagnosed with autism, for eligibility for educational interventions, if all the criteria are met (AAC, 2011).

ASD is called a "spectrum" disorder. Spectrum, as defined by Wikipedia, is a condition that is not limited to a specific set of conditions or behaviors but can vary infinitely within a continuum. These conditions or behaviors are grouped together under a single title to simplify discussion and study of the disorder (2008). Symptoms vary widely from person to person and may worsen or improve over time (Sears, 2010, pg. 4). A person with ASD, commonly termed "on the spectrum," may exhibit mild to severe symptoms but all will share similar symptoms. According to Coplan, symptoms fall into four primary areas: difficulty relating to others, atypical language, repetitious behavior, and abnormal sensory and motor processing (2010). Differences range from age of onset, severity and exact nature of symptoms (CDC, 2010). Greenspan and Wieder write that these developmental problems "express themselves differently and can appear

in different combinations" (2006, pg. 4). They go on to say that not every child with the same diagnosis has all of the same problems to the same degree. No two children diagnosed with an ASD will exhibit the exact same symptoms or combination of symptoms (Nordqvist, 2012).

There are three primary types of ASDs: Autistic Disorder, Asperger Syndrome and Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS). ASDs are diagnosed based on three primary behaviors: impairment in communication skills, impairment in social skills and restrictive and repetitive behaviors (Ladden, Personal communication, January 18, 2012). The DSM-IV further identifies the standardized criteria for diagnosing autistic disorder. In order to be diagnosed, a child must have at least six symptoms, with at least two from the social interaction category, and at least one from the communications category and one from the behavior category (APA, 2000).

There are four symptoms in the social interaction category. In order to meet the diagnostic requirements for ASD, the child must have at least two symptoms from this category. These symptoms are:

- Impairment in use of multiple nonverbal behaviors such as making eye contact, facial expressions, or gestures;
- Failure to develop age or development appropriate peer relationships;
- Lack of spontaneous enjoyment such as sharing with others;
- Lack of social and emotional interaction.

In the communication impairment category, four symptoms are listed. The child must have at least one of these symptoms. The four symptoms are:

- Delay in spoken language and a lack of gestures to communicate;
- The inability to initiate or sustain a conversation;

- Repetitive use of language such as "scripting" where the child imitates or echoes dialog from TV shows or movies;
- Lack of make-believe or pretend play.

The restricted repetitive behavior category also includes four symptoms, of which the child must have at least one. Included in this category are the following symptoms:

- Preoccupation with patterns or interests. The child may have an unusual fascination with trains or other objects;
- Lacking flexibility with routine;
- Stereotyped motor mannerisms such as rocking, spinning, hand or finger flapping, self-stimulating behavior or stimulatory behavior;
- Abnormal focus or fixation on a toy, character or video.

In order to receive a diagnosis of autism, the delays must have been noted prior to age three. Asperger is the exception in that the delays are noted later. Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS) is usually diagnosed when there is a severe enough impairment but it does not meet the criteria for ASD (Ladden, Personal communication, January 18, 2012).

According to the Centers for Disease Control and Prevention (CDC), there is an average of 1 in 110 children in the United States that have an Autism Spectrum Disorder (n.d., ¶ 1). Based on an average of 4 million children born in the United States every year, approximately 36,500 of those children will be diagnosed with an Autism Spectrum Disorder (n.d., ¶ 3). Autism Spectrum Disorders are considered an urgent public health issue underscoring "the need for a coordinated and serious response to improve the lives of people with ASDs" (CDC, 2011). Sears names ASDs "the most widespread childhood epidemic in recorded history" (pg. xi).

According to the CDC, the Alabama Autism and Developmental Disabilities Monitoring (ADDM) Network is one of 12 state networks receiving funding from the CDC for surveillance activities to monitor the prevalence of ASDs and other developmental disabilities in 8-year-old children. The Alabama Autism Surveillance Program (AASP) located at the University of Alabama at Birmingham School of Public Health, the Alabama Department of Public Health (ADPH), the Alabama State Department of Education (ALSDE) and many other State agencies and organizations serve to establish an accurate count of the number of children affected by ASDs (n.d. ¶ 2). Data collected by the ALSDE, for the 2007-2008 school year, revealed 3,274 students, or 0.44% of the 742,789 children enrolled in Alabama public schools, were classified as having autism (CDC, n.d., ¶ 4). Data received by the ALSDE effective October 1, 2010, showed that of the 749,084 total students in Alabama public schools, 4,391, or 0.59% were classified as having autism and receiving special education services (2011). The Mountain Brook City Schools reported on October 1, 2010, that 49 students, or 1.09% of the 4,493 students enrolled, were classified as having autism and receiving special education services (2011).

Autism is often described as a sensory disorder, involving a disturbance in one or more of the senses. This includes the senses of touch, taste, smell, vision and hearing. Hyperacusis, or a disturbance in the sensitivity of hearing is of particular interest to this study. According to the American Speech-Language-Hearing Association (ASHA), hyperacusis is found in individuals with autism and as many as 40% of the children with autism have hyperacusis (2011). Many individuals with hyperacusis have normal hearing however they experience extreme discomfort, or are distracted by ordinary environmental sounds such as clocks, fans, or air conditioners (ASHA, 2011). It is not surprising then that serious behavioral issues erupt when children with

autism are exposed to unusually loud noises such as vacuum cleaners, blenders, lawn mowers, thunder, weather sirens and fire alarms (Finn, Personal Communication, January 26, 2012).

Section 402.1 of the International Fire Code® (IFC®) defines "emergency evacuation drill" as an exercise performed to train staff and occupants and to evaluate their efficiency and effectiveness in carrying out emergency evacuation procedures (International Code Council, 2009). Fire Drills are required in every Group E educational occupancy that is covered by the International Fire Code® or the Life Safety Code®. Group E occupancies are any occupancy used to educate 6 or more persons, 4 or more hours per day or more than 12 hours per week (NFPA, 2009). Both the IFC® and NFPA 101® require all occupants to leave the building.

Appendix section A.4.7.2 of NFPA 101® stresses the importance of the evacuation drills. No one should be excused from participating in the drills. Fire drills should be taken seriously and not be considered a routine exercise because "there is a grave danger that, in an actual emergency, the evacuation and relocation will not be successful" (NFPA, 2009, pg. 101-324). There are allowances made for infirm or bedridden patients in a health care occupancy, however not in educational occupancies.

The average school year in the Mountain Brook School system is August to May (Mountain Brook Schools, 2011). The IFC® and NFPA 101® require monthly fire drills and NFPA 101® Section 14.7.2.3 (3) has an added requirement of one additional fire drill within the first 30 days of operation (NFPA, 2009). Based on these requirements, the student should be expected to participate in eleven fire drills per year, and over the span of 13 years of school – kindergarten to Grade 12, 143 fire drills.

Fire evacuation drills are required in other occupancies as well. (Reference IFC® Table 405.2, 2009 for complete list). Most require only employees to participate, and are conducted

quarterly or annually. The exception to this, other than Group E, is Group R-2, college and university buildings. They require four annual evacuation drills and all occupants to participate (ICC, 2009). Fire drills are not required in the home for children who are home-schooled.

Fire alarms are everywhere. According to the 2009 Life Safety Code®, all high-rise buildings over 75 feet require fire alarms. Any assembly occupancy that has over 300 occupants, or theaters with more than one viewing room are required to be equipped with a fire alarm system. Residential occupancies, such as lodging and rooming houses, hotels and dormitories, apartment buildings four stories or more in height and residential board and care facilities must have a fire alarm. Business occupancies three stories or more in height or that have more than 300 occupants, and mercantile occupancies over 30,000 square feet must be protected with a fire alarm system.

Fire alarms create a problem for children with autism. Children with autism process sensory inputs, such as sound and light, differently (Coplan, 2010). Many will have an unusual sensitivity to sounds, especially high-pitched intermittent sounds such as fire alarms (Adams, Edelson, Grandin & Rimlad, 2004). For children with autism, fire drills are anything but simple. They disrupt routines, increase anxiety, and can even be painful (Collins, n.d.).

Children with autism may exhibit unsafe behaviors and do not understand the ramifications of these behaviors (Autism Society, n.d.). Many of these behaviors can have tragic results. A 12-year-old boy was killed in a fire in his West Philadelphia, Pennsylvania home. Fire officials stated he resisted their attempts to coax him out (Shields, J. 2010). A witness account said that a man tried to save the boy but he got away. She said the boy was scared and was fighting the man (Giordano, R. 2010).

In Jennings, Missouri, Devin Williams, a first-grader suffered burns on 68 percent of his body from a fire that occurred at his parents' home on November 21, 2010. Devin, who normally slept on a couch in his parent's bedroom, was found in an upstairs bedroom. His parents believe he went into the fire (Bell, K. 2011).

A 12-year-old boy died in a fire in his family's mobile home in Bisbee, Arizona. The father said his family got out of the home, but the son appeared confused and ran back inside. His body was found partially under his bed, in his bedroom (Washington, P. 2011). In a similar incident, a 10-year-old boy ran back upstairs despite his mother's attempts to get him out of the house. Battalion Chief Steve Miles said that when children get scared, they go to their safe place, which is usually their bedroom (Forster, D. 2007).

This research is significant in that the fire service and the education system have a moral responsibility to provide children with autism the necessary tools to function at their fullest in society. Life skills are important. "No matter where a child is on the autism spectrum, and no matter where he or she is likely to wind up, life skills count" (Myers, J. pg. 5).

This research is significant to children with autism who could go on to live an independent life in society. Marjorie Solomon says more children who were diagnosed with autism in the 1990's could be headed to college (Dutton, 2008). Scott Michael Robertson notes many adults with autism have college degrees and even graduate level degrees (Van Pelt, J. 2008). Many others will get a job, get married, and raise a family.

Throughout school, and in vocational education programs, life skills are taught including crossing the street, buying groceries, cooking, or balancing a checking account. All these skills are important to living a successful life in society. But equally important is "what to do when the fire alarm sounds."

This research is significant to the Mountain Brook Fire Department (MBFD) for the following reasons. The Mission Statement for the MBFD is:

> The City of Mountain Brook Fire Department is a values-driven organization that provides a range of quality public services for the health, safety, and welfare of the Mountain Brook Community with professionals who are committed to shared values and who are provided opportunities for personal growth. (MBFD, pg.101.01)

The "Mountain Brook Community" includes our residents who have been diagnosed with ASD. The MBFD has a responsibility to provide "quality public services" to all the Community.

Secondly, MBFD Fire Chief Robert Ezekiel says that the residents of the City of Mountain Brook have an expectation of quality (Personal Communication, 1/18/12). That is why "Commitment to Quality" and "Customer Service Orientation" are two of the Department's Shared Values (MBFD, pg. 101.01). Customer service orientation according to the MBFD Philosophy of Operations requires that the Department provide "proactive programs that maintain and improve fire safety education throughout our community" (MBFD, pg. 101.01).

Lastly, the Department Motto is "Quality Service for a Quality City" (MBFD, pg. 101.01). In a December 9, 2011 article in The Birmingham Business Journal, the City of Mountain Brook, AL offered the best quality of life in Alabama, is ranked 4th in the South and 13th in the nation. The rankings were based on a study of economic health, traffic, cost of living, housing and education conducted by On Numbers (Birmingham Business Journal, 2011). In addition, the Mountain Brook School System is a world-class school system. Two elementary schools, the Junior High School and the Mountain Brook High School are recipients of the Blue

Ribbon School Award through the U.S. Department of Education Recognition Program. About 98% of the Mountain Brook School students go on to colleges and universities. Over 500 Mountain Brook High School students have been named National Merit Finalists. Three Rhodes Scholars have graduated from the Mountain Brook High School. (Mountain Brook Schools, n.d.). Quality is very important to the citizens, so it is incumbent on the MBFD to provide the services necessary to meet or exceed the expectations of the community.

This research relates to Goal 1 of the United States Fire Administration (USFA) to "reduce risk at the local level through prevention and mitigation" (United States Fire Administration, 2009, pg. 14). This research relates in particular with the Operational Initiative which is to "Expand initiatives in public fire and safety education through various avenues to reach all segments of the population, particularly high risk groups" (United States Fire Administration, 2009, pg. 18). Children with autism are a high-risk group.

This research coincides with the course goals of the National Fire Academy Executive Development (R123) course to "Lead effectively and efficiently within a dynamic and complex organization by enhancing the development of teams and the application of research" (United States Fire Administration, 2011, p. ix). This research relates particularly with Unit 11, Service Quality, by providing a means to "break down barriers that inhibit independent living (United States Fire Administration, 2011, p. SM 11-3).

Literature Review

A literature review was conducted to establish a foundation for the research project and to determine what, if any, research had been performed regarding children with autism and fire drills. A preponderance of the articles regarding children with autism and fire drills comes from nonacademic Internet bulletin boards and discussion boards, with responses like "advance

warning" and "accommodations" such as headphones or special alarm systems. Behavioral triggers and characteristics were examined in the literature. Further literature review was conducted, after the survey responses were received, to determine what the various educational techniques entailed, their uses, and how these techniques could be used.

The Autism Society of America defines autism as a neurological disorder that usually appears in the first three years of life. It is a disorder that affects the development of communication and social skills and interactions (Autism Society of America, n.d.). Autism, which is the primary focus of this research, falls under the larger category of Pervasive Developmental Disorders (PDD), which also includes Asperger Syndrome, Childhood Disintegrative Disorder (CDD), Rett's Disorder and Pervasive Developmental Disorder-Not Otherwise Specified (American Psychiatric Association, 2000).

The Individuals with Disabilities Education Improvement Act was passed by Congress in 2004 and amended in 2007. This Act established special education requirements and classified all forms of autism into one category. Under IDEIA:

> Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences" (Child with a disability, 2007, ¶ c.1.i).

In addition, each state adopts educational requirements under IDEIA.

There was no research located relating to children with autism and fire drills or

fire alarms. However, there were several articles relating to individuals with mental retardation and fire safety skills training. One article studied fifty-two severely autistic persons in six different residences, over almost 2 years. All the participants were self-abusive, including hitting or biting themselves, or head-banging. Fifty of the participants were aggressive, including striking or hitting others, throwing things at others or biting others, or destroying property. Through the use of aversive stimulation, and 11weeks of intense interventions and training, all the participants were able to exit successfully in a mean time of 60 seconds (Israel, Connolly, vonHeyn, Rock & Smith, 1993).

