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Aquatic strategies and techniques and their benefit on children with autism

James G. Hall
University of Northern Iowa

AQUATIC STRATEGIES AND TECHNIQUES AND THEIR BENEFIT ON CHILDREN WITH AUTISM

An Abstract of a Dissertation

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

Approved

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Dr. Christopher R. Edginton, Co-Chair

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Dr. Joseph L. Wilson, Co-Chair

_____

Dr. Michael J. Licari, Dean, Graduate College

James G. Hall

University of Northern Iowa

December 2013

ABSTRACT

Swimming lessons are recommended as a useful health promotion intervention and life-saving skills for individuals with ASD. This qualitative study examined the perceived benefits of swimming lessons for children with ASD, with particular focus on aspects that can potentially help maximize the instruction of lessons for this population.

This study utilized multiple methods to gain an in-depth perspective on the implementation of strategies and techniques for learn-to-swim programs for the six subjects with ASD. Semi-structured personal interviews were conducted with two instructors, the parents of the six children along with observational data collected from the researcher.

Thematic analysis of the data supported perceived gains and benefits by utilization of extended lesson time, use of wetsuits, and using a floating mat/platform for teaching. Some of the most common benefits reported included increased comfort, relaxed, balance, and warmth. The major factors believed to affect the success of this intervention were comfort for the participants, which were derived from the interviews of the parents and instructors.

The results from this study demonstrated that there are key strategies and techniques that can be implemented to swimming lesson programs for this population. The study provides preliminary support for the effectiveness of a simple instructional package for teaching swimming to children with autism. A discussion of implications of these perceived benefits along with recommendations for future study for children with ASD is included.

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_____

Dr. Dianna L. Briggs, Committee Member

_____

Dr. Todd A. Evans, Committee Member

_____

Dr. Christopher L. Kowalski, Committee Member

James G. Hall

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DEDICATION

To: Madison Hall and Sammi Hall

The two most wonderful daughters a father could ask for. I love you.

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To my daughters Madison and Sammi who are everything to me. Thank you for always putting up with me, especially through this process. When I am with you both, you make everything brighter.

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CHAPTER 1

INTRODUCTION

The prevalence of children with Autism Spectrum Disorder (ASD) has increased 78% since 2007 in the United States (Centers for Disease Control [CDC], 2012). Once a rare diagnosis, autism spectrum disorder (ASD) is now more predominant than childhood cancer, diabetes, and Down Syndrome and is the second most common serious developmental disability after mental retardation (Metzger & Simpson, 2008). The latest research, as of March 2013, by the Centers for Disease Control, estimates that about 1 in 50 children have been identified with an autism spectrum disorder (CDC, 2013). This suggests that the estimated prevalence of ASDs increased 23% during 2006 to 2008 and 78% during 2002 to 2008 (CDC, 2008b). Between 2007 and 2011–2012, the estimate for parent-reported ASD diagnoses among U.S. children aged 6–17 increased significantly from 1.16% (1-86 children) to 2.00% (1-50 children; CDC-National Health Statistics Reports, 2013).

One of the most important changes recently is the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and their new description of autism spectrum disorder (American Psychiatric Association 2013). According to the American Psychiatric Association, the revised diagnosis represents a new, more accurate, and medically and scientifically useful way of diagnosing individuals with autism-related disorders. Using the old DSM-IV manual, patients could be diagnosed with four separate disorders: autistic disorder, Asperger's disorder, childhood disintegrative disorder, or the catch-all diagnosis of pervasive developmental disorder not otherwise specified.

Researchers found that these separate diagnoses were not consistently applied across medical professionals and treatment centers. Anyone diagnosed with one of the four pervasive developmental disorders (PDD) from DSM-IV should still meet the criteria for ASD in DSM-5 or another, more accurate DSM-5 diagnosis. While DSM-5 does not outline recommended treatment and services for mental disorders, determining an accurate diagnosis is a first step for a health care professional in defining a treatment plan for a patient. The new DSM-5 clinical definition will change the past statistical information as the new data has yet to be released, however, the bases and prevalence of autism is still quite relevant.

Autism is a developmental disorder that appears in the first 3 years of life and affects the brain's normal development of social and communication skills. ASD's are a group of developmental disabilities that can cause significant social, communication, and behavioral challenges. ASD knows no racial, ethnic, or socioeconomic boundaries with the frequency among boys being nearly 5 times more common (1 in 54) than among girls (1 in 252; CDC, 2013). This group of developmental disabilities is considered to fall along a range of disabling conditions which makes it part of a spectrum disorder.

ASDs affect each individual in different ways, and symptoms can range from mild to severe. However, individuals with ASDs share some similar symptoms, such as problems with social interaction, communication, and engage in highly focused behaviors or repetitive activities. Still, there are differences in the beginning when their diagnosis is first made and how such symptoms affect a person's functioning, according to the CDC's Autism Developmental Disabilities Monitoring Network (CDC, 2008b).

An individual's ASD disabling condition may be defined by the number as well as the severity of the symptoms. By far, the most prevalent characteristic of ASD is impaired social interaction. As early as infancy, a baby with ASD may be unresponsive to people or lack the ability to focus intently on one item to the exclusion of others for long periods of time. According to the National Institute for Health (National Institute for Health, 2012), a child with ASD may appear to develop normally and then later in their development withdraw and become indifferent to social engagement. Children with autism or one of the other disorders on the autism spectrum can differentiate considerably with respect to their abilities, intelligence, and behavior. Some children do not talk while others use repeated phrases and language on a repetitive basis. Children with the most advanced language skills tend to talk about a limited range of topics and many have difficulty understanding abstract cognitive concepts (CDC, 2012).

Repetitive play and limited social skills are also evident among children with ASD. Many children with an ASD engage in repetitive movements such as rocking, hand flapping, and twirling, or even in self-abusive behavior such as biting or head-banging. Other common symptoms of the disorder on the autism spectrum can include unusual and sometimes uncontrolled reactions to sensory information—for example; very loud noises, bright lights, and certain textures of food or fabrics may cause unwarranted reactions (National Autism Association, 2011).

No two children diagnosed with ASD are alike. Because of this, teachers and educators need to acquaint themselves with their students' specific sensory needs before the school year commences, thus giving them time to make any necessary

accommodations to the classroom environment (Woronko & Killoran, 2011). According to the National Association for Sport and Physical Education [NASPE] (2011), working with special needs students may require educators to adapt their teaching methods, work individually and adjust time requirements for some activities.