In a second article, Mechling conducted a review of the literature from 1976 to 2006 that looked at personal safety skills training for persons with intellectual disabilities (2008). Participants included in the fire safety skills area of instruction included the blind, and mild, moderate or severe intellectual disability. None of the articles reviewed included autism as a disability.

In a study conducted by Knudson, Miltenberger, Bosch, Gross, Brower-Breitwieser and Tarasenko, individuals with severe and profound mental retardation were evaluated on their ability to be trained to exit their group home when the smoke detector activated (2009). Of the seven residents evaluated, according to the research, only one of the residents benefited from the behavioral skills training. Again, autism was not considered in this research.

Hypersensitivity to sound is an issue that causes problems for children with autism. Hyperacusis is defined as “an abnormally strong reaction occurring within the auditory pathways resulting from the exposure to moderate, or even soft, sound levels” (Gold, Formby and Gray, 2000, p. 69). The American Speech-Language-Hearing Association defines hyperacusis more

simply as an unusual sensitivity or intolerance of common everyday sounds. Hyperacusis is a disorder that causes otherwise normal sounds to sound unbearably loud, and has no relation to discomfort around loud sounds (2011). Individuals with hyperacusis may find a buzzing fluorescent light, or a vacuum cleaner too loud (Personal communication, Finn, January 20, 2012). There is no known specific cause for the sensitivity or intolerance, and "physiological and psychoemotional-behavioral perspectives" have been explored (Stiegler & Davis, 2010, p. 67).

Temple Grandin, PhD., is well known around the world for her work in animal science and for designing animal handling equipment. Dr. Grandin is also very well known for her insight into autism (Grandin, n.d.) She is a high functioning person with autism. In her book, *Thinking in Pictures*, she writes:

> When I was little, loud noises were also a problem, often feeling like a dentist's drill hitting a nerve. They actually caused pain. I was scared to death of balloon popping, because the sound was like an explosion in my ear. Minor noises that most people can tune out drove me to distraction. When I was in college, my roommate's hair dryer sounded like a jet plane taking off (1995, p. 67).

Every adult and child with autism is different. There is no one sight, sound or other stimulation that will trigger behavioral issues with all people with autism. What is painful for one person may actually catch the attention of another. Grandin identifies many different sounds or sights that may cause sensory overload or confusion (Autism Research Institute,1998). These include the flickering of a fluorescent light, loud noises such as school bells, fire alarms, or public address systems, or unexpected loud noises.

McCord, Iwata, Galensky, Ellingson and Thomson (2001) studied the problem behaviors brought on by noises including screaming, a telephone ringing, an alarm clock, a fire alarm, and

other stimuli. Seven adults living in a residential program participated in the investigation. Problem behaviors included aggression, self-injurious behavior, property destruction and tantrums. The results of the study indicate that each participant presented different problem behaviors when exposed to different stimuli.

According to the National Fire Protection Association (NFPA), in a fire emergency, it is difficult to say how a child with autism will react to the stressful situation (n.d.). Russell, in a survey of 30 families with a child with autism, determined that 30% of families reported smoke alarm activations caused sensory overload problems for their children with autism. Thirty-percent of the respondents said they believed their child would not respond to a smoke alarm, while 23% indicated their child would escape or run, and 46% reported their child would hide in the home (2009).

Children with autism may display many different behaviors. They may experience frequent or intense tantrums. They may have difficulty moving from one activity to another or may insist on following the same routine. They may resist change and become frustrated easily. Children with autism may exhibit aggressive behavior toward others, may injure themselves through such behavior as banging their head on the floor or wall, or may be destructive. They may have a preoccupation with parts of objects, or be fascinated with spinning wheels. Many children with autism may have compulsive behaviors or repetitive body movements such as hand flapping or rocking (Mintz, 2009). In many cases, trains will fascinate the child with autism, focusing attention on the movement of the wheels (Naramore, Personal Communication, January 4, 2012).

When it comes to fire alarms and fire drills, much of the literature and media articles tend to lean toward making accommodations for children with autism rather than intervention to

address the problem. In Willoughby, Ohio, a school building has been renovated to "provide the most autism-friendly environment possible, right down to the fire alarm system" (Jackson, 2011, ¶3). According to the news article, the normal fire alarm horns are replaced with a woman's voice. In Virginia Beach, Virginia, Roth writes that when the fire alarm goes off in the Princess Anne Elementary School, the class of fifth-graders gathers around Matthew, who has a mild case of autism. They remind him to cover his ears and help him get out of the building (Roth, 2008).

A question was submitted to the California State Fire Marshal for a code interpretation regarding designated autism classrooms and fire alarm strobes and speakers. The request for interpretation asked if there were any exceptions that would allow a teacher to stop the strobe and speaker in their autism classroom. The fire marshal said in the code interpretation that classrooms for autism students or other severely handicapped children could use chimes and similar sounding appliances that are used in medical facilities, with written approval of the authority having jurisdiction (California State Fire Marshal, 2007). According to the Alabama State Fire Marshal's Office, there are no such allowances or exceptions allowed in Alabama (Paulk, E. Personal Communication, February 23, 2012).

On October 30, 2006, Easter Seals broke ground for a new Therapeutic School and Center for Autism Research, in Chicago, Illinois. The building is designed to address the hypersensitivities children with autism have to sights and sounds. According to the article in the Chicago Sun Times, the building will not have a conventional fire alarm system with horns and strobes. Instead, the fire alarm will play "Stars and Stripes Forever" (Newcastle Limited Press Room, 2006).

Accommodations are helpful, in their place. Rudy (2008) says that books on tape are a great accommodation for blind students, or that a handicap ramp is wonderful for someone in a

wheelchair. But, these are available everywhere. Special fire alarms are not. Referring to the Easter Seal school in Chicago, once these students graduate, and assuming they live outside the institutional world, they will be exposed to everything they were protected from in the special school. The loud sounds and bright lights will be a part of their every day living. Without gaining the skills to cope with the outside world, in a controlled environment like the classroom, adulthood will be extremely difficult (Rudy, 2008).

Collins (n.d.), in an article for Pathfinders For Autism, writes that a fire drill for a child with autism is difficult and may even be painful. She identifies various ways a child with autism may respond to a fire alarm including hiding under a desk in the fetal position, rocking, screaming, pushing and hurting people in their path as they run out of the building. They can endanger themselves or the rest of the class with these behaviors. She goes on to say "without effective preparation, a student with autism could suffer injury or death due to elopement or tantrums in the middle of a true fire evacuation" (¶ 5).

Olejnik writes that children with autism learn by experience and education. They learn through role-playing and scenarios and that the key to functioning in society is preparation (2004). One teacher worked 20 minutes a day for six weeks to prepare her students for a fire drill. By presenting the fire drill as a special field trip, the students were eventually able to carry out the fire drill with assistance from the teacher (Good, 2011).

According to Russell, 59% of the parents surveyed indicated the preferred method for educating children with autism about fire safety practices was visual aids or pictures. Thirty-six percent of the respondents preferred videos (2009).

One problem children with autism have is they have a difficult time in transferring what they learn from one setting to another. Because of this difficulty, it is imperative that learning be

conducted in as many settings as possible. (Personal Communication, Naramore, January 4, 2012).

Social stories are short stories that describe an idea or social skill in words, pictures or both. A social story may help a child understand a social situation and the subsequent behaviors that are appropriate. Social stories can be personalized to the individual student's behaviors and responses, thereby giving the student better insight into the specific setting (Sansosti, Powell-Smith, & Kincaid, 2004).

The National Fire Protection Association (NFPA) has prepared a social story that breaks down into a basic step-by-step story the important points of what to do when the smoke alarm activates. The personalized social story entitled "I Know My Fire Safety Plan" is designed for high-functioning children ages 6 to 9 and can be downloaded, at no cost, from NFPA's website (n.d.).

Applied Behavioral Analysis (ABA) is a learning system that focuses on acquiring skills rather than a specific program or treatment. ABA uses a variety of educational methodologies such as Discrete Trial Training, prompting, and modeling to address the skill deficits the child may have. ABA focuses on acquiring skills and creating success for the child. The education plan is carefully planned and includes the parent's contributions (Brams, 2008).

Discrete Trial Training (DTT) breaks a task down into simple, easy to learn steps. There are three components in DTT: the discriminative stimulus (SD) or the instruction, the behavior or response of the child, and the consequence or reinforcing stimulus. The instruction could be "stack the blocks," followed by the behavior of stacking the blocks, not stacking the blocks, or doing something else. The consequence, depending on the child's response, could be a reward, or a response that the behavior was incorrect. DTT is very effective in teaching academic,

cognitive, communication and language skills as well as social and behavioral skills (Brams, 2008).

Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) is a system used to provide a structured classroom environment. The classroom has separate, defined areas for each task, such as play, work, snack, and music, so the child knows what is expected in each area. Pictures, words or drawings are used on the child's schedule to indicate what they are to do and when it is supposed to happen. The work system tells the student what is expected, how much work is to be done and what is expected when they are complete with the work. The goal of the work system is to teach the student to work independently (Edelson, n.d.).

The Picture Exchange Communication System (PECS) is a pictorial system where the child is taught to give a picture of a desired item in exchange for that item. The pictures are used as the method of communication. The child has a collection of pictures and uses the pictures to create a sentence. By selecting a picture card for "I want" and a card for an "apple," and giving those cards to the communicative partner, the child is asking for the desired item, in this case, an apple (Charlop-Christy, Carperner, Le, LeBlanc & Kellet, 2002).

Role-play is an effective method of teaching social skills. The parent or teacher can act out typical social situations such as initiating a conversation, playing with others, or answering questions. In role-play, there is no pressure and the child can take the necessary time to work through the awkward situation. These role-play exercises can be video recorded and used for video modeling because children with autism tend to learn visually more effectively (Autism Spectrum Disorders Fact Sheet, n.d.).

Video modeling is an effective method for helping children learn various skills for daily living (Bellini & Akullian, 2007). Video modeling uses TV and video recording to demonstrate appropriate behaviors, in much the same way as social stories. Another form of video modeling is video self-modeling where the children themselves are in the video (ABA Therapists, 2010). Video self modeling can be used to show a child how they have improved in accomplishing a task by videoing each attempt. Pittman uses video modeling to assist in teaching the appropriate behavior during fire drills (Personal communication, September 20, 2011).

Prompting is a method of assisting the child by giving cues or hints to perform a desired skill or behavior. The teacher or peer usually gives the prompt as the child is attempting the skill. There are various types of prompts. Verbal prompts are verbal instructions such as saying "You might want to try a different way." Modeling occurs when the teacher or peer demonstrates the skill or behavior. Physical prompting is actually touching the child to help them use the skill or behavior. Gestural prompting is movements such as pointing at or moving the item. Visual prompting involves pictures that provide information about how to do the target skill or behavior (ABA Therapists, 2010).

The most commonly recommended treatment for hyperacusis is a gradual and systematic desensitization program. (Stiegler & Davis, 2010). Overprotection of the hearing, in the absence of hazardous sound levels, according to Mraz and Folmer, can cause further hypersensitization (2003). One key recommendation by Jastreboff and Jastreboff, is to stop utilizing ear protection (2000). Stiegler and Davis also concluded from their research: "overprotection of the ears should be discourage, as that may lead to long-term difficulties with hyperacusis" (2010, p. 73).

One father understands the importance of fire drills. He said that many autistic children have sensory and rigidity issues that may cause problems coping with fire drills. But he goes on

to say that he has always favored the approach of desensitizing his child, and has had nearly perfect results. He says there is only one catch: “It takes time. In fact, time consistency can over-come [sic.] almost anything” (Collins ¶ 5, n.d.).

“Stimming is a particular form of continuous, repetitive, purposeless or ritualistic movement, posture or utterance that self-stimulates one or more senses in a regulated manner” (Mintz, 2009, p. 20). Stimming can have a calming effect, allowing a child to be in control and soothe his sensory overload. There are various stims including visual, physical, auditory, and oral. (Mintz, 2009).

Trey has Asperger and has three children with various degrees of Autism. Speaking from his own experience regarding fire drills, he says that if the children crumple on the floor, then if possible, give them earplugs. But, if they are less agitated, then let them try a “stim” that they can take with them out of the building. A stim is something to distract them. He explains that if they like something soft, then give them a piece of fur that they can manipulate. The stimming motion helps to transfer the anxiety from the noise to the object. It serves to defuse the anxiety (McGowan, 2009).

James has autism. He discusses the concept of desensitization through his experiences with his uncle who lived by the railroad tracks. He writes that every morning, the same train comes down the track. In the beginning, it woke his uncle up every morning but after a few months, his hearing adjusted and the train no longer woke him up (Williams, n.d.).

Grandin says that children with autism will tolerate loud noises more easily if they can initiate the sound or control the amount of exposure to that sound. She writes on her “Frequently Asked Questions” page that if the child cannot tolerate the supermarket, let them control how long they stay inside the store. If a child is afraid of the smoke detector, wrap it up in a towel and

let him play with it. She says: “It is essential that the child has control” (2010, Question 5). In a personal email (January 5, 2012), Dr. Grandin responded in much the same way: she said to wrap the alarm in a towel to muffle the noise. Then, let the child decide how much noise is too much, as they gradually remove the towel a little at a time to allow the noise to get louder.

The incidence of autism is increasing, and more and more children with autism are growing up, with many wanting to go to college, enter the work force, and have a social life (Van Pelt, 2008). VanBergeijk, Klin and Volkmar write: “The overwhelming majority of individuals with a pervasive developmental disorder have milder forms of ASD” (2008, p. 1359), with very little attention focused on these milder forms of autism. In fact, children suffering from classic autism comprise less than half the number of children with Asperger, which is the milder form of autism (VanBergeijk & Shtayermman, 2005). As they mature, the majority of these individuals can take on adult social roles and hold down employment although they may have difficulty doing so (VanBergeijk, et al, 2008).

There is very little research relating to children with autism and fire drills or fire alarms. Much of the discussion is on making accommodations for the children rather than attempting to mitigate the problems. In fact, according to some researchers, we may be doing more harm by not helping the children. There appear to be numerous educational methodologies that may be of help to the children as it relates to the hypersensitivity to noises, particularly fire alarms. There will be some children who can not be helped, and will not be able to lead an independent life, but those who can, need to be able to respond appropriately to fire alarms.

Procedures

A search was conducted in the Learning Resource Center at the National Fire Academy for any Applied Research Projects (ARP) relating to Autism. Only two ARPs were found. Mims

discussed training emergency responders in assessing and providing care to individuals with an ASD in the absence of caregivers (2008). Russell developed a fire prevention education program for families with children with autism (2009). In addition, a search of the First Responder Dissertations and Theses collection was performed. No records were found using autism or autistic as keywords.

A literature review was performed of fire and emergency medical service journals via the card catalog at the National Fire Academy Learning Resource Center in August 2011. A literature review was also conducted in the Samford University Library as well as the Mervyn H. Sterne Library and Lister Hill Library of the Health Sciences on the campus of the University of Alabama at Birmingham in September, October and November 2011. An Internet search using Google, Google Scholar and Bing was also performed using keywords including, but not limited to Autism, Autistic, ASD, Asperger, fire drills, and fire alarms. There were no peer-review journal articles found. There were, however, many blogs, frequently-asked-question lists and other bulletin board type pages on parent and support group type web pages with considerable discussion on what to do for children with autism and fire drills.

Further Internet searches were conducted utilizing EBSCOHost, ERIC, PsychInfo, Academic Search Complete, MedLine and WebMD. Additional keywords included in the searches were sensory processing disorder, auditory hypersensitivity, hyperacusis, educational methods, social stories, video modeling and peer modeling. Internet searches continued throughout the research process.

Interviews were conducted with Libby Pittman, Speech Language Pathologist at the Mountain Brook Schools. This interview was used to establish some basic questions for the survey instruments that would be sent out, as well as to gain insight into the methods she is using

to teach children with autism about fire drills. Sandy Naramore, Executive Director of Mitchell's Place, a diagnostic, educational and therapeutic Autism center, was interviewed to clarify issues relating to fire drills and behaviors associated with hypersensitivities to sound. Dr. Stacy Ladden, Clinical Psychologist at Mitchell's Place, was interviewed to determine clinical aspects of autism including symptoms and diagnosis. Several meetings were held with Dr. David Finn, Associate Professor and Director of Special Education, Orlean Bullard Beeson School of Education and Professional Studies. Dr. Finn specializes in children with autism and was consulted regarding research issues and educational strategies for children with autism. A meeting was held with Dr. Thomas Wooley, Professor of Statistics, Brock School of Business, to discuss the methods and procedures for statistical analysis of the data gathered from the surveys. Ed Paulk, Alabama State Fire Marshal was interviewed regarding fire and life safety code requirements in the State of Alabama.

An email was sent to Dr. Temple Grandin regarding her experiences and recommendations concerning fire alarms. An email was also sent to the Autism College to determine if there had been any research or educational models focusing on children with autism and fire drills.

The researcher attended the professional track of the "Unlocking Potential" Conference sponsored by Alabama Department of Mental Health, Mitchell's Place and Glenwood Autism and Behavioral Health Center on October 7, 2011. The conference agenda and program description are found in Appendix A. Of particular interest were the workshops regarding using teachable moments to develop social skills, and sensory integration and strategies.

Based on data gathered from the above sources and the research questions, three separate survey instruments were assembled using KwikSurveys, a free survey software program

available at www.kwiksurveys.com. These surveys were used to compile data and attempt to understand how children with autism respond to various stimuli. Survey solicitation was via email, and no personally identifiable information was collected. Completed surveys were submitted to KwikSurveys for collection.

A qualitative research approach to the surveys was selected because children with autism respond differently to the similar stimuli. Leedy and Ormrod discuss the different perspectives and applications of quantitative and qualitative research (2010). They list several guidelines to determine whether to use a quantitative or qualitative approach. One guideline is to "consider the nature of the research question" (pg. 106). According to Leedy and Ormrod, the qualitative research approach is more suitable for interpretive questions. Interpretive questions enable the researcher to "develop theoretical perspectives about a phenomenon" and "discover the problems that exist within the phenomenon" (pg. 136). Another guideline is to use the qualitative research approach if "there are multiple possible realities constructed by different individuals" (pg. 107). This is the case with children with autism and the different responses to like stimuli.

Several different question formats are utilized in the survey instruments. Quantitative data is collected using forced response questions, such as multiple choice and categorical type questions. These are used to gather specific data regarding demographics, specific behaviors and issues, and other "yes-no" type responses. Likert-scale questions are utilized to determine the intensity of the child's response to different stimuli (Leedy and Ormrod, 2010). Qualitative data is collected utilizing open-ended narrative type questions. These questions are used to collect information about the respondent's knowledge, experience, or opinions regarding issues relating to the question.

Dr. Thomas Wooley (Personal communication, February 3, 2012) reviewed the raw data collected to determine how best to compile the data into a useable, accurate and understandable format. He suggested categorizing the "qualitative" responses into similar categories, while looking for underlying commonalities. These similar categories should then be assembled into a useable format. Once formatted, then ask, "What does it mean?"

The Parent Survey contains an introductory email with a link to the survey that is comprised of 36 questions (Appendix B). The survey was distributed several ways. It was posted on LinkedIn in the Autism Advocacy group, Autism Awareness group and Parents with Patience group. It was also sent out to parents of children who attend Mitchell's Place and Glenwood. Respondents were asked to forward the email and survey to other parents they knew who had children with autism. There were also referrals from the Teacher Survey and Fire Marshal Survey.

The Parent Survey is broken down into four parts: general information, sensory processing, social and life skills, and demographics. The general information section asks questions concerning the child's diagnosis, whether they attend school or day care, and what they like and don't like about school. There were also questions about any problems that occurred at the beginning of the school year, what they were, and how they were resolved.

The sensory processing section addresses questions regarding loud noises and flashing lights and other things that may scare the child. Additionally, specific questions about fire drills and how the child reacts to fire drills are included.

The social and life skills section deals with what places the child might frequent and whether a fire alarm has ever sounded when the child was in the area. Included here are

questions about special procedures the child's school or day care might use for fire drills, and whether fire drills are part of the child's Individualized Education Plan (IEP).

The last section asks for demographic information, specifically the age of the child, where the child attends school and what special education services the child is receiving. Additional questions ask about where the child lives and any additional comments.

The Teacher Survey contains an introductory email with a link to the survey that is comprised of 18 questions (Appendix C). The survey was distributed by posting on LinkedIn in the Autism Awareness group and Linked to Autism group. It was also sent out to the teachers at Mitchell's Place and Glenwood, as well as several public school systems. Respondents were asked to forward the email and survey to other teachers they knew. There were also referrals from the Parent Survey and Fire Marshal Survey.

The Teacher survey asks about the specific techniques that are used to educate children with autism. It also allows for listing other techniques not included. The survey asks about specific procedures used when fire drills are performed, and what techniques are used in educating the children about fire drills. The survey then questions the teacher's experiences with the children's behavior during fire drills and whether the children exhibit dangerous or self-destructive behavior. It asks if the teacher has seen behaviors that may endanger others. Lastly, the survey asks if fire drills are part of the child's IEP, how long they have been an educator and the state or province where they teach.

The Fire Marshal Survey contains an introductory email with a link to the survey that is comprised of 13 questions (Appendix D). The survey was distributed through the Alabama Association of Fire Chiefs e-group, the Fire Marshal's Association of Alabama e-group and the Executive Fire Officer classmate e-group. It was also posted on the International Fire Marshal

Association group on LinkedIn. Respondents were also asked to forward the email and survey to other fire marshals they knew. There were also referrals from the Teacher Survey and Parent Survey.

The Fire Marshal survey collects general information concerning the fire codes that are enforced and whether the department performs monthly fire drills in the schools and day cares. It asks whether children with autism are enrolled in the schools and what special procedures are used for the children with autism when conducting fire drills. Other questions look at the response of children with autism and whether they exhibit any dangerous or self-destructive behavior and whether they endanger others during fire drills.

Lastly, several fire drills were observed over a two-month period, at various Mountain Brook elementary schools to observe the response of children with autism to the fire alarm. Fire department personnel routinely conduct the monthly fire drills. The fire apparatus officer enters the school office and advises the principal that they are there to perform a fire drill and to activate the fire alarm. The remainder of the apparatus crew disperses throughout the school to monitor the fire drill for an orderly evacuation, doors or windows left open, students or staff not leaving the building, and for other life safety issues. A monthly fire drill report is completed by the officer, signed by the responsible party at the school, and a copy left with the school and a copy forwarded to the Fire Marshal's Office.

Research Question 1 asks, "What triggers behavioral issues for children with autism?" The purpose of this question is to determine what types of external stimuli cause behavioral issues for children with autism. Do sounds and lights cause problems for children on the spectrum? Do thunderstorms raise behavioral issues, and if so, what aspect of the thunderstorms? Are there other factors that cause problems? There are also questions requiring a forced response

to determine how stimulating each trigger is for the child. Questions 8, 9, 10, 12, 13, 15, 16, 22, 23 and 24 of the Parent Survey collect the data regarding what triggers behavioral issues and attempts to quantify that trigger.

The focus of Research Question 2 is, "How do children with autism respond to external stimuli?" and is intended to determine how the children respond to the different triggers identified in Research Question 1. External stimuli such as thunderstorms, including thunder or lightning, loud noises, or flashing lights, may be problematic for children with autism. If these triggers do cause problems, then what is the specific reaction to that external stimulus? Parent survey questions 11, 14, 17 and 25, and Teacher survey question 5 specifically focus on this issue.

Research Question 3 begins the search for data regarding children with autism and fire alarms and asks, "How do children with autism respond to fire alarms?" The Parent survey asks about the child and fire drills (questions 18, 19, 20 and 21). Survey questions 26 and 27 ask about placed that the parent and child frequent. It also asks about fire alarms sounding while out in those public places (questions 28 and 29). In the Teacher survey, question 10 asks about how the children react during fire drills. Question 8 in the Fire Marshal survey asks the same question.

Research Question 4 looks at "What behaviors do children with autism exhibit that endanger themselves or others during fire drills?" There are no questions in the Parent survey regarding this behavior. The Teacher survey (questions 11, 12, 13 and 14) asks about behaviors that endanger the child or behaviors that endanger others during fire drills. In the Fire Marshal survey, questions 9, 10, 11 and 12 ask about the fire marshal's experience with dangerous or self-destructive behavior or behaviors that endanger others.

Research Question 5 focus is on "what techniques are used in educating children with autism?" The purpose of this question is to determine the educational methodologies used routinely in the classroom. The Parent and Fire Marshal surveys do not address this research question. The Teacher survey has two questions about the educational techniques (question 3 and 4).

Research Question 6 asks, "What techniques are used in education children with autism regarding fire drills?" How are children with autism being educated about fire drills, and what special procedures are used during fire drills? Are fire drills included in the child's Individualized Education Plan (IEP)? The Parent survey, questions 30, Teacher survey question 6 and 7, and the Fire Marshal survey question 6 and 7 ask about special procedures for the fire drills. Teacher survey questions 8 and 9 ask about the techniques used in education children with autism about fire drills. Parent survey question 31 and Teacher survey question 15 ask about the IEP.

Several limitations were identified throughout the research process. In the Teacher survey, question 6 regarding special procedures used when fire drills are performed, would not allow selecting all the options that applied. Several teachers did list all the options in question 7, however, the responses may not accurately reflect all the procedures used during fire drills. Parent survey question 30 concerning special procedures used during fire drills had an "Other" choice but did not include a place to describe what "Other" included. This issue is also found in Parent survey question 33 concerning where the child attends school. There is no location to enter that information into the survey.

Due to the methods used to distribute the survey, there is no way to ask follow-up questions or ask for clarification to certain answers. Respondents were not required to answer all

questions, so a true sample may not be obtained. The small sample size is also a limitation, however the responses from all three surveys were from a diverse population.

Observation of fire drills was a limitation because the presence of the fire marshal was disruptive to the routine. Through the normal process of the fire drill, the special education teacher would get advance warning and was able to prepare the students for the fire drill. Without preparation, undue stress would be caused and the child may not be able to function the remainder of the day. Several fire drills were witnessed via video recording made by the teacher, without significant or adverse outcomes.

Another limitation is the method used to determine the meaning of the descriptions given by the respondents. This is one of the difficulties with qualitative data. As with many words, meanings can vary based on personal biases such as educational level, area of the country the respondent is from, and cultural background. For example, depending on the area of the country, a soft drink may be called a “coke,” “soda,” or “pop,” but they all describe a soft drink. The same applies to other descriptions. In order to attempt to standardize the descriptions used by the respondents, each description was categorized by its definition in Dictionary.com as well as synonyms in Thesaurus.com.

Results

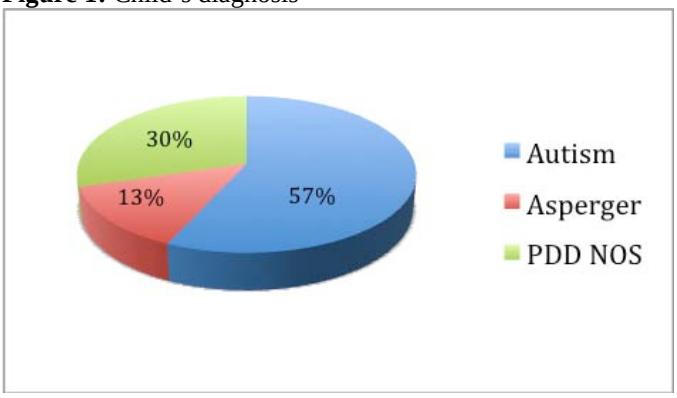
The purpose of this applied research project is to develop an educational program to assist children with autism to respond to fire alarm activations. Utilizing interviews, three survey instruments, and observing fire drills in a Mountain Brook elementary school, data was collected to answer the six research questions listed in the Introduction.