Symptoms of autism spectrum disorder (ASD) vary from one child to the next along the spectrum, but in general, they fall into three main areas: social impairment, communication difficulties, and repetitive and or stereotyped behaviors. Because there is no known cure for autism, therapies and behavioral interventions are designed to remedy specific symptoms and can result in substantial improvement. The ideal treatment plan coordinates therapies and interventions that meet the individual and specific needs of the children. Research indicates that early diagnosis is associated with dramatically better outcomes later in life for individuals with ASD. The earlier a child is diagnosed, the earlier the child can begin benefiting from one of the many specialized intervention approaches (Autism Society of America, 2009). Also, children with ASD may be at risk for inactivity because of their social and behavioral limitations (Pan & Frey, 2006). Therefore, it is important to address positive options and habits with these children so they can continue to participate daily in physical activity (Rosser-Sandt & Frey, 2005).

In 2005, the average annual medical costs for Medicaid-enrolled children with an ASD was about six times higher than the costs in comparison to those children without a disabling condition (CDC, 2013). This increase in cost was nearly three times the expenditure for a typical regular education student who did not receive special education services within the school systems (United States Government Accountability Office,

2005). While autism is not a new disorder, the increase in diagnosis during the past ten years has caused an increase in the need for services provided by schools.

It has been established that physical activity can contribute to the physical and mental health of this group as well as the general population (Pan & Frey, 2006). Aquatic activities have been reported to be one of the most popular physical activities among children regardless of condition (Mactavish, 2000). The benefits of aquatics, both physical and psychological, are well documented. Schilling (1993) posited that the benefits of aquatic exercise and/or activity are multiple and range from physical to psychological in nature. Schilling outlined the experiences of persons with disabilities, mostly affecting mobility, in relation to aquatics and emphasized that the buoyancy of water negates the effect of gravity by supporting joints, which gives persons with limited mobility increased movement and flexibility.

The opportunity for increased movement due to water's buoyancy may lead to improved cardiovascular function as well as muscle strength. Broach and Dattilo (1996), argued that participating in aquatic activities and aqua therapy lessons can improve circulation, mobility, strength, coordination, range of motion, pulmonary function, sensory perception and spatial awareness, muscular and vascular endurance, relaxation, and decreased pain and bone loss in people with disabilities associated with spinal cord injuries, orthopedic impairments, cerebral palsy, acquired brain injuries, developmental disability, and autism. Kraus and Crew (as cited in Broach & Datillo, 1996) also claim that persons with physical disabilities may experience a difficult time negotiating land activities due to their condition; however, in an aquatic environment, the buoyancy of

water permits this group of individuals to hold their bodies up themselves so that they can attain simple movements that can lead to an improvement in their physical well-being, strength, and endurance.

The water also provides resistance that can improve the muscle strength of individuals in this group (Lepore, Gayle & Stevens, 2007). The movement of the water also improves the experience of individuals with sensory deficits resulting from their physical disabilities, and the warmth of the water can relax tense muscles. Lepore et al., (2007) argue that sensory stimulation from aquatic lessons and activity is particularly useful for persons with disabilities.

Because of water's unique properties, individuals have the opportunity to perform variations of fundamental motor skills that fit their skill levels and help them become independent movers. Similar to land-based activities for motor skill development, pool-based activities can include loco-motor (e.g., walk, hop, jump) and object-control skills (e.g., kick, throw, catch, strike). Even without an in-depth aquatic knowledge or highly specialized equipment, practitioners who understand the unique properties of water can adjust and modify activities to make them easier or more difficult than on land for people with special needs (Lee, 2013).

It is apparent that children with ASD can benefit greatly from participation and instruction within an aquatic program (Pan & Frey, 2006). As Lepore et al., (2007) reported, a well-designed and wisely implemented instructional aquatics program can be instrumental in promoting health, wellness, and self-reliance by helping children with autism learn skills that can be used throughout their lifespans.

According to Ball (2010), a significant proportion of children with an ASD often have sensory issues. This can complicate how we teach them to swim and instructors need to make every attempt to minimize distractions and the possible anxiety associated with the lessons. Having identified the possible distractions, time constraints, and benefits of aquatics, there has been limited research to identify possible techniques and strategies in which learn-to-swim programs will benefit children with ASD.

Purpose of Study

The purpose of the study was to identify learn-to-swim program strategies and techniques that will benefit children with ASD. The study made use of extended time/duration within the learn-to-swim programs for children with ASD. A floating mat/platform was utilized as a teaching resource along with the introduction of wetsuits as a possible teaching tool within the extended time/duration of each individual lesson. This research provided a greater understanding of each of the subject's swimming experiences as well as the interventions that could potentially maximize their physical, emotional and social health when compared with standardized learn-to-swim programs.

Statement of Problem

This study examined the benefits of various teaching strategies and techniques used in learn to swim programs for children with ASD. More specifically, the following interventions were studied: (1) extended time/duration; (2) implementation of floating mat; (3) implementation of wetsuits; and (4) private/semi private lessons. Perceptions of the usefulness of the interventions were gathered from parents, instructors and an observer.

Research Questions

Research questions were formulated to guide the study based on the need for effective learn-to-swim teaching methods . The research questions are as follows:

1. What physical, psychological and social benefits affecting overall health status of the students, if any, will be reported by the parents?
2. What benefits result from the increase in the individual lesson duration, if any, will be reported by the observer, the instructors and parents?
3. What benefits result from the utilization of a floating mat as a teaching instrument, if any, will be reported by the observer, the instructor and the parents?
4. What benefits are reported from the introduction of a wet suit as a teaching tool, if any, will be reported by the observer, the instructor and parents?

Definition of Terms

1. ADDM Network (Autism and Developmental Disabilities Monitoring Network): the ADDM Network is a group of programs funded by Center for Disease Control (CDC) to determine the number of people with autism spectrum disorders (ASDs) in the United States. The Network's goal is to provide comparable, population-based estimates of the prevalence rates of ASD in different sites over time (CDC, 2008a).
2. American Red Cross (ARC): the ARC is a humanitarian organization that provides emergency assistance, disaster relief and education inside the United States. The ARC offers services in five areas: community services; communications services for military members and their family members; the

collection, and distribution of blood and blood products; educational programs on preparedness, health, and safety; and international relief and development programs (ARC, 2009).