Demographic information was collected in all three surveys to determine basic information about the respondents. In the Parent survey, information was collected about the

child's diagnosis, where they attend school, the age of the child and the state or province in which they live. The Teacher survey asked if they were a special education teacher, if they teach children with autism, how long they have been a teacher and in what state or province they are a teacher. The Fire Marshal survey asks about the particular fire or life safety codes enforced, whether the department performs fire drills and if there are children with autism in their schools or daycares. There is also a question in each survey that allows for additional comments.

Figure 1 shows that of the 37 parents answering the question about the child's diagnosis, all the respondent's children had a diagnosis of an ASD. Twenty-one of the children were diagnosed with Autism, 11 with PDD NOS, and 5 with Asperger.

Figure 1: Child's diagnosis



Question 2 of the Parent survey asks if the child attends school or day care. Figure 2 indicates that 33 of the 37 children attend school or day care. Parent Question 33 asks where the child attends school or day care. Figure 3 only has 32 responses for the type of school attended, where Figure 2 shows 33 attending school. One respondent chose not to respond to this question. With 29 children attending public or private school, there should be an accurate representation of the children's response to fire drills, assuming that all schools perform fire drills as required.

Figure 2: Attend school or day care

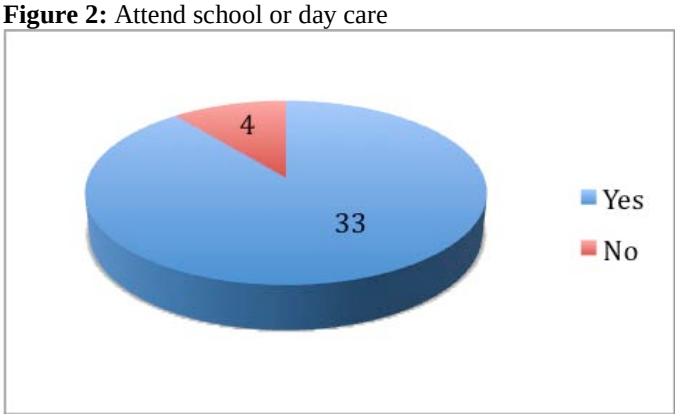


Figure 3: Type of school attended

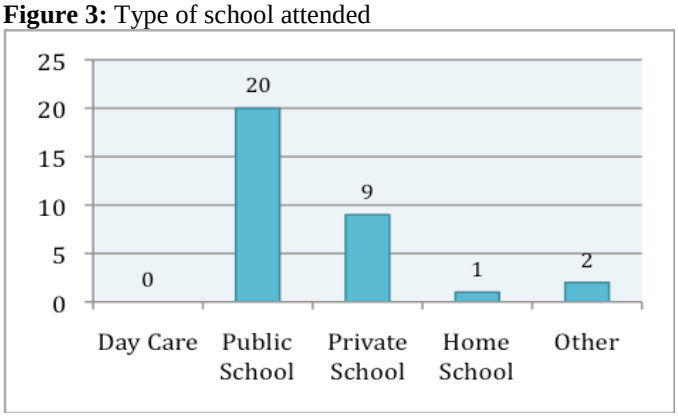
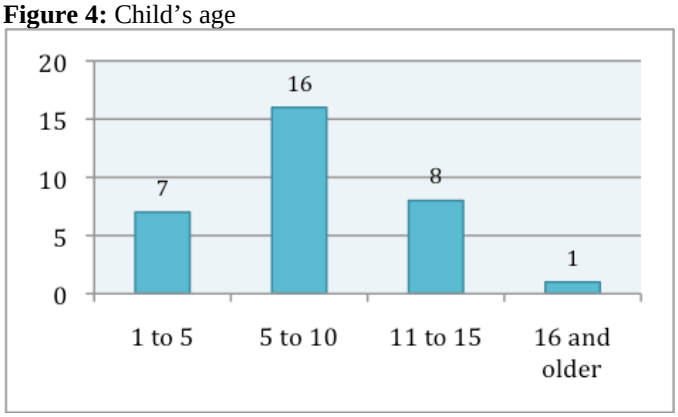


Figure 4 shows the breakdown of the ages of the children. The most populated age group was the 5 to 10 group, with 50% of the population. Of all the respondents, only one child is 16 and older. Five of the Parent surveys did not give a response for this question.

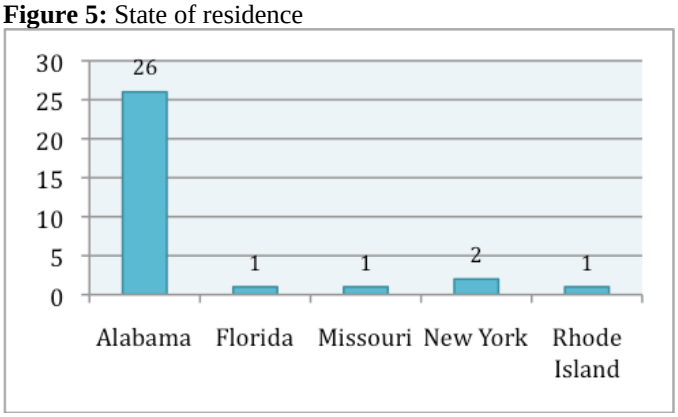
Figure 4: Child's age



Note: The second age category should have been 6 to 10.

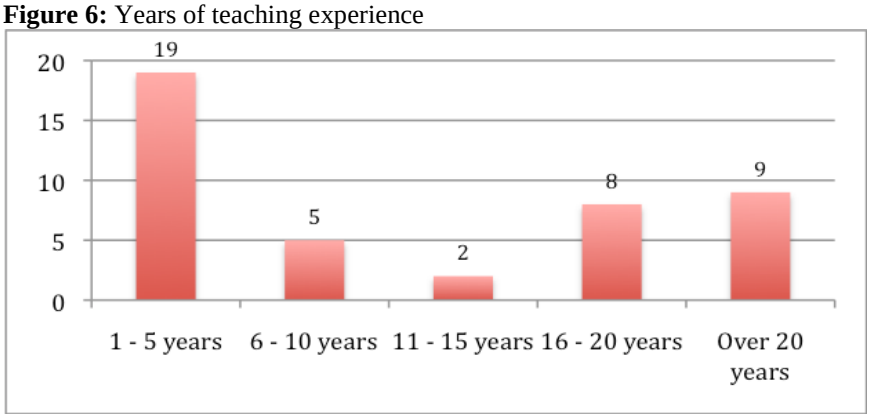
All but five of the respondents for Parent question 35 listed Alabama as their state of residence. Figure 5 shows the distribution or responses. Ed Paulk, Alabama State Fire Marshal, said all public and private schools and educational occupancies in Alabama are required to perform monthly fire drills in accordance with Code of Alabama, 1975, Section 36-19-10 (Personal Communication, February 23, 2012). Again, this should give an accurate representation of the children's response to fire drills, if they are performed as required.

Figure 5: State of residence



Of the 43 teachers who responded, 42 said they teach children with autism and 36 indicted they are special education teachers. Figure 6 shows that just over 44% of the teachers have been teaching for five years or less, with almost 40% teaching for over 16 years. All but five of the 43 teachers indicated they teach in Alabama with those five teaching in Washington.

Figure 6: Years of teaching experience



Tables 1 and 2 indicate the fire and life safety codes that are enforced by the fire marshals who responded to the survey. All the NFPA 101® and International Fire Codes have requirements for monthly fire drills. The fire codes listed in Table 2 also have similar fire drill requirements.

Table 1: Fire and life safety codes enforced

Edition Enforced	NFPA 101®	International Fire Code®
Do not enforce	13	7
2012	0	0
2009	6	11
2006	1	9
2003	10	4
2000	2	0
Other	0	1

Table 2: Other fire and life safety codes enforced

Other Code Enforced	# Responses
Ohio Fire Code	4
British Columbia	1
California	1
San Francisco, CA	1
Alberta	1
Arkansas	1
Bentonville, AK	1

Of the fire marshals responding, 81.8% indicate they have children with autism in their schools and day cares. Interestingly, 15.2% do not know if they are in their schools or day cares. Only 11 of the fire marshals indicated their departments perform fire drills in the schools and day cares leaving 65.6% that do not.

Figure 7: Children with autism in schools or day cares

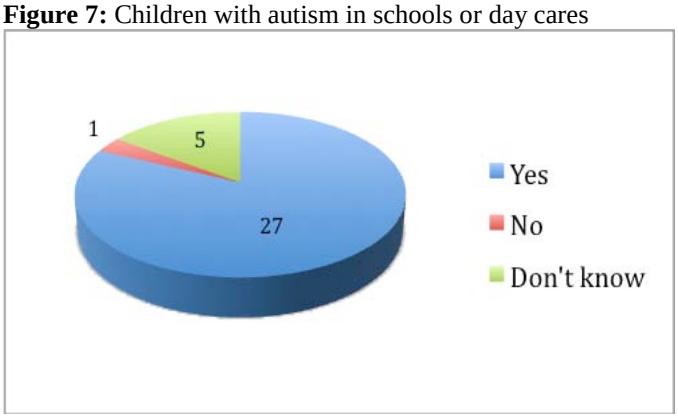
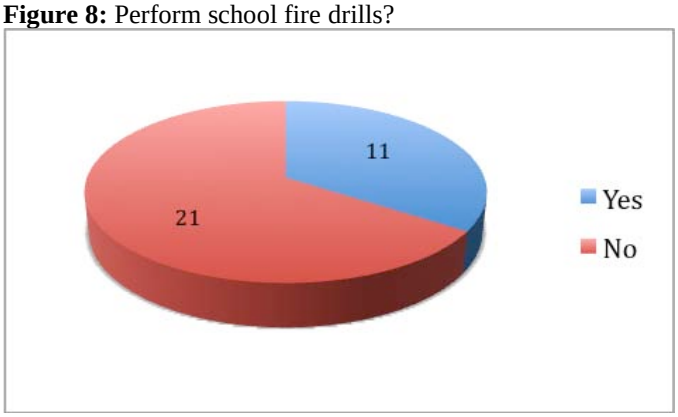


Figure 8: Perform school fire drills?



A series of questions was asked in the Parent survey to determine what the child likes and dislikes about school, any problems at the beginning of the school year, and if there were, what were those problems and how were they resolved.

Table 3 lists the things parents say their child likes about school. Interestingly, 30% of the parents ranked friends and play time the most with schoolwork and learning next. Table 4 lists what the parents say their child dislikes most about school. Lunchrooms, crowds, chaos and noise were the overwhelming leader with 46.9% of the responses. This was followed second by schoolwork with 28.1% of the responses. There were several similar responses between the likes and dislikes reflecting the diversity of children with autism. One parent said their child doesn't like fire drills.

Table 3: What the child likes about school

What does your child like about school?	# Responses
Friends	11
Playground, PE, Playtime	11
School Work	9
Learning	8
Routine / Structure	7
Teacher/ Therapist	5
Music	3
Lunch	2
Library	1
Field Trips	1

Table 4: What the child dislikes about school

What doesn't your child like about school?	# Responses
Lunchroom, Crowds, Chaos, Assembly, Noise	15
School Work	9
Other children, teasing	4
No structure, routine	3
Separation from parent	3
Nothing	3
Socialization, friends	3
Nap Time	2
Teacher	1
Games	1
Music	1
Fire Drills	1
Getting up early	1
Follow directions	1

Parent survey questions 5, 6 and 7 address problems the child had at the beginning of the school year. Figure 9 shows that of the respondents, 55.6% said there were no problems. Of those having problems, Table 5 shows that nearly 65% said the problem was adjusting to a new routine. Again, one parent said a fear of fire drills was a problem. There were six parents who

said the problems had not been resolved. However, according to Table 6, there were a variety of methods used to solve the problems. The most significant method used was time and patience.

Figure 9: Problems at start of school year

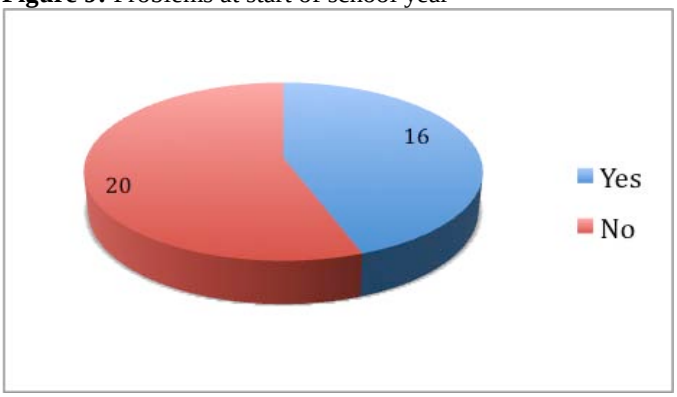


Table 5: Problems at the beginning of school

What were the problems at the beginning of school?	# Responses
Adjust to new routine	11
Minor behavioral issues	3
Lack of appropriate services	2
Destroy property / toys, anger	2
Stay on task	2
Communication	2
Afraid of fire drills	1

Table 6: How the problems resolved

How problems resolved	# Responses
Not resolved	6
Time / patience	4
Conferences	3
Resource teacher	3
Picture schedule	1
Social story	1
Redirection	1
Sensory tools	1

There are many factors that can cause behavioral issues for children with autism. The focus of this part of the research project is on auditory or visual triggers, in general, and fire alarms in particular. Figure 10 indicates that, of the 34 parent responses, their children are more

afraid of loud noises than they are of thunderstorms. Over half of the respondents said their children were not scared of thunderstorms while nearly 65% stated their child was scared by loud noises. Only two parents responded that their child was scared of flashing lights.

Figure 10: What scares your child?