3. Asperger's Disorder: Asperger's is a developmental disorder marked by impairment in social interaction and restricted, repetitive patterns of behavior, interests, and activities. Unlike autistic disorder, there are no significant delays in language, cognitive development, or self-help skills (Sadock, 2003).
4. Autism Spectrum Disorders (ASD): ASD is the more common term for pervasive developmental disorders (Murray, Ruble, Willis, & Molloy, 2009) which include autistic disorder, Rett's disorder, childhood disintegrative disorder, Asperger syndrome, and pervasive developmental disorder not otherwise specified. All of these related developmental disorders are marked by significant social, communication and behavioral challenges (American Psychiatric Association, 2000). Symptoms of ASD may appear at different ages and affect each individual in different ways, ranging from very mild to severe deficits. This term is utilized in this study as the most representative of the selected clients who are located at several different points in the range of clinical symptoms.
5. Benefit: Can be thought as something that promotes well-being. A benefit may be thought of as the gaining of physical, psychological or social advantage.
6. Centers for Disease Control and Prevention (CDC): the CDC is a United States federal agency under the Department of Health and Human Services. It works to protect public health and safety by providing information to enhance health

decisions, and it promotes health through partnerships with state health departments and other organizations (CDC, 2008a).

7. Developmental Disabilities (DD): the term DD includes a group of conditions caused by mental and/or physical impairments that occur any time between birth and age 22, including autism spectrum disorders, cerebral palsy, intellectual disabilities, hearing loss, and vision impairment.
8. Elopement/Wandering: wandering is the repeated attempt to leave designated areas without permission or supervision (Bodfish, 1992).
9. Pervasive Developmental Disorders (PDD): PDD is a comprehensive term encompassing autistic disorder, Asperger's syndrome, Rett's disorder, childhood disintegrative disorder, and pervasive developmental disorder-not otherwise specified, all of which are characterized by markedly abnormal or impaired social and communication skills and restricted activities and interests (American Psychiatric Association, 2000).
10. Strategies: sequencing and organizing the content of the specific learning activity, and deciding how to deliver the content (Dick, Carey & Carey 2001).
11. Technique: The ability to apply procedures or methods so as to affect a desired result with proficiency in a skill or a particular task (Professional Association of Diving Instructors [PADI], 2003).
12. Thermoregulation: thermoregulation is the ability of an organism to keep its body temperature within certain boundaries, even when the surrounding temperature is very different (American Red Cross Scientific Advisory Council, 2012).

Limitations of Study

Limitations to this research study include the following:

1. The sample size included a small number of individuals and, thus, the ability to generalize the findings of the study to a broader population may be limited.
2. The types and incidence, as well as the severity, of ASD disabling conditions along the autism spectrum of participants were beyond the control of the researcher.

Delimitations of Study

The following delimitations have been established by the researcher:

1. The study was delimited to participants attending an aquatic facility at a mid-western university
2. The duration/length of swim lessons was limited to one hour once a week.
3. The age range of participants was delimited to individuals 4 -12 years of age.
4. The participants were in a controlled environmental setting (an indoor swimming pool as contrasted with an outdoor aquatic facility) with air and water temperature regulated.

Assumptions

The researcher assumed that the participants were all medically diagnosed with ASD based on the parent/guardians' confirmation.

Significance of Study

Due to the prevalence of autism and the need for early interventions for children, aquatic experiences and proper swim lesson programs can provide unique and essential opportunities for individuals with autism. A well designed and carefully implemented learn-to-swim instructional program can be instrumental in contributing to the health and wellness of children with autism. Such programs provide children with the opportunity to gain knowledge and skills that can be used throughout their life (Lepore et al., 2007). According to the National Autism Association (2011), teaching individuals to swim is a serious need because drowning is a leading cause of death for children or adults who have autism. This may be attributed to the fact that people with an ASD tend to "wander from parents and care providers" and "are often attracted to water sources such as pools, ponds, and lakes" (Kennedy Kreiger Institute, 2011, p. 1).

As a result of the limited research available about proper strategies and techniques in aquatic settings for autistic children, linking this information can serve to inform current and future instructors as well as providing this under-served population important lifesaving aquatic skills. Aquatic experiences, such as learn-to-swim lessons, can provide essential opportunities for children with ASD and help promote physical, motor, social, and emotional values (Huettig & Darden-Melton, 2004), community participation (Rosser-Sandt & Frey, 2005), develop responses to stimuli in the environment, facilitate language development and self-concept, and improve adaptive behavior (Yilmaz, Yanardag, Birkan, & Bumin, 2004). The benefits of aquatics, both physical and psychological, are well documented. Schilling (1993) posited that the benefits of aquatic

exercise and/or activity are multiple and range from physical to psychological in nature. She outlined the experiences of persons with disabilities, identifying the buoyancy of water the negating the effects of gravity by supporting joints, giving persons with limited mobility increased movement and flexibility. Duffield (1976) defines buoyancy as force experienced as an upward thrust, which acts in the opposite direction of gravity. Buoyancy of water allows one to be in a decreased weight bearing environment, which improves active movement as opposed to a land environment where gravity dominates (Gjesing, 2001). Broach and Dattilo (1996), have indicated that partaking in aquatic lessons as well as aqua therapy programs can improve circulation, mobility, strength, coordination, range of motion, pulmonary function, sensory perception and spatial awareness in people with disabilities associated with spinal cord injuries, orthopedic impairments, cerebral palsy, acquired brain injuries, developmental disability, as well as people with autism.

According to Benedict and Freeman (1993), a quality aquatics program can facilitate social and emotional benefits in addition to physical wellness. Also, warm water has a sedative effect and produces physical and mental relaxation (Lepore et al., 2007). Enjoyment of swimming is a social asset (Chanias, Reid, & Hoover, 1998) that can carry over to other areas of life. Finally, and important to many parents, swimming can be considered an essential safety skill (Mactavish, 2000). Research indicates that children with developmental disabilities such as ASD are at increased risk for accidents and injuries in and around water (Lee, 2008).

Still further, some individuals with autism react fearfully to new situations, while others have very little fear, which may lead them into dangerous situations. In an aquatics environment this means that some people with autism may need significantly more time to adjust to being around water, while others need vigilant supervision because they may be unable to fully appreciate the dangers associated with water (ARC, 2009).

There is limited research showing the benefits of swimming for children with ASD. Past research has concentrated on measuring: physical fitness, aquatic play skills, water orientation, beginner swim skills, and social behaviors, but more research is needed in the teaching of children with ASD. This research focused on how children with ASD can possibly gain aquatic skills from the adaptations and strategies introduced into the learn-to-swim program. Even though there is limited research available on children with ASD and swimming, this study will provide a building block for swim instructors serving children with ASD as well as future research.

Chapter II includes a review of the current literature relating to teaching swimming to children with ASD. It provides the research context for the study and also the importance of proper teaching techniques and strategies for this population.

CHAPTER II

REVIEW OF LITERATURE

The purpose of the study was to identify learn-to-swim program strategies and techniques that will benefit children with ASD. The study made use of extended time/duration within the learn-to-swim programs, use of a floating mat/platform as a teaching resource along with the introduction of wetsuits as a possible teaching tool.