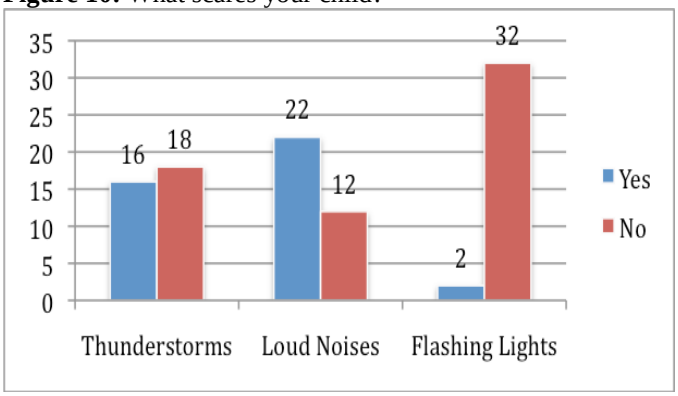
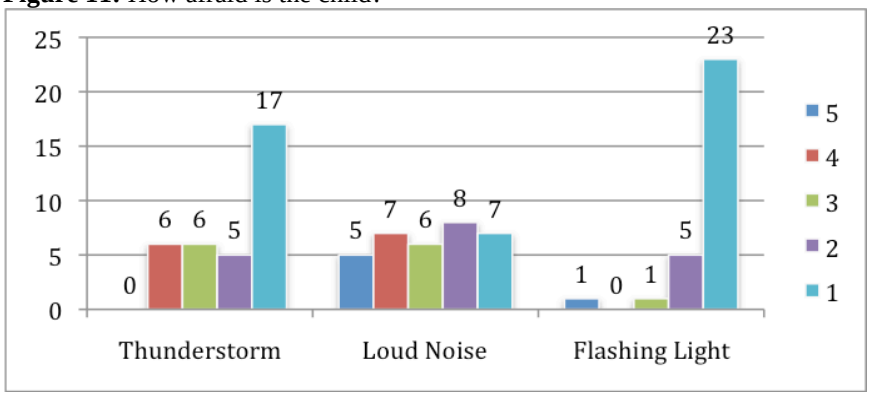


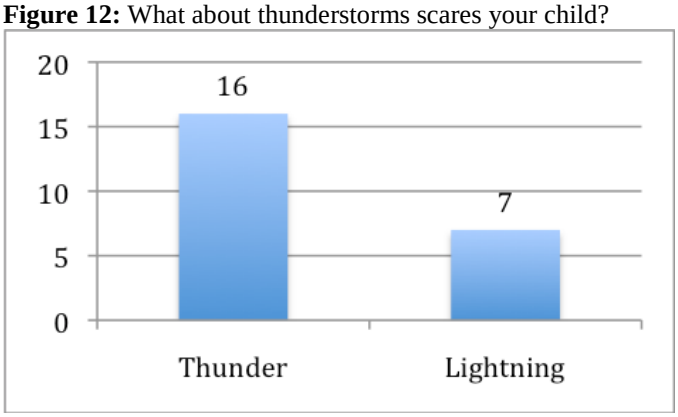
Figure 11 used a Likert-scale question to determine how scared a child was of the particular stimulant. Over half the respondents said their child was not afraid of thunderstorms, yet of the 16 parents who said their child was afraid of thunderstorms, all said, in Figure 12, that thunder was what scared their child. Loud noises appear to be the primary issue with external stimuli with 64% of the parents saying this is what scared their child. Flashing lights do not appear to be an issue at all as far as scaring the child.

Figure 11: How afraid is the child?



Note: On a scale of 1 to 5 with 1 being the least and 5 being the most.

Figure 12: What about thunderstorms scares your child?



Parent question 22 asks if there is anything else that scares their child. Figure 13 shows that 44% of the parents said that other things scared their child. The responses listed in Table 7 seem to indicate that the children are scared by many of the same things that scare other children.

Figure 13: Does anything else scare your child?

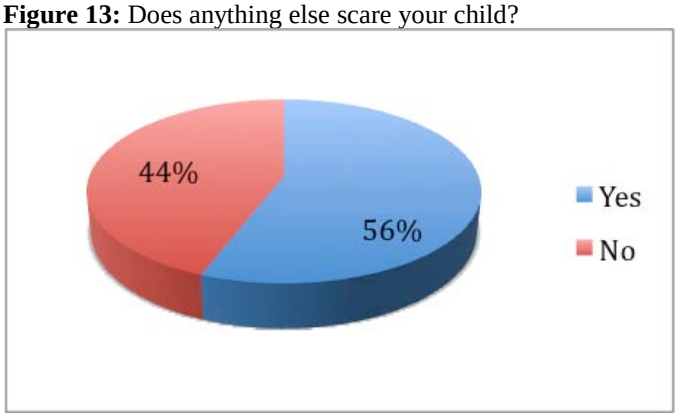
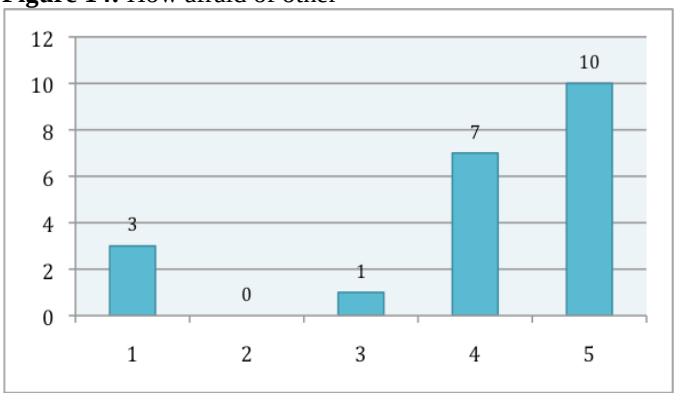


Table 7: What else scares your child

What else scares your child?	# Responses
Dogs	3
Crowds	3
Being alone	2
Violence / anger	2
The unknown	2
Unexpected noise	1
Closed doors	1
Dark	1
Away from parents	1
Accidents	1
Losing things	1
Giants / monsters	1
Bad smells	1

Figure 14 used a Likert-scale question to determine how afraid the child was of the particular items listed in Table 7. The vast majority of the responses were in the "4" and "5" range with 10 respondents marking "5" which is the most afraid rating.

Figure 14: How afraid of other



Note: On a scale of 1 to 5 with 1 being the least and 5 being the most.

Every child reacts differently to thunderstorms, particularly children with autism. Parent survey question 11 asks about the different ways the child reacts. Table 8 shows the responses of 23 parents. Several parents listed multiple responses. One point of interest is that five parents

said their child is curious about thunderstorms while two said their child is oblivious to thunderstorms.

Table 8: Reaction to thunderstorms

How does your child react to thunderstorms?	# Responses
Anxious / nervous	7
Curious	5
Escape / hide	3
Afraid tornado coming	3
Oblivious	2
Panic	2
Hyperactive	1
Cries	1
Pulls hair	1

Table 9 shows the 39 responses from 27 parents regarding how their child reacts to loud noises. Many parents gave multiple responses to this question. Over half the respondents said their child covered their ears, which is a normal response. Two parents indicated their child did not respond to loud noises. Six parents said their child "Stims." One parent, in Parent survey ID 10004032, defined stimming in Question 14 as flapping hands, hitting self, humming, grinding teeth, pulling on ears. One other parent said their child screams to try to cover up the sound. Again, we see a wide variety of responses, from "doesn't respond" to "panic."

Table 9: Reaction to loud noises

How does your child react to loud noises?	# Responses
Cover ears	14
Stim	6
Yell / scream	5
Run / escape	3
Anxious	2
Doesn't respond	2
Not scared	2
Hyperactive	1
Cry	1
Pulls hair	1
Panic	1
Lash out	1

As indicated in Figure 10, only two of 32 respondents said their child was afraid of flashing lights. Seven of the respondents said their child was fascinated or fixated with flashing lights, which goes along with children with autism being attracted to repetitious or cyclic stimuli. However, one parent responded that their child didn't like fluorescent lights when they flicker and he tries to run away.

Table 10: Reaction to flashing lights

How does your child react to flashing lights?	# Responses
Fascinated, fixated	7
Doesn't respond	2
Cover face	2
Run away	2
Jumpy	1

Parent survey question 25 asks about how the child reacts to the other things that scared them, which are listed in Table 7. Scream and cry was the most common response. Again, two respondents said their child stims when scared.

Table 11: Reaction to being scared

How does your child react to being scared?	# Responses
Scream / Cry	11
Escape	6
Anxious	3
Panic	3
Stim	2
Cover eyes / ears	2
Aggressive	1

Teacher Survey question 5 asks about their experience with children with autism and their response to external stimuli such as loud noises and flashing lights. Table 12 lists the responses from the teachers. There were 42 responses with many teachers listing multiple reactions. One common thread among the respondents is that the reaction or response of the child is dependent on the child. One teacher said that some children might display some problem behaviors while others may not react at all. There were 11 responses for “ignore or no reaction” to the stimuli, while “panic, tantrum, meltdown” had 12 responses. Again, we see “stim” as a response to external stimuli, with five responses.

Table 12: Response to external stimuli

How do children with autism respond to external stimuli	# Responses
Anxious, afraid, agitated, disturbed, excited	20
Cover eyes, ears	14
Panic, tantrum, meltdown	12
Ignore, no reaction	11
Scream, yell, cry	10
Run away	6
Freeze, shut-down	5
Stim	5
Distracted, confused	4
Avoid, shy away	4
Aggressive, attack others	3
Appropriate response	3
Self-injure	2
Disregulate	1
Make noise to cover up the sound	1
Comment "Don't like it, make it stop"	1

Parent Question 18 asks if fire drills scare the child. Figure 15 indicates that over half of the parents don't know if fire drills scare the child, with 14 of the parents responding "yes." The survey goes on to ask what about the fire drill scares the child. Figure 16 indicates the results of Parent question 19. Of the 22 parents responding, 14 say the sound is what scares the child. Parent question 20 asks the parent, on a Likert-scale of 1 to 5, with 1 being the least and 5 being the most, how afraid the child is of fire drills. The results are found in Figure 17, with 23 responses.

Figure 15: Do fire drills scare the child?

Figure 16: What about fire drills scares the child?

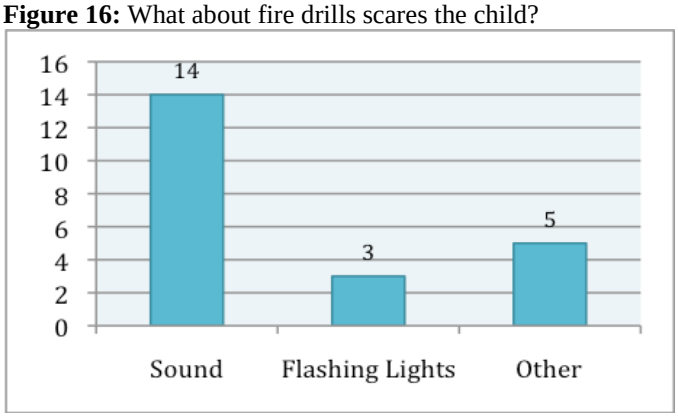
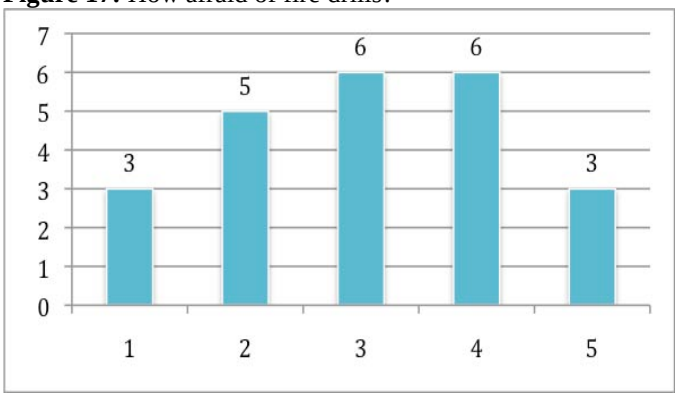


Figure 17: How afraid of fire drills?



Note: On a scale of 1 to 5 with 1 being the least and 5 being the most.

Table 13 indicates the experiences of parents, teachers and fire marshals related to how the children react to fire drills. Teachers and parents reported the most common reaction children had to fire drills was “anxious, afraid, agitated, disturbed or excited” while fire marshals said the

most common reaction was " an appropriate response" or they didn't know. Parents said the next most common response was "panic, tantrum or meltdown" while teachers said "an appropriate response" was next. "Panic, tantrum or meltdown" was the teacher's third response. One parent said their child usually has a bad day and night when they have a fire drill at school. One teacher said that it is sometimes hard to redirect the child back on task because they are still experiencing fear and worry. Another teacher commented that if the fire drill occurs early in the school day, the rest of the day is difficult for them. A fire marshal said that fire drills are very upsetting for the child and ruins the entire school day for them.

Table 13: Reaction to fire drills

Reaction	Parent	Teacher	Fire Marshal
Anxious, afraid, agitated, disturbed, excited	8	21	5
Appropriate response	0	8	7
Panic, tantrum, meltdown	6	7	2
Don't know	0	0	7
Stim	3	5	0
Scream, yell, cry	1	5	2
Run away	2	5	1
Aggressive, attack others	0	4	0
Freeze, shut-down	0	3	
Cover eyes, ears	3	3	2
Throws off entire day	1	3	1
Distracted, confused	0	2	1
No reaction, ignore	0	2	1
Hide	0	0	1

Parent questions 26 through 29 deal with places the parent and child frequent, whether a fire alarm has ever activated while they were out in public and the child's reaction to the fire

alarm. Table 14 indicates that supermarkets and restaurants were the most common places frequented by the parent and child. Of the 32 parents responding, seven said a fire alarm had sounded while they were out in public (Figure 18) and that the child's reaction varied significantly from "jumping" to "ignoring."

Table 14: Public places frequented

What places do you and your child frequent?	# Responses
Supermarket	30
Restaurant	24
Movie Theater	16
Place of Worship	16
Mall	14
Libraries	13
Department Store	11
Museums	11
Hotel / Motel	9
Airport	7
Park	6
Bowling Lanes	4
Doctor / Group	2
Sporting Event	1
Theme Park	1
Church Gym	1
Zoo	1
Swimming Pool	1

Figure 18: Has a fire alarm sounded while out in public?