This chapter will provide a review of the pertinent literature related to the study. It is organized into nine separate sections. The first section provides information on the prevalence of autism spectrum disorder. This is followed by a section dealing with physical activity and autism. Next, a review of the pertinent literature related to aquatics, swimming and autism. The fourth section of the literature review deals with the topic of wandering/elopement. The fifth section is focused on reporting the literature related to sensory issues. The sixth section is concerned with the literature focused on water temperature in swimming pools. The seventh section deals with the time/duration factors associated with the provision of learn-to-swim lessons. The eighth section reviews literature related to the use of floating platforms in the provision of learn-to-swim lessons. Last, the literature review section includes a discussion regarding the use of wet suits by instructors and participants in learn-to-swim lessons.

Table 1 presents an analysis of the literature which has been identified in the paragraph above describing the organization of the chapter. In viewing this table, one can see that in the section dealing with the prevalence of autism spectrum disorder, there are 11 citations. In the second section dealing with physical activity and autism, there are

11 citations. In the third section focused on aquatics, swimming and autism, there are nine citations. In the next section dealing with the topic of wandering/elopement, there are seven citations. In the fifth section pertaining to the literature on sensory issues, there are 12 citations. In the sixth section addressing the literature on water temperature in swimming pools, there are 11 citations. The seventh section deals with the time/duration factors associated with the provision of learn-to-swim lessons and there are eight citations. The eighth section of the literature review includes literature related to the use of floating platforms in the provision of learn-to-swim lessons and includes five citations. Last, the ninth section deals with the use of wet suits by instructors and participants in learn-to-swim lesson and there are seven citations.

Table 1

Literature Review Sources

Study Areas	Sources
Prevalence of Autism Spectrum Disorder	Autism Speaks (2012); Mayo Clinic (2013); Center for Disease Control (2008 a and b, 2011, 2012, 2013), Pratt (2012); U.S. Government Accountability Office (2005); Pan & Frey (2006); Rosser-Sandt & Frey (2005)
Physical Activity and Aquatics	Jansiewics et al. (2006); Pan & Frey (2006); Chanias, Reid & Hoover (1998); Folkins (1981); Prupas & Reid (2001); Auxter (1997); Curtin et al. (2010); Burns & Ault (2009); Rosenthal-Malek & Mitchell (1997); Lang (2009); Pan (2009); Yilmaz et al., (2004)
Aquatics, Swimming and Autism	Huettig & Darden-Melton (2004); Rosser-Sandt & Frey (2005); Yilmaz et al. (2004); Lepore et al., (2007); Broach, & Dattilo (1996); American Red Cross (2009); Cowart (1998); National Autism Association (2011); Kennedy Kreiger Institute (2011)
Wandering/Elopement	Jacobson (1982); Law & Anderson (2011); Centers for Disease Control and Prevention (2012);National Autism Association (2011); Kennedy Kreiger Institute (2011); AWAARE (2012);Murphy et al., (2005); McIlwain & Fournier (2011)
Sensory Issues/Distractions	Case-Smith & Arbesman (2008); Iarocci & McDonald (2006); Hochhauser & Engel-Yeger (2010); Schmidt & Heybyrne (2004); Groft-Jones & Block (2006); Woronko & Killoran (2011); Simpson et al., (2010); Hamilton-Pope & Miller (2006); Ball (2010)
Water Temperature in Swimming Pools	American Red Cross Scientific Advisory Council (2012); American Red Cross (2009); World Health Organization (2006); Swimming Teachers Association (2008); U.S. Swim School Association (2011); Lepore et al., (2007); National Swimming Pool Foundation (2011); Aquatic Exercise Association (2011)
Time/Duration Factors of Learn-to-Swim Lessons	Child's Play (2002); American Red Cross (2009); National Autism Association (2011); American Red Cross Scientific Advisory Committee (2012); Swim America (2007); McMurray & Horvath (1979); Lepore et al., (2007); National Center for Health, Physical Activity and Disability (2011)
Floating Platforms of Learn-to-Swim Lessons	Lepore et al., (2007); Vize (2011); Department of Education Western Australia (2012); Jewish Community Centers of San Francisco (2010); National Center for Health, Physical Activity and Disability (2011)
Use of Wet Suits by Participants in Learn-to-Swim Lessons	Richardson (1999); Pereira et al., (2007); Professional Association of Diving Instructors (2003, 2011); Williams & Acott (2003); National Physical Laboratory (2010); American Red Cross Scientific Advisory Council (2012)

Prevalence of Autism Spectrum Disorder

Autism is a complex brain disorder that hinders a person's ability to communicate and develop social relationships, and is often accompanied by behavioral challenges (Autism Speaks, 2012). According to Mayo Clinic (2013),

> Autism is one of a group of serious developmental problems called autism spectrum disorders that appear in early childhood — usually before age 3. Though symptoms and severity vary, all autism spectrum disorders affect a child's ability to communicate and interact with others. The number of children diagnosed with autism appears to be rising. It's not clear whether this is due to better detection and reporting of autism or a real increase in the number of cases or both. While there is no cure for autism, intensive, early treatment can make a big difference in the lives of many children with the disorder. (Mayo Clinic Staff definition, 2013)

More specifically and further, autism can be defined as:

> a developmental disability that causes substantial impairments in social interaction and communication and the presence of unusual behaviors and interests. Many people with ASDs also have unusual ways of learning, paying attention, and reacting to different sensations. The thinking and learning abilities of people with ASDs can vary—from gifted to severely challenged. Many individuals with an autism spectrum disorder have significant cognitive impairments, although some have typical or even above average IQs. An ASD begins before the age of 3 and lasts throughout a person's life. (CDC staff definition, 2012)

The CDC (2013) has recently called autism a nationwide public health crisis whose cause and cure remain unknown at the present time. In February 2007, the CDC issued a report based on a sample of 8 year olds and concluded that the prevalence of autism had risen to 1 in 150. By 2009, based on a similar sample, the incidence had increased to 1 in 110. In 2012, using a similar sample, it was announced by the CDC that the incidence had climbed to 1 in 88 with 1 in 54 boys and 1 in 252 girls being diagnosed

with an autism spectrum disorder (Pratt, 2012). Finally, according to the latest 2013 estimates by the U.S. Department of Health and Human Services report, the prevalence of autism is significantly higher from the previous 2012 report of 1 in 88 to the new report that reveals 1in 50 children are now diagnosed with autism (U.S. Department of Health and Human Sevices, 2013). Statistics from the CDC (2012) identify a ten-fold increase in the prevalence in Autism over the past 40 years.