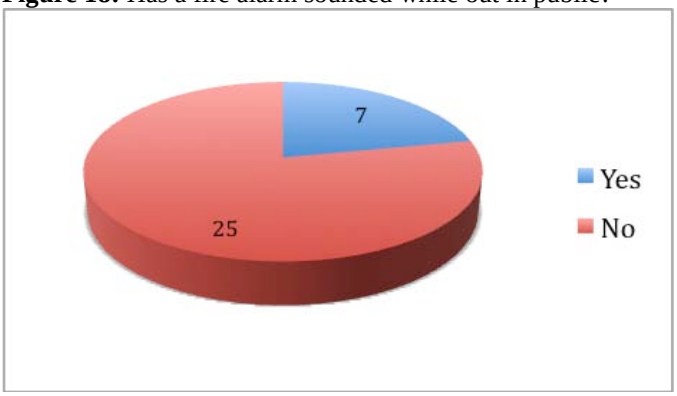


Table 15: Reaction to fire alarm in public place

How did your child react to fire alarm?	# Responses
Jumped	2
Cover ears	1
Cry	1
Freeze	1
Hide	1
Complain about sound	1
Ignore	1
Varies depending on mood prior to alarm	1

The next series of questions relates to behaviors that children with autism may exhibit that endanger themselves or others. Table 16 shows the responses to Teacher question 11 and Fire Marshal question 9. These questions ask, in their experience, do the children exhibit dangerous or self-destructive behavior during fire drills.

Table 16: Dangerous or self-destructive behavior during fire drills?

Response	Teacher	Fire Marshal
Yes	22	2
No	16	11
Don't Know	5	18

Table 17 looks at the responses to Teacher question 12 and Fire Marshal question 10 regarding the specific dangerous or self-destructive behaviors exhibited by the children during fire drills. The teacher responses go into considerable detail about specific behaviors. One teacher related a child who, in a hurry to escape the overwhelming noise, carelessly ran away into the street. Others related children will bang their head against the floor or wall or become aggressive toward others who are trying to help them. Fire marshals have very limited experience with these behaviors as evidenced by only three behaviors noted and eight “unknown” or “don’t know” responses.

Table 17: Dangerous or self-destructive behavior during fire drills?

Behavior	Teacher	Fire Marshal
Attack others, physical aggression	13	0
Run blindly into dangerous situations	13	0
Unknown	0	8
Hit, injure self	8	0
Head banging on wall or floor	5	0
Fall to floor, refuse to move, freeze	4	0
Biting	2	0
None noticed	0	2
Hide	1	0
Kick, pinch, pull hair	1	0
Destroy property	1	0
1:1 attention required	0	1
Panic ramps up other students	0	1
Self-mutilate	0	1

The next series of questions deals with children with autism endangering others during fire drills. Table 18 reflects the responses to Teacher question 13 and Fire Marshal question 11, which asks if children with autism endanger others during fire drills.

Table 18: Endanger others during fire drills

Response	Teacher	Fire Marshal
Yes	15	3
No	18	9
Don't Know	9	18

Teacher question 14 and Fire Marshal question 12 ask in what way the children endanger others during fire drills. Table 19 reflects the responses by the teachers and fire marshals. One teacher went into great detail about their experience with the children reacting negatively making it more difficult to get them out of the building. They said that this puts other children in danger who also require assistance getting out of the building. They went on to say the children can freeze up or become agitated, causing an upset in flow of traffic from the building, possibly causing others to be caught in the building. According to Naramore, children with autism endanger themselves and others by falling out on the floor, which requires others to assist getting them out of the building. In addition, some children will hide in an attempt to get away from the noise of the fire alarm or the chaos of the fire drill (Personal communication, January 4, 2012).

Table 19: Behavior that endangers others during fire drills

Behavior	Teacher	Fire Marshal
Violent, aggressive, grab, hit others	14	2
Unknown	0	7
Upset flow of traffic, freeze, need assistance	4	0
Run over others	3	1
Hide	1	0
Run away	1	0
Student feels they need to help child and could endanger themselves	0	1

Educational techniques used in educating children with autism are as varied as the children themselves, as can be seen from Table 20 and 21. Teacher question 3 asks about specific techniques that were discussed in interviews (Pittman, Naramore). Ladden said whatever method is used to educate children with autism must be empirically validated with evidence, and that it must be proven with research (Personal communication, January 18, 2012).

Table 20: Educational techniques

Technique	# Responses
Role-play	36
Social story	35
Peer modeling	33
Video modeling	18
Other	18

Teacher question 4 asks for other techniques not listed in question 3. Applied Behavioral Analysis (ABA), Picture Exchange Communication (PEC), and Discrete Trial Training (DTT) are the most common educational techniques listed. These techniques are discussed in the Literature Review.

Table 21: Other educational techniques

What other educational techniques are used?	# Responses
ABA	9
Picture exchange communication	6
Discrete Trial	5
Reward/ reinforcement	4
Practice/repetition	3
Routine	2
Speech Language therapy	2
Behavior therapy	2
Social skills training	2
TEEACH	1
Pre-teach	1
Debrief	1
Over-correction	1
Task analyzed instruction	1
Desensitization	1
3-Step	1
Teacher modeling	1
Occupational therapy	1
Prompting	1

Ladden addressed behavioral issues from the perspective of the behavior the child is presenting and relating that to the problem behavior. One example she gave was the child who was having tantrums. She said it is important to understand the function of the behavior and why the behavior is occurring. If the tantrums are occurring because the child can't express his needs, then you can decrease the tantrums by helping the child increase their communication skills. She went on to say that children with autism are not intrinsically motivated like a typical child might be. They are not motivated by praise or attention, but more by things they enjoy, for example a snack or a favorite movie Personal communication, January 18, 2012).

Parent question 30, Teacher question 6 and Fire Marshal question 6 ask about special procedures that are used for children with autism when fire drills are performed. Table 22 shows the compilation of the answers for these questions. Interestingly, 12 fire marshals indicated that they did not know if there were any special procedures used. Parents and teachers indicate advance warning is the most used special procedure.

Table 22: Fire drill procedures

Special Procedures Used	Parent	Teacher	Fire Marshal
Advance Warning	15	16	10
None	13	10	5
Other	1	10	1
Headphones / Earplugs	1	6	1
Special Fire Alarm	2	0	1
Don't know	0	0	12

The Teacher and Fire Marshal surveys had a question allowing for listing other procedures used in conducting fire drills. The Parent survey did not allow for this. Teacher question 7 and Fire Marshal question 7 answers are listed in Table 23. The most common

procedure listed by teachers and fire marshals is a teacher aide or student aide providing assistance.

Table 23: Fire drill procedures

Other special procedures used	Teacher	Fire Marshal
1:1 with aide or teacher	6	5
Reinforcer / preferred item	3	0
Reassurance	2	0
Assign special task	2	0

Teacher questions 8 and 9 ask about educational techniques that are used in teaching children with autism about fire drills. Table 24 and 25 list the results of these questions. These techniques are discussed in the Literature Review. Teachers become very creative when trying to educate children about fire drills. One teachers practices with the whole class with a "store bought alarm." Another teacher said they role play fire drills without the noise, then someone gets to "be the bell and make loud noise." This is followed by discussion about the noise hurting "our ears but we can handle it" and that if they get out of the building then the noise won't bother them.

Table 24: Educational techniques for fire drills

Technique	# Responses
Social story	27
Role playing	26
Peer modeling	16
Video modeling	12
Other	7
None	5

Table 25: Other educational techniques for fire drills

Other educational techniques for fire drills	# Responses
Practice with store-bought alarm	1
Pre-teach	5
Practice / repetition	4
Picture Exchange Communication System	1
Role-play	1

Pittman believes the most effective method of teaching fire drill safety is through video modeling, social stories and visual reminders. She is currently utilizing a multi-facited desensitizing therapy program that consists of a "fire drill" movie, discussion about fire drills, an individualized social story and an operational fire alarm panel with horn and strobe light. The goal of the program is to help the children, through a series of classroom sessions and homework exercises, become less sensitive to the fire alarm sound. After using the program for several months, the students in her class respond in an appropriate manner to fire drills (Personal communication, January 11, 2012). Grandin was asked via email (September 14, 2011) about her comments at a seminar in Birmingham, Alabama regarding desensitizing children to loud noises. She responded (January 5, 2012), that desensitizing a child to the fire alarm is easy to do. She said to wrap a towel around the alarm to muffle the noise, and stressed the importance of allowing the child to be in control by initiating the alarm and determining how loud and how long the alarm will sound. According to Becca Wood, a presenter at the Unlocking Potential Conference, when dealing with sensory strategies, the key is for the child to control the sound (October 7, 2011).

Naramore indicated that life skills and academic skills should be taught through routine and repetition along with modeling and pictures. In the case of fire drills, the buddy system should be used. Advance warning should be used to alert the teacher who will be required to deal

with the child. For those children who will not be able to be self-sufficient, other accommodations should be made (Personal communication, January 4, 2012).

According to Ladden, the educational techniques should be tailored to each individual based on their functioning level. Visual and social stories should be used to break the fire drill down into small steps, such as: the alarm sounds, line up, teacher leads, go through hall, stop on playground. Praise and reinforcing items should be used at each step. Headphones could be available once the child reaches the playground. One key point Ladden stressed was the importance of trying to add predictability to the unpredictable (Personal communication, January 18, 2012).

Parent question 31 and Teacher question 15 ask if fire drills are part of the child's IEP. Table 25 has the results of this question. One teacher said that the fire drill is not specifically included in the IEP, however, when it is included, it usually addresses advance warning whenever possible. Another said that safety concerns are usually addressed, as needed. Naramore believes if there is a problem or behavior related to the fire drills then it should be addressed in the child's IEP (Personal communication, January 4, 2012).

Table 25: Fire drill part of IEP

Response	Parent	Teacher
Yes	3	6
No	22	30
Don't know	7	5

Lastly, parents, teachers and fire marshals were given an opportunity to make any comments. One parent commented that they never thought of fire drills as being a problem. Another parent commented that they appreciated the need for realism with fire and weather drills, but "kids on the spectrum" need "years of asssistance and training."

Several teachers left very insightful comments. One said that there is no constant or pat answer. Each child is different and has their own unique way of dealing with stress. They go on to say "it is our job as teachers to help them deal with the stresses of life in an appropriate yet meaningful way." Another teacher said "the ability to help students with autism gain strategies to help them be successful in fire drills, also would help them be confident in their ability to conquer other situations where loud noises or sounds mightr be encountered." Lastly, "with proper pre planning and appropriate strategies in place, students with autism can participate successfully and need to do so because this is a part of life they will not be sheltered from once they leave the school environment."

Discussion

The motivation for this Applied Research Project was a telephone call from a special education teacher requesting a fire alarm panel to use in educating her children with autism about fire drills and fire alarms. This researcher had no idea of the magnitude of the problem children with autism face during fire alarms.

The results of this study clearly align with the data collected and the material found in the literature review. Children with autism encounter significant obstacles when it comes to fire alarms (Collins, n.d.; Grandin, 1998; McCord, et al., 2001; Russell, 2009). Personal communications with Finn, Ladden, Naramore and Pittman also indicate significant issues with fire drills that can last throughout the remainder of the day, and even on into the time after school.

The research indicates there are a variety of triggers that cause behavioral issues for children with autism. The data collected in the parent and teacher surveys concur with the literature. The literature identified many different sounds or sights that cause sensory overload

including flickering fluorescent lights, loud noises, alarm clocks, school bells, smoke detectors, and fire alarms (Autism Research Institute, 1998; McCord, et al. 2001; Russell, 2009). Even such minor noises as a hair dryer are exaggerated and can cause sensory overload (Grandin, 1995).

Every child with autism reacts differently to external stimuli, and the reaction is as varied as the children themselves. Mintz (2009) found that children display frequent or intense tantrums or aggressive behavior toward others. Self-injurious behavior such as banging their head on the floor or wall is also seen. McCord, et al. (2001) indicate similar behaviors including destruction of property. Parent and Teacher survey results are similar and indicate a variety of responses including anxiety, oblivious to the stimuli, escape, and panic.

The literature has very little information concerning how children with autism respond to fire alarms. Again, children with autism respond in as many different ways as there are children with autism. Collins identified various responses including rocking, screaming, pushing and hiding under a desk (n.d.), while Mintz (2009) said stimming is a behavior children with autism sometimes use to calm and soothe the sensory overload. Survey results are very much in line with the literature. Nearly two-thirds of the teachers responded that the children become anxious, afraid, and agitated, with seven teachers and six parents indicating the child panics, has a tantrum or a meltdown, with one parent saying that their child will usually have a bad day and night when they have a fire drill at school.

According to the literature and the data collected, children with autism exhibit behaviors that endanger themselves and others during fire drills. McCord, et al. identified problem behaviors including aggression, self-injury and property damage as a result of fire alarms, among other stimuli (2001). Children could suffer injury or death because they ran away or had a tantrum, or express aggression toward others trying to help them (Collins, n.d.; Mintz, 2009;

Russell, 2009). Survey results indicate children attack others or run blindly into dangerous situations. Children also injure themselves and bang their head on the floor or wall. They also endanger others by impeding the flow of traffic in the hallways by freezing or needing other assistance.

There is an abundance of literature on methods used to teach children with autism. According to Ladden, the methods used must be empirically validated and must be proven through research to be effective. Children learn by experience and are not intrinsically motivated by praise or attention but rather by the things they enjoy such as a particular snack or movie (Ladden, Personal Communication, January 18, 2012; Olejnik, 2004). Russell determined that parents believe the preferred method of education is visual aids or pictures while 39% believe videos are preferred (2009). Children with autism have difficulty transferring what they learn to different environments so Naramore believes is important to conduct learning in as many settings as possible (Personal Communication, January 4, 2012).

When asked to choose the educational methodology used to teach children with autism, teachers taking part in the survey selected role-playing, social stories and peer modeling most. Role-play is effective in teaching social skills because the teacher or parent can act out the social situations with the child (Autism Spectrum Disorders Fact Sheet, n.d.), while social stories use words and pictures to help a child understand a social situation and behave in an appropriate manner (Sansosti, et al., 2004). Peer modeling and its counterparts, video modeling and video self-modeling help students learn various daily living skills by giving them a visual representation of the appropriate behaviors (Bellini & Akullian, 2007; ABA Therapists, 2010).

Other techniques teachers listed in the comments included Applied Behavior Analysis (ABA), Picture Exchange Communication System (PECS) and Discrete Trial Training (DTT).