The reasons for the increase are not understood completely; however, some of the increase may be due to the way children are identified, diagnosed, and served in their local communities, although exactly how much is due to these factors is unknown. Also, it is likely that the reported escalation is explained partly by greater awareness by doctors, teachers, and parents (CDC, 2013). Many researchers believe that more children are being identified because the medical community along with other professionals having a better understanding of autism spectrum disorders, and because the definition of autism has been expanded to encompass more individuals (Autism Speaks, 2012). Still others believe that the increase is real and are advocating for research to investigate the potential causes of autism. According to Autism Speaks (2012), the world's leading autism science and advocacy organization, autism costs society a staggering $126 billion per year (U.S.) – a number that has more than tripled since 2006. Bob Wright, co-founder of Autism Speaks, stated in March of 2012:

> Autism is a global public health crisis. The costs are staggering and will continue to rise as prevalence continues to increase. We know that early diagnosis and treatment are critical, so it is imperative that the U.S. and governments around the world step up their commitment to helping people living with autism today. The investment we make now is essential to reducing the long-term costs of autism. (p. 1)

The potential impact on our schools, educators, medical personnel and other service delivery systems is tremendous (Pratt, 2012). As CDC Director Thomas Frieden stated:

> One thing the data tells us with certainty — there are many children and families who need help. We must continue to track autism spectrum disorders because this is the information communities need to guide improvements in services to help children. (CDC, 2012)

As a financial issue, the data is alarming for schools, communities and families. This three-fold increase in expenditures for those receiving special education services is alarming just from a financial standpoint (United States Government Accountability Office, 2005). Along with this, in 2005, the average annual medical costs for Medicaid-enrolled children with an ASD was about six times higher than the costs for children without ASD (CDC, 2013). Moreover, Pan and Frey (2006) noted that children with ASD may also be at a higher risk for inactivity because of their social and behavioral limitations. This in turn could add to the total cost and well-being of children with ASD. Consequently, it is essential to address positive options, habits and attitudes with these children so they can continue to participate daily in physical activity (Rosser-Sandt & Frey, 2005).

Physical Activity and Autism

When compared to individuals without ASD, children with ASD are more likely to have difficulties with balance, core stability, posture, overall flexibility and fitness levels (Jansiewics et al., 2006). These deficits may be more pronounced by the reduced opportunity to engage in physical activity. For example, Pan and Frey (2006) compared

levels of physical activity during school by elementary students with ASD and those without disabilities. In that study, accelerometer measurements indicated that children with ASD were considerably less active than the comparison group. Furthermore, previous research also suggests that health problems related to a sedentary lifestyle which include cardiovascular disease, insulin resistance syndrome, and obesity are more common among individuals with intellectual and developmental disabilities such as ASD, in comparison to individuals without developmental disabilities (Chanias, Reid & Hoover, 1998). In contrast, when exercise is increased for children with disabilities, positive improvements in physical health, intellectual functioning, perception, behavior, affect, and personality have been reported (Folkins, 1981).

Physical activity is known to promote physical and mental health in the general population (Pan & Frey, 2006). The implementation of an exercise program is now a widely accepted technique to reduce stereotypical and maladaptive behaviors in children with ASD (Purpas & Reid, 2001). Research indicates that exercise and physical fitness are important components of a healthy lifestyle. This is especially true for individuals with autism, as children with ASD have been found to have lower levels of physical fitness (Auxter, 1997). Recent alarming statistics suggest that children with autism are 40% more likely to be overweight and obese compared to their typically developed peers (Curtin, Anderson, Must, & Bandini, 2010). The earliest evidence for physical activity as a form of decreasing stereotypical and maladaptive behavior comes from the reports of special education teachers who stated that students with ASD appeared more attentive

and cooperative after physical activities such as physical education classes, field trips, or outdoor activities (Burns & Ault, 2009).

Many studies have looked at the effect of physical activity on the reduction of stereotypical behaviors (Rosenthal-Malek & Mitchell, 1997). Lang (2009) reported that regular and specific types of physical activity could benefit individuals with ASD in regulating their stereotypic behaviors. Structured programs such as physical education appear to foster more physical activity compared to unstructured environments, such as recess (Pan, 2009). Although exercise cannot eliminate stereotypic behaviors, it may alter or limit the response from inappropriate to appropriate (Prupas & Reid, 2001). As one study pointed out, the behavior of the subjects was observed following a mild exercise program (walking) and vigorous exercise program (jogging). The study determined through observations and heart rates that the number of stereotypic behaviors after vigorous exercise was decreased by 17.5%. This large decrease illustrates that exercise could limit or replace the stereotypic behaviors when the exercise is of sufficient intensity (Rosenthal-Malek & Mitchell, 1997). Another study looked at the effects of a ten week program with a variety of swimming training lessons with a focus on general physical fitness and orientation in the water. The study indicated that children were found to have increased balance, speed, agility, power, hand grip, arm and leg muscle strength, flexibility, and endurance after training. Also noted was a decrease in self-stimulatory stereotypical behaviors (Yilmaz et al., 2004). Physical activity can also be instrumental for a person with autism to assist with their sensory integration, coordination, social skills development and muscle tone. Finally, Yilmaz et al. (2004) found that cardiorespiratory,

flexibility, balance, agility, and strength increased and stereotypical behaviors decreased after swimming for children with ASD.

Aquatics, Swimming and Autism

Swimming and aquatic experiences, such as instructional swimming lessons, can provide essential opportunities for children with ASD and help promote physical, motor, social, and emotional values (Huettig, & Darden-Melton, 2004). Likewise, aquatic experiences give individuals with disabilities a variety of opportunities that help them improve their well-being throughout their life spans (Auxter, Pyfer & Huettig, 2005). Aquatic experiences can provide unique and essential opportunities for children with autism. A well designed and carefully implemented instructional aquatics lesson program can be instrumental in promoting health and wellness by helping children with autism learn skills that can be used throughout their lifetime (Lepore et al., 2007).

In addition to physical enhancements, the water also has psychological benefits as the sensation of water encompassing the body tends to relax participants, which leads to improved mood as well as a decrease in anxiety and depression (Broach, & Dattill, 1996). Some individuals with autism react fearfully to new situations, while others have very little fear, which may lead them into dangerous situations. In an aquatics environment this means that some children with autism may need significantly more time to adjust to being around water, while others need constant supervision because they may be unable to fully appreciate the dangers associated with water (ARC, 2009).

Although individuals who teach aquatics to children with autism believe swimming is an effective instructional tool, there is little documented evidence of the

effectiveness of aquatic intervention. Cowart (1998) provided a case study with the evidence indicating the effectiveness of aquatic intervention and instruction with hard to reach children whose behavioral characteristics were consistent with those associated with autism spectrum disorders. According to the National Autism Association (2011), teaching individuals to swim is essential because drowning is a leading cause of death for a child or adult who has autism. This can likely be attributed to the fact that people with an ASD tend to wander from parents or care providers and are often attracted to water sources such as pools, ponds, lakes, and streams (Kennedy Kreiger Institute, 2011). In addition to the physical activity and social opportunities, swimming lessons are especially important for autistic children because many are drawn to water (Kearney, 2012).

Thus, because of the risks involved in association with not knowing how to swim, it is especially important because of the rising number of diagnoses, the increase in drownings, and to assess the value of learning this potentially life-saving skill for this population.

Wandering/Elopement

Wandering or elopement, which can be defined as leaving an area without supervision or caregiver permission, is prevalent among persons with developmental disabilities (Jacobson, 1982) and may expose a person to dangerous situations. Additionally, Law and Anderson (2011), defined elopement simply as an individual exiting a safe area which in turn puts them in harm's way. In their study, they suggest that children with autism are four times more likely to wander than other children. The

Centers for Disease Control and Prevention (CDC, 2013), estimates that 1 in 50 individuals in the U.S. have an ASD that can cause significant social, communication and behavioral challenges. These challenges often present unique and distinctive safety risks, including those associated with a person's tendency to wander or elope from a safe area. Furthermore, because children with autism are challenged in areas of language and cognitive function, it can be difficult to teach them about the potential dangers and ways to stay safe. Dangers associated with wandering include drowning, getting struck by a vehicle, exposure, falling from a high place, abduction, victimization and assault. In 2012, the National Autism Association found that from 2009 to 2011, accidental drowning accounted for 91% of the total U.S. deaths reported in children with autism due to wandering, and that 23% of total wandering-related deaths occurred while the child was in the care of someone other than a parent.

According to data released in April 2011 by the Interactive Autism Network (IAN) through the Kennedy Krieger Institute:

- Roughly half, or 49%, of children with a autism attempt to elope from a safe environment, a rate nearly four times higher than their unaffected siblings
- More than one third of children with autism who wander/elope are never or rarely able to communicate their name, address, or phone number
- Two in three parents of elopers reported their missing children had a "close call" with a traffic injury
- 32% of parents reported a "close call" with a possible drowning

- Children with ASD are eight times more likely to elope between the ages of 7 and 10 than their typically-developing siblings
- Half of families with elopers report they had never received advice or guidance about elopement from a professional. (Autism Wandering Awarenes Alerts Response Education, 2012)

On average, children with ASD were reported missing for just over 40 minutes and were most likely to elope from their home, a store or school. Along with this, missing children were also less likely to respond to their name making this a possibly dangerous situation (Autism Wandering Awarenes Alerts Response Education, 2012).

There are numerous reasons someone with ASD may wander. Many parents report their child gravitates towards water, so nearby lakes, ponds and creeks may continue to be a desired destination. Without appropriate assessment and treatment, elopement tends to persist in people with developmental disabilities (Murphy et al., 2005). According to McIlwain and Fournier (2011), first responders may not be aware of autism spectrum disorders, the associated attraction to water and the unique challenges in searching for an individual with ASD. Better understanding could enhance first-responder search efforts and improve outcomes. Because of this, swimming lessons for children with ASD and other developmental disabilities are essential for safety and well-being.

Sensory Issues/Distractions

Many individuals with autism have sensory sensitivity which is often times referred to as sensory processing. People experience and respond to sensory stimuli every

minute of the day. Research indicates that each individual processes and separates sensory information in different ways (Brown, 2002). Sensory processing refers to the ability of the nervous system to manage incoming sensory information (Dunn, 1997). The interpretation of all the sensory information from the surroundings is often difficult for children with an ASD resulting in hyper-responsive patterns, hypo-responsive patterns, or a combination of the two (Case-Smith, & Arbesman, 2008). From a clinical perspective, sensory under- responsiveness and/or over-responsiveness can lead to behaviors, which either generate or avoid sensory stimulation in an effort to help the child with ASD cope with all the surrounding stimuli (Iarocci, & McDonald, 2006). Hochhauser and Engel-Yegar (2010) found that children with ASD who have high visual and auditory sensitivity work best one-to-one rather than in groups. To some degree distractions are inevitable and often harmless for a typical child, but for a child with autism, distractions can be overwhelming and unbearable. In addition, hypersensitivity to auditory or visual stimuli can contribute to inattention along with behavioral difficulties (Schmidt & Heybrrne, 2004). Since children with autism show uneven reactions to the environmental sensory stimulus, the level of stimulants such as light, voice and temperature in the classroom or gymnasium are important. The best choice is to make a schedule on the quiet days in those areas of instruction to help students avoid sensory overload (Groft-Jones & Block, 2006).

No two children are alike, and this is especially true for children with ASD. Due to this, there is much variation with respect to sensory responsiveness; educators need to acquaint themselves with their students' specific sensory needs before the school year

commences, thus giving them time to make any necessary accommodations to the classroom environment (Woronko & Killoran, 2011). Furthermore, children with ASD often have heightened sensitivity to tastes, smells, sounds, and sights and may display tactile sensitivity. Avoidance of touch, pressure, warmth, and other contributing factors can foster avoidance in participating in specific games or activities. Educators should be sensitive to a student's sensory needs; they should modify or adapt group-designed activities (Simpson, Gaus, & Garcia-Briggs, 2010). In an over-stimulating environment children with autism may attempt to reduce sensory overload in a negative manner (e.g. spinning in circles, covering their ears) to soothe themselves. The environment need to be adapted to minimize distractions meaning that unnecessary background noise and visual distractions needs to be removed or eliminated (Hamilton-Pope & Miller, 2006).

According to Ball (2010), a significant proportion of children with an ASD have sensory issues, which complicates how we teach them to swim and educators need to make every attempt to minimize distractions and the possible anxiety associated with the lessons. A group lesson can be too much of a sensory overload, but private lessons enable rapid growth in a safe setting (Autistic Spectrum Disorder Fund, 2012). Lastly, the child with autism can significantly improve his or her attention through an approach that minimizes distractions within the teaching environment (Schmidt & Heybryne, 2004). By creating an enjoyable environment, the child with ASD will not associate exercise with stress, and will enjoy it more and continue to practice it (Groft-Jones & Block, 2006).