ABA uses a variety of methodologies to focus on acquiring skills to give the child a chance for success (Brams, 2008). PECS is a system of communication that allows a non-verbal child to communicate with their communicative partner (Charlop-Christy, et al., 2002). DTT, an effective method for teaching cognitive and academic skills breaks down a task into simple steps (Brams, 2008).

The literature is lacking in methodologies specifically used to teach children with autism about fire drills. Much of the literature recommends accommodations such as advance warning for fire drills, special assistance by classmates, or a woman's voice or music in place of the fire alarm (Jackson, 2011; NewcastleLimited Press Room, 2006; Roth, 2008).

However, many of the same methodologies used to teach children with autism can also be used to teach them about fire drills. Pittman is using a series of methodologies including video modeling, social stories, and visual reminders (Personal communication, January 11, 2012). Parents indicated they preferred visual aids, pictures or videos to teach fire safety skills (Russell, 2009). The National Fire Protection Association has developed a social story about a fire safety plan that can be personalized for each child (n.d).

Much of the responses in the surveys recommend using the same educational methodologies normally used to teach children with autism, with social stories and role-playing being the most frequent techniques used. Naramore indicated life skills should be taught through routine and repetition (Personal communication, January 4, 2012).

The most significant problem for children with autism appears to be hyperacusis (Collins, n.d.; McGowan, 2009), and according to Steigler and Davis (2010), the most commonly recommended treatment for hyperacusis is desensitization. Collins writes about a father who favors desensitizing his child so they can respond to fire alarms (n.d.). Grandin recommends

using an alarm wrapped in a towel and allow the child to control the level of the sound (2010). Pittman uses an actual fire alarm panel with a horn and strobe to desensitize children to the fire alarm (Personal communication, January 11, 2012).

When all the literature and survey data are analyzed, the conclusion has to be that the Mountain Brook Fire Department cannot solve the problem of children with autism jeopardizing themselves and others when a fire drill is performed. All the educational techniques identified to educate children with autism about fire drills and fire alarms require special training beyond a normal teacher certification. Educators must understand the sensory processing deficits of the child and know how to work with the child to maximize their learning potential (Ladden, Personal communication, January 12, 2012). These educational methodologies require a teacher to have additional education as an occupational therapist, speech language pathologist or behavioral therapist (Pittman, Personal communication, February 23, 2012). There is no "one size fits all" educational program for children with autism.

Recommendations

This applied research project was conducted because children with autism jeopardize themselves and others when the Mountain Brook Fire Department performed fire drills. The purpose of the research was to develop an educational program to assist children with autism respond to fire alarm activations. After substantial research, data collection and analysis, the researcher has determined that the Mountain Brook Fire Department cannot develop an educational program to assist children with autism respond to fire alarm activations. However, there are several recommendations that resulted from the research that can be implemented to assist the Mountain Brook Fire Department and the schools and day cares in educating children with autism about fire drills and the proper actions to take in the event of a fire alarm sounding.

1. Become more educated about the students enrolled in the schools and day cares, and take a more proactive approach to fire drills. This researcher was unaware of the problems that fire drills cause for children with autism.

2. Become familiar with the special needs of the children in the schools, and be available to assist the schools in meeting those special needs. The fire department is the primary emergency response agency for the schools and it is incumbent on the department to be aware of the needs of the students and staff. The fire department performs pre-incident plans on the school building and should include in that plan, the special needs of the students.

3. Take an active role in conducting periodic fire drills to be better informed about the needs of the students and to identify any deficiencies in the evacuation process before an actual emergency event.

4. Assist the special education teachers in solving any problems that may arise as a result of fire drills.

5. Include a space on fire drill reports for comments regarding special needs students, such as pre-warning given, students leaving the building before the fire alarm sounded, or other special procedures used.

Further research should be performed to determine the effectiveness of Pittman's desensitizing program. Does the program actually work? Can the results be replicated in other schools? Do the children respond appropriately to fire alarm activations in places other than the classroom?

The number of children with autism is increasing significantly every year. Many have aspirations of leading as normal a life as possible, including college, work, marriage and a family. It is the responsibility of the educational system, with assistance from the fire service to

give those children every possibility to live independently with the knowledge necessary to react in the event of a fire alarm.

References

ABA Therapists. (2010). *Applied Behavioral Analysis Training Guide*. Retrieved February 8, 2012, from http://abatherapists.com/

Adams, J., Edelson, S., Grandin, T., & Rimland, B. (2004). *Advice for parents of young autistic children (2004): Working paper*. Retrieved September 20, 2011 from Autism Research Institute: http://www.autism.com/pdf/families/adviceforparents.pdf

Alabama Administrative Code. (2011). *Special Education Services*. Retrieved February 22, 2011 from http://alabamaadministrativecode.state.al.us/docs/ed/290-8-9.pdf

Alabama State Department of Education. (2011). *October 1, 2010 Child Count*. Retrieved October 13, 2011 from https://docs.alsde.edu/documents/65/EDSER001_State_10-11.pdf

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author

American Speech-Language-Hearing Association. (2011). *Hyperacusis*. Retrieved February 23, 2012 from http://www.asha.org/uploadedFiles/AIS-Hyperacusis.pdf#search=%22hyperacusis%22

Autism Research Institute. (1998). *Frequently asked questions about autism*. Retrieved September 10, 2011, from http://www.autism.com/ind_autism_faq.asp

Autism Society. (n.d.). *Safety in the home*. Retrieved January 27, 2012 from http://www.autism-society.org/living-with-autism/how-we-can-help/safe-and-sound/safety-in-the-home.html

Autism Society of America. (n.d). *About autism*. Retrieved January 20, 2012 from http://www.autism-society.org/about-autism/

Autistic Spectrum Disorders Fact Sheet. (n.d.). *Helping your child to make friends*. Retrieved January 22, 2012, from Autism-Help: http://www.autism-help.org/communication-autism-making-friends.htm

Bell, K. (2011, March 30). *Autistic boy burned in Jennings fire is coming home after 4-month hospital stay*. St. Louis Post-Dispatch (MO). Retrieved September 20, 2011 from: St. Louis Post-Dispatch (MO): http://www.stltoday.com/news/local/crime-and-courts/article_0b928b6a-59fe-11e0-8b23-00127992bc8b.html

Bellini, S. & Akullian, J. (2007). *A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorders*. Exceptional Children, 73, 261-284

Birmingham Business Journal. (2011). *Mountain Brook ranks No. 13 in national quality of life rankings.* Retrieved January 10, 2012 from http://www.bizjournals.com/Birmingham/news/2011/12/09/mountain-brook-ranks-no-13-in.html

Brams, J. (2008). *Managing autism in children*. Retrieved December 15, 2011, from Psychiatric Times: http://www.psychiatrictimes.com/autism/content/article/10168/1147441

California State Fire Marshal. (2007, March 29). *Designated Autism Classrooms: Fire alarm strobe/speakers.* Retrieved September 24, 2011 from Code Interpretations: http://osfm.fire.ca.gov/codeinterpretation/pdf/2006/06_098.pdf

Centers for Disease Control and Prevention (n.d.). *Alabama autism and developmental disabilities monitoring*. Retrieved September 21, 2011 from http://www.cdc.gov/ncbddd/autism/states/ADDM-Alabama-fact-sheet.pdf

Centers for Disease Control and Prevention (2011). *Autism and developmental disabilities monitoring (ADDM) network*. Retrieved September 21, 2011from http://www.cdc.gov/ncbddd/autism/addm.html

Centers for Disease Control and Prevention (n.d.). *Data and statistics*. Retrieved September 21, 2011 from http://www.cdc.gov/ncbddd/autism/data.html

Centers for Disease Control and Prevention (2010). *Facts about ASDs*. Retrieved September 21, 2011 from http://www.cdc.gov/ncbddd/autism/facts.html

Centers for Disease Control and Prevention (2009). *Prevalence of Autism spectrum disorders --- Autism and developmental disabilities monitoring network, United States, 2006*. Retrieved September 21, 2011 from http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5810a1.htm

Charlop-Christy, M., Carpenter, M., Le, L., LeBlanc, L. & Kellet, K. (2002). *Using the picture exchange communication system (PECS) with children with autism: Assessment of PECS Acquisition, speech, social-communicative behavior, and problem behavior*. Journal of Applied Behavior Analysis, 35, (3)213-231

Child with a disability, 34 C.F.R. pt. 300.8 (2007)

Collins, M. (n.d.). *The fire drill "freak out"*. Retrieved September 30, 2011, from Pathfinders for Autism: http://www.pathfindersforautism.org/articles/view/the-fire-drill-freak-out

Coplan, J. (2010). *Making sense of autistic spectrum disorders: create the brightest future for your child with the best treatment options*. New York, NY. Bantam Books

Dutton, M. (2008, July 8). *Autistic students get help navigating college life*. Retrieved January 27, 2012 from USA Today: http://www.usatoday.com/news/education/2008-07-08-autistic-college_N.htm

Edelson, S. (n.d.). *Structured Teaching—The TEACCH Method*. Retrieved January 22, 2012 from Autism Research Institute: http://www.autism.com/fam_page.asp?PID=356

Forster, D. (2007, June 17). *Autistic boy killed, firefighter injured in Virginia Beach blaze*. Retrieved September 20, 2011 from Virginian-Pilot, The (Norfolk, VA): http://hamptonroads.com/node/283371

Giordano, R. (2010, August 9). *Neighbors fault city's Fire Department brownout policy in death of West Philadelphia boy*. Retrieved September 20, 2011 from Philadelphia Inquirer, The (PA): http://articles.philly.com/2010-08-09/news/24971461_1_fire-commissioner-lloyd-ayers-porch-roof-fire-department

Gold, S., Formby, C. & Gray, W. (2000). *Celebrating a decade of evaluation and treatment: the University of Maryland Tinnitus & Hyperacusis Center*. American Journal of Audiology, 9(2), 69

Good, D. (2011). *Autism spectrum disorder: a FireEMS challenge*. Fire Engineering, 164(3) 42-54

Grandin, T. (2010). *Frequently asked questions*. Retrieved September 19, 2011, from www.templegrandin.com/faq.html

Grandin, T. (n.d.). *Temple Grandin Ph.D*. Retrieved January 21, 2012, from http://www.grandin.com/professional.resume.html

Grandin, T. (1995). *Thinking in pictures*. New York: Doubleday

Greenspan, S. & Wieder, S. (2006). *Engaging autism: using the floortime approach to help children relate, communicate, and think*. Cambridge, MA. Da Capo Press

International Code Council. (2009). *International fire code ®*. Country Club Hills, IL: Author

Jackson, R. (2011, October 2). *Autism school to open in Mentor*. Retrieved October 12, 2011 from News-Herald, The (Willoughby, OH): http://www.news-herald.com/articles/2011/10/01/news/nh4572470.txt

Knudson, P., Miltenberger, R., Bosch, A., Gross, A., Brower-Breitwieser, C. & Tarasenko, M. (2009). *Fire safety skills training for individuals with severe and profound mental retardation*. Journal of Developmental and Physical Disabilities, 21:523-535. doi: 10.1007/s10882-009-9161-9

Leedy, P. & Ormrod, J. (2010). *Practical research: Planning and design*. Upper Saddle River, NJ: Pearson Education

McCord, B., Iwata, B., Galensky, T., Ellingson, S., and Thomson, R. (2001). *Functional analysis and treatment of problem behavior evoked by noise*. Journal of Applied Behavior Analysis, 34, (4)447-462

McGowan, T. (2009). *Autism: autism and fire drills*. Retrieved August 26, 2011, from AllExperts: http://en.allexperts.com/q/Autism-1010/2009/8/Autism-fire-drills.htm

Mechling, L. (2008). *Thirty year review of safety skill instruction for persons with intellectual disabilities*. Education and Training in Developmental Disabilities, 43(3), 311-323

Mims, T. (2008). *Seeing an invisible disability: Autism spectrum disorder awareness training for firefighters in Tuscaloosa, Alabama*. Emmitsburg, MD: National Fire Academy

Mintz, M. (2009). *Unlock the mystery of autism spectrum disorder – part 2*. Pediatrics for Parents, 25(9/10), 18-20

Mountain Brook Fire Department. (2012). *Operations Manual*. Mountain Brook, AL: Author

Mountain Brook Schools. (2011). *Calenders*. Retrieved January 15, 2012 from http://www.mtnbrook.k12.al.us/cms/Calenders/12525.html

Mountain Brook Schools. (n.d.). *World Class School System*. Retrieved January 26, 2012 from http://www.mtnbrook.k12.al.us/cms/World+Class+School+System/13750.html

Mraz, M., & Folmer, R. (2003). *Overprotection-hyperacusis-phonophobia & tinnitus retraining therapy: a case study*. Retrieved January 21, 2012, from AudiologyOnline.com: http://www.audiologyonline.com/articles/pf_article_detail.asp?article_id=529

Myers, J. (2010). *How to teach life skills to kids with autism or asperger's*. Arlington, TX: Future Horizons

National Fire Protection Association. (n.d.). *Autism*. Retrieved September 24, 2011, from National Fire Protection Association: http://www.nfpa.org/itemDetail.asp?categoryID=1953&itemID=46172&URL=Safety%20Information/For%20consumers/Populations/People%20with%20disabilities/Autism

National Fire Protection Association. (2009). *NFPA 101, Life safety code ®, 2009 ed*. Quincy, MA: Author

National Fire Protection Association. (n.d.). *The fire safety social story*. Retrieved September 24, 2011, from National Fire Protection Association: http://www.nfpa.org/gallery/Fire%20Safety%20Book/flip_book_r7.html

Newcastle Limited Press Room. (2006, October 30). *School in works for autistic youth*. Retrieved September 30, 2011 from Newcastle Limited: http://www.newcastlelimited.com/news/news/school-in-works-for-autistic-youth/

Nordqvist, C. (2012). *What is Autism? What Causes Autism?* Retrieved January 18, 2012 from http://www.medicalnewstoday.com/info/autism/

Olejnik, L. & Carrasquillo, R. (2004, June). *Understanding autism*. Journal of Emergency Medical Services, 29(6) 56-64