Water Temperature in Swimming Pools

As stated by the American Red Cross Scientific Advisory Council (2012), water temperature is a major factor in participant comfort and overall success of any aquatic instructional program. Younger children and older adults are more susceptible to hypothermia than others, even at relatively warm temperatures (ARC, 2009). Water that is too cold can lead to chilling and discomfort and result in limiting the time spent on necessary practice. Likewise, the World Health Organization (2006) stated, water temperatures ranging from 78-86 F (26-30 C) are comfortable for most swimmers throughout prolonged periods of moderate physical exertion. For teaching the very young or those with disabilities, a higher temperature of 84.2°-87.8 F° (29ºC to 31ºC) is desirable (Swimming Teachers Association, 2008). According to the United States Swim School Association (2011), 90° F is the optimum water temperature for teaching young children to swim. Furthermore, if the students become chilled, they are not likely to make as much progress, nor will the lessons be a positive experience (ARC, 2009).

According to Lepore et al., (2007), water temperature varies between pools depending on its programming usage. If a pool primarily is used for competitive swimming, then water temperature is between 75°-78° degrees. However, a pool that is used primarily for therapeutic benefits has a higher water temperature, usually above 82° degrees. She also reported that water temperature varies depending on disabilities with recommended ranges between 83 to 96 degrees (Lepore et al., 2007). The National Swimming Pool Foundation (2011) recommends that water temperatures between 76°-82° F are best for proper water chemistry. Proper control of pH and chemicals that treat

bacteria in the water work best in water that ranges from 76°-82° F. Most pools are used for a variety of swimming activities, from beginners to competitive teams with control over the pool temperature based on individual swimmers' needs being nearly impossible to obtain (Lepore et al., 2007).

Consistent with the Aquatic Exercise Association (2011), program modifications will be required for water temperature outside the recommended range. Water temperature below the recommended range requires modifications in programming (ARC, 2009). Also, for water temperatures below the guidelines suggested for a particular activity, an instructor may choose to decrease the time of session, increase the intensity of the activity if appropriate, and/or provide wetsuits or head coverings (American Red Cross Scientific Advisory Council, 2012). Instructors need to be aware that other factors including full body immersion, air temperature, humidity and velocity of the wind can have tremendous effect on the students in the water (Aquatic Exercise Association, 2011).

Participants learning to swim (low intensity or limited activity) need warmer water for thermal comfort and balance. Watkins (1995) defines thermal balance as the ability to keep the body temperature at a safe level from the surrounding environment. Because many individuals with disabilities have limited mobility, this can lead to a decrease in physical activity, in so doing creating a thermal imbalance or a decrease in heat energy in these individuals' bodies.

The ability to change water temperatures in a swimming pool is not an easy, quick or inexpensive process (American Red Cross Scientific Advisory Council, 2012). Thus,

there is a dilemma of well-being and overall success of an instructional program in a swimming pool for children with developmental disabilities (American Red Cross Scientific Advisory Council, 2012). Because water temperature is extremely difficult to regulate for multi-use facilities, adaptations must be made in programming and procedures.

Time/Duration Factors of Learn-to-Swim Lessons

Children with an Autism Spectrum Disorder can find learning to swim in a group environment challenging due to the noise within the pool area, splashing, movements of other children or lessons, and distractions (Child's Play, 2002). There is no one method that is always successful for teaching aquatic activities to individuals with disabilities. However, you can use many different methods, either alone or in combination. For instructors that have participants with disabilities, you may need to have smaller class sizes, adjust time, or obtain additional assistance (ARC, 2009). Instructors teaching children with special needs should also make every attempt to minimize distraction and disruptions while the child is in the water. Pool areas echo causing unwanted disturbances and instructors need to be prepared to redirect the child often or even schedule lessons during off times, when less people are present (National Autism Association, 2011).

The American Red Cross (2009) recommends modifying the program itself and to alter the course to accommodate participants' needs. They also suggest that some individual characteristics such as physical size, age, stages of intellectual and physical development, along with other health conditions may require special adaptations or time

adjustments to make learning to swim in conventional swim classes successful for the participants.

The American Red Cross Scientific Advisory Committee (2012) stated that each learn-to-swim lesson for 6-15 year old participants should be 30-45 minutes in duration. Additionally, Swim America © (2007) a national learn to swim organization, has suggested that their instructors keep lessons limited to the 20 to 40 minute time period so participants do not get chilled, overwhelmed, and lose focus (Swim America, 2007). Finally, the Swimming Teachers Association (2008) also recommends that swim lessons, in conventional settings, should not last more than 45 minutes in duration due to the chilling effect of the water.

According to McMurray and Horvath (1979), there is little doubt that at certain temperature ranges exercise contributes to thermoregulation. When a person begins exercising in the water, heat from the muscles helps maintain core body temperature, or thermal balance (United States Navy, 2007). To what degree depends not only on the temperature of the water, but to a greater degree on the type of exercise as well as the intensity of exertion (American Red Cross Scientific Advisory Council, 2012). Because of this, it is especially important for instructors to vary activities along with the duration of the lessons when working with special needs participants (Lepore et al., 2007).

For instructors there is a wide assortment of techniques and methods to choose from for all students. Effective teachers understand how individuals differ within the learning process and create appropriate instruction and techniques that can be adapted to

these differences so participants can have positive experiences from the lessons (NASPE, 2011).

Floating Platforms of Learn-to-Swim Lessons

According to Lepore et al., (2007), adapted aquatic activities and instructional programs have always been an excellent opportunity to improve fine motor skills, cardiovascular fitness, social skills, and self-confidence for both people with and without disabilities.

Currently there is a very limited research base for the use of floating mats as an instructional tool. However, according to Vize (2011), some students seem to gain great pleasure from the independent movement they obtain from moving in a flotation device like a floating mat without the help of someone else. For some students, this is the only time in their week that they are able to move from one place to another independently or without assistance. According to the Department of Education in Western Australia (2012), students with disabilities should be provided with appropriate, alternative avenues for achieving the desired outcomes from the lesson. Additionally, the use of floatation aids such as foam boards and floating mats may assist the instructors with the development of skills and self-confidence in all ages. Some of the common aids used within a well-planned aquatics program include life jackets, swim rings, arm bands, pool noodles, and floating mats for persons with or without disabilities (Vize, 2011).