Roth, L. (2008, December 7). *Beach school's inclusion practices tailored to needs*. Retrieved October 12, 2011 from Virginian-Pilot, The (Norfolk, VA): http://hamptonroads.com/2008/12/beach-schools-inclusion-practices-tailored-needs

Rudy, L. (2008, November 5). *Accommodations and autism: How far should schools go?* Retrieved September 30, 2011 from About.com: http://autism.about.com/b/2008/11/05/accommodations-and-autism-how-far-should-schools-go.htm

Russell, R. (2009). *Fire prevention criteria on which to base an autism protection program*. Emmitsburg, MD: National Fire Academy

Sansosti, F., Powell-Smith, K., & Kincaid, D. (2004). *A research synthesis of social story interventions for children with autism spectrum disorders*. Focus on Autism and Other Developmental Disabilities, 19(4), 194-204

Sears, R. (2010). *The autism book: What every parent needs to know about early detection, treatment, recovery, and prevention*. New York, NY. Little, Brown

Shields, J. (2010, August 13). *Services set for boy whose death in fire inflamed debate over city cutbacks*. Retrieved September 20, 2011 from Philadelphia Inquirer, The (PA): http://articles.philly.com/2010-08-13/news/24970743_1_fire-stations-brownouts-fire-department

Stiegler, L., & Davis, R. (2010). *Understanding sound sensitivity in individuals with autism spectrum disorders*. Focus on Autism and Other Developmental Disorders, 25(2, 67-75

United States Fire Administration (2009). *Strategic plan, goals and objectives*. Emmitsburg, MD: Author

United States Fire Administration (2011). *Executive development: Student manual, 4th ed.* Emmitsburg, MD: Author

VanBergeijk, E., Klin, A. & Volkmar, F. (2008). *Supporting more able students on the autism spectrum: college and beyond*. Journal of Autism & Developmental Disorders, 38(7), 1359-1370. Doi: 10.1007/s10803-007-0524-8

VanBergeijk, E. & Shtayermman, O. (2005). *Asperger syndrome: An enigma for social work*. Journal of Human Behavior in the Social Environment, 2(1), 23-37

Van Pelt, J. (2008). *Autism into adulthood — Making the transition*. Retrieved January 27, 2012 from Social Work Today: http://www.socialworktoday.com/archive/090208p12.shtml

Washington, P. (2011, March 3). *Autistic boy dies in a mobile-home fire in Arizona*. Washington Post, The.

Wikipedia. (2008). *Spectrum*. Retrieved February 17, 2012 from http://en.wikipedia.org/wik/Spectrum

Williams, J. (n.d.). *Auditory training: my personal experience and thoughts*. Retrieved on October 3, 2011, from http://www/jamesmw.com/hurst.htm

Appendix A

Conference Agenda and Program Description

5th Annual
Unlocking Potential Conference
Families and professionals bringing hope together.
Friday, October 7th 2011

7:00-7:45 a.m.	**Registration** Check-in Process (main lobby) Browse exhibitors.
7:45-8:00 a.m.	**Convene & Welcome** (Auditorium) Sandy Naramore M.Ed., Adm. Cert. Executive Director, Mitchell's Place
8:00-9:00 a.m.	**Professional** Amy Cox, M.Ed., BCBA **"Functional Behavior Assessment and Function-Based Interventions for Problem Behavior"** **Family** Nicole Mishkin, Lead Teacher Mitchell's Place & Gunter Owens **"Achieving Independence: Strategies for Successful Toilet Training"**
9:15-10:15 a.m.	**Professional** Jennifer Sellers, Ph.D., Glenwood Autism and Behavioral Health Center **"Tele-Autism and Distance Learning"** **Family** Mary Beth Norwood, LGSW Intervention Counselor, Glenwood Autism and Behavioral Health Center **"Practical Autism Resources"**
10:30-12:00 a.m.	**Key Note Speaker** Caroline Gomez Ph.D. **"Early Autism: Building On Strengths"**
12:00-12:30 p.m.	**Lunch** (provided)
12:45- 1:45 p.m.	**Professional** Jessica Crittenden, M.S.,CCC-SLP **"Let's Get Social: Using Teachable Moments to Develop Social Skills in the Natural Environment"** **Family** Lea Burnett, M.S., CCC-SLP **"Enhancing your Child's Language at Home"**
2:00-3:30 p.m.	**Professional** Becca Wood, M.S., OTR/L & Anne Walker, M.S., OTR/L **"Sensory Integration: Strategies for Your Classroom, Home, and Community"** **Family** Ryan O. Thomas **"Access Services/Resources"**

Appendix B

Parent Survey

My name is David Cohen and I am the Fire Marshal for the Mountain Brook Fire Department in Mountain Brook Alabama. I am enrolled in the Executive Fire Officer Program at the National Fire Academy. As part of the program, each student is required to do an Applied Research Project. My project is Children with Autism and their response to fire drills and fire alarms.

Please complete the attached survey to the best of your knowledge. You do not have to answer any questions that make you uncomfortable. All information gathered is confidential and will be compiled with all the other respondents. No personally identifiable information is collected. The survey should take less than 15 minutes to complete.

http://www.kwiksurveys.com?s=OLNDJK_350f99d7

Please forward this email to any parents you know who have a child with autism. I also have a survey for Fire Marshals and Teachers that I can forward.

Thank you in advance for your participation in this research project. I will be happy to share the results of the research when complete. If interested, please reply back with an email address and I will forward the project to you.

David A. Cohen
Battalion Chief
Mountain Brook Fire Department
XXX-XXX-XXXX

Work email:

Parent Survey

Thank you for participating in this survey. Your answers will be kept confidential and no personally identifiable information will be collected.

1. Has your child been diagnosed with Autism Spectrum Disorder?

No	Autism	Asperger	PDD_NOS
○	○	○	○

2. Does your child attend school or day care?

- ○ Yes
- ○ No

3. What does he/she like about school or day care?

4. What doesn't he/she like about school or day care?

5. Were there any problems at the beginning of the school year?

- ○ Yes
- ○ No

6. If there were problems at the beginning of the school year, what were they?

7. How were these problems resolved?

Sensory Processing

8. Do thunderstorms scare your child?

- ○ Yes
- ○ No

9. On a scale of 1 to 5, with 1 being the least and 5 being the most, how afraid is your child of thunderstorms?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

10. What about thunderstorms scares him/her?

☐ Thunder

☐ Lightning

11. How does he/she react when thunderstorms scare him/her?

12. Do loud noises scare your child?

○ Yes

○ No

13. On a scale of 1 to 5, with 1 being the least and 5 being the most, how afraid is your child of loud noises?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

14. How does he/she react when loud noises scare him/her?

15. Do flashing lights scare your child?

○ Yes

○ No

16. On a scale of 1 to 5, with 1 being the least and 5 being the most, how afraid is your child of flashing lights?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

17. How does he/she react when flashing lights scare him/her?

18. Do fire drills scare your child?

- ○ Yes
- ○ No
- ○ Don't Know

19. What about fire drills scares your child?

- ☐ Sound
- ☐ Flashing lights
- ☐ Other

20. On a scale of 1 to 5, with 1 being the least and 5 being the most, how afraid is your child of fire drills?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

21. How does he/she react when fire drills scare him/her?

22. Does anything else scare your child?

- ○ Yes
- ○ No

23. What?

24. On a scale of 1 to 5, with 1 being the least and 5 being the most, how afraid is your child of this?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

25. How does he/she react when this scares him/her?

Social and Life Skills

26. What places do you and your child frequent?

- ☐ Mall
- ☐ Restaurant
- ☐ Supermarket
- ☐ Department Store
- ☐ Movie Theaters
- ☐ Place of Worship
- ☐ Sporting events
- ☐ Hotels / Motels
- ☐ Airports
- ☐ Bowling Lanes
- ☐ Libraries
- ☐ Museums

27. Are there any other public places you and your child frequent?

28. Has a fire alarm ever sounded when your child was in the area?

- ○ Yes
- ○ No

29. How did your child react?

30. Does your child's school/daycare have any special procedures for fire drills for your child?

- ☐ No
- ☐ Advance warning
- ☐ Headphones / ear plugs
- ☐ Special fire alarm
- ☐ Other

31. Are fire drills part of your child's Individualized Education Plan (IEP)?

- ○ Yes
- ○ No
- ○ Don't Know

Demographics

32. How old is your child?

- 1 - 5
- 5 - 10
- 11 - 15
- 16 and older

33. Where does your child attend school?

- Day Care
- Public School
- Private School
- Home School
- Other

34. What special education services is your child receiving?

35. What state / province do you live in?

36. Do you have any additional comments?

Appendix C

Teacher Survey

My name is David Cohen and I am the Fire Marshal for the Mountain Brook Fire Department in Mountain Brook Alabama. I am enrolled in the Executive Fire Officer Program at the National Fire Academy. As part of the program, each student is required to do an Applied Research Project. My project is Children with Autism and their response to fire drills and fire alarms.

Please complete the attached survey to the best of your knowledge. You do not have to answer any questions that make you uncomfortable. All information gathered is confidential and will be compiled with all the other respondents. No personally identifiable information is collected. The survey should take less than 15 minutes to complete.

http://www.kwiksurveys.com?s=OLOMFH_b7dedb8b

Please forward this email to any teachers you know who teach children with autism. I also have a survey for parents of children with autism that I could send if you know of any. Let me know and I will forward that survey to you.

Thank you for your participation in this research project. I will be happy to share the results of the research when complete. If interested, please reply back with an email address and I will forward the project to you.

David A. Cohen
Battalion Chief
Mountain Brook Fire Department
XXX-XXX-XXXX

Work Email:

Teacher Survey

Thank you for participating in this survey. Your answers will be kept confidential and no personally identifiable information will be collected.

1. Are you a special education teacher?

- ○ Yes
- ○ No

2. Do you teach children with autism or have you taught children with autism?

- ○ Yes
- ○ No

3. What techniques are used in educating children with autism?

- ☐ Role-playing
- ☐ Video modeling
- ☐ Peer modeling
- ☐ Social Story
- ☐ Other (Please list in Question 4)

4. What other techniques are used in educating children with autism?

5. How do children with autism respond to external stimuli, such as loud noises, flashing lights, etc.?

6. What special procedures are used for children with autism when fire drills are performed? (Check all that apply)

- ○ None
- ○ Advance Warning
- ○ Ear plugs / Headphones
- ○ Special Alarm
- ○ Child does not participate in fire drills
- ○ Other (Please list in Question 7)

7. What other procedures are used when fire drills are performed?

8. What techniques are used in educating children with autism regarding fire drills?

- [ ] None
- [ ] Role playing
- [ ] Video modeling
- [ ] Peer modeling
- [ ] Social Story
- [ ] Other (Please list in Question 9)

9. What other techniques are used in educating children with autism regarding fire drills?

10. In your experience, how do children with autism react during fire drills?

11. In your experience, do children with autism display dangerous or self-destructive behavior during fire drills?

- ( ) Yes
- ( ) No
- ( ) Don't know

12. In what way do children with autism display dangerous or self-destructive behavior during fire drills?

13. Do children with autism endanger others during fire drills?

- ( ) Yes
- ( ) No
- ( ) Don't know

14. In what way do children with autism endanger others during fire drills?

15. Are fire drills typically part of the Individualized Education Plan (IEP) for children with autism?

- ( ) Yes
- ( ) No
- ( ) Don't know

16. Do you have any additional comments relating to children with autism and fire drills?

17. How long have you taught children with autism?

○ 1 - 5 Years ○ 6 - 10 Years ○ 11 - 15 Years ○ 16 - 20 Years ○ Over 20 Years

18. In what state / province do you teach children with autism?

Appendix D

Fire Marshal Autism Survey

My name is David Cohen and I am the Fire Marshal for the Mountain Brook Fire Department in Mountain Brook Alabama. I am enrolled in the Executive Fire Officer Program at the National Fire Academy. As part of the program, each student is required to do an Applied Research Project. My project is Children with Autism and their response to fire drills and fire alarms.

Please complete the attached survey to the best of your knowledge. You do not have to answer any questions that make you uncomfortable. All information gathered is confidential and will be compiled with all the other respondents. No personally identifiable information is collected. The survey should take less than 10 minutes to complete.

http://www.kwiksurveys.com/?s=OLOJHJ_c21c81ac

If you know of a parent of a child with autism or any teachers who have students with autism, please forward their email address so I can send them a separate survey. Also, please forward this email to any Fire Marshals you know.

Thank you in advance for your participation in this research project. I will be happy to share the results of the research when complete. If interested, please reply back with an email address and I will forward the project to you.

David A. Cohen
Battalion Chief
Mountain Brook Fire Department
XXX-XXX-XXXX

Work Email:

Fire Marshal Survey

Thank you for participating in this survey. Your answers will be kept confidential and no personally identifiable information will be collected.

1. What edition of NFPA 101, Life Safety Code do you enforce?

- Do not enforce Life Safety Code
- 2012
- 2009
- 2006
- 2003
- 2000
- Other

2. What edition of the International Fire Code do you enforce?

- Do not enforce International Fire Code
- 2012
- 2009
- 2006
- 2003
- 2000
- Other

3. What other fire codes do you enforce?

4. Does your Department perform monthly school and day care fire drills?

- Yes
- No

5. Are there children with autism enrolled in your schools or day cares?

- ○ Yes
- ○ No
- ○ Don't know

6. What special procedures are used for children with autism when fire drills are performed? (Check all that apply)

- ☐ Don't know
- ☐ Advance Warning
- ☐ Special Alarm
- ☐ Other (Please list in Question 7)
- ☐ None
- ☐ Ear Plugs / Headphones
- ☐ Child does not participate in fire drills

7. What other procedures are used when fire drills are performed?

8. In your experience, how do children with autism react during fire drills?

9. In your experience, do children with autism display dangerous or self-destructive behavior during fire drills?

- ○ Yes
- ○ No
- ○ Don't know

10. In what way do children with autism display dangerous or self-destructive behavior during fire drills?

11. In your experience, do children with autism endanger others during fire drills?

- ○ Yes
- ○ No
- ○ Don't know

12. In what way do children with autism endanger others during fire drills?

13. Do you have any additional comments?