The floating mats or platforms allow children to feel secure even in water that may be over the child's head. Consequently, children overcome their fear of deep water and are able to enjoy the lesson in relative safety anywhere in the pool (Jewish

Community Center of SanFransisco [JCCSF], 2010). The use of the floating mats can also aid instructors with their lessons. As Vize (2011) noted, some students are hard to hold and instructors often find it easier, safer, and more secure to have the back up of a flotation mat when working with a student with disabilities. Furthermore, adapted aquatic instructors will often use a wide variety of teaching tools to instruct their students. These tools can include placing a mat near or in the pool to teach or refine a swim stroke for a student with a visual impairment to feel the stroke in the water while working on body alignment or using various floatation devices, such as noodles, inner tubes, kickboards, or other devices to provide support for the trunk or head or to eliminate fears and ensure safety for all participants (NCHPAD, 2011).

Use of Wet Suits by Participants in Learn-to-Swim Lessons

Research indicates that water conducts heat away from the body, approximately 20 to 25 times faster than air (Professional Association of Diving Instructors [PADI], 2003). This cooling effect of the water can be detrimental to the aquatics instructor and their student's success with learning (PADI, 2003). According to the American Red Cross (2009), some individual characteristics of children may require variations or other special adjustments in the lessons to make learn-to-swim classes successful for individuals with special needs. These accommodations may require adjustments to the lessons due to water temperature. Water that is too cold for swimming lessons can lead to chilling and discomfort and result in limiting the time spent on necessary practice. Water temperature below the recommended levels may also cause students to lose focus and

decrease enjoyment with the lesson (American Red Cross Scientific Advisory Council, 2012).

Because water conducts heat away from the body so rapidly, wetsuits, made of neoprene material, are a common garment worn in many water sports (PADI, 2003). Neoprene material is waterproof, smooth, soft, and durable, while providing stretch and compression at the same time. The compression properties along with the stretch and elasticity properties provide comfort and warmth to the wearer (Chau, 2012).

The wet suit was first introduced in the early 1950s when tight-fitting suits of a closed-cell, foam rubber neoprene were developed (Long, 1987). Exposure suits reduce convective heat loss, as well as providing varying degrees of thermal insulation. They will slow the cooling rate of water, especially the initial dissipation of heat on immersion. Wetsuits provide insulation and slow down heat loss to the environment by restricting water circulation around the body (Williams & Acott, 2003). The main factor in a wetsuit's ability to keep its user warm is the thickness of the neoprene material (National Physical Laboratory, 2010).

According to Richardson (1999), a wetsuit is a garment, usually made of foamed neoprene, providing thermal insulation, abrasion resistance and buoyancy. The insulation properties depend on bubbles of gas enclosed within the material, which reduce its ability to conduct heat. The bubbles within the neoprene give the wetsuit a low density, providing buoyancy in water. Neoprene is a synthetic rubber material designed to be abrasion-resistant, waterproof, flexible, and buoyant (Richardson, 1999). Neoprene is mainly incorporated into household products, protective gear, assistive gear, medical

braces, pet collars, and trek gear and is one of the most popular uses is in the structure of a wetsuit. In wetsuits, neoprene traps the water between the wetsuit and the wearer's skin (Pereira, Anand, Rajendran, & Wood, 2007). Neoprene wetsuits reduce the amount of heat loss, allowing the wearer to maintain core body temperature and stay in cold water comfortably for longer periods of time (PADI, 2011).

The above mentioned research indicates that water temperature and comfort in the water are important factors in teaching learn-to-swim lessons. Because there is a void in the research in the area of thermal regulation and comfort in the water, it is important to explore this gap.

Chapter III describes the research methodology for conducting this qualitative study.

CHAPTER III

METHODOLOGY

The purpose of this study was to identify strategies and techniques within learn-to-swim programs that may benefit children with ASD. Because autism is a lifetime neurobiological disorder and is not curable, it is imperative that interventions, techniques and strategies are initiated with this population as early possible. The qualitative design provided the researcher with a greater understanding of the particular experiences of the intervention that could potentially help maximize the physical, emotional, and social health of this population, rather than what could be captured with standardized instrumentation. The research protocol was initially submitted to and approved by the university's (Appendix C) Institutional Review Board (IRB). This chapter will describe the methodology of the current study, including the selection process and description of the subjects, the study design and procedure, and the analysis plan for the data collected.

For this research, a qualitative study was conducted to explore strategies and techniques that may prove beneficial to children with ASD. Bogdan and Biklen (1982) defines qualitative data analysis as "working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others"(p.145). Additionally, Strauss and Corbin (1990) claim that qualitative methods can be used to better understand any occurrence about which little is yet known. Qualitative analysis can also be used to gain new perspectives on things about which much is already known, or to gain more in-

depth information and data that may be difficult to convey quantitatively. Additionally, qualitative research has been defined in a variety of ways. In one definition, Strauss and Corbin (1990) identified qualitative research as:

> Any type of research that produces findings not arrived at by statistical procedures or other means of quantification. It [qualitative research] can refer to research about persons' lives, lived experiences, behaviors, emotions, and feelings as well as about organizational functioning, social movements, and cultural phenomena. (p.10-11)

A primary reason for using interviewing in this study is to allow the researcher to examine the strategies and techniques within the learn-to-swim program and identify any possible favorable outcomes. The qualitative method allowed for an opportunity to explore the perceived benefits of the learn-to-swim program from the perspectives of the parents of children with ASD as well as the instructors. The responses gained through the interviews of parents and instructors will be used to identify a better understanding of methods that may assist with the instruction of children with ASD.

This chapter is organized into the following 11 sections. The first section explains the procedure utilized for this research. The second section explains the selection of the subjects. The third section clarifies the selection of the instructors. This is followed by a section on the setting and environment in which the study took place. Within the fifth section will be a description of the equipment utilized in the study. The sixth section will focus on data analysis. The seventh section is concerned with the data collection. The eighth section explains the interviewing process. The ninth section clarifies the data analysis of the study. The tenth section looks at the research

instrumentation. The final section explains the ethical considerations for this research study.

Procedures

This study was guided and bound by the regulations of the university's Institutional Review Board (Appendix C). These guidelines included the following:

- the subjects were informed as to the nature of the research being conducted prior to their consent to participate in the study;
- a signed letter of informed consent was obtained from each of the participants;
- participants were informed that their participation was voluntary and that they may withdraw from the study at any time without explanation;
- the confidentiality and anonymity of the subjects was protected;
- permission to audio-tape telephone conversations and face to face interviews was requested and all subjects were informed in advance when such an audio-tape recorder was going to be used.

After obtaining approval from the department head, the researchers committee, and the Wellness/Recreation staff, the researcher made initial contact with the parents at a local ASD support group (Appendix D and Appendix E). Criteria for the participants were that children needed to medically diagnosed with autism and be between the ages of 4 and 14. After this initial meeting, parents interested in the study would contact the researcher via e-mail or phone for further information. Once the e-mails or calls were received, the researcher provided the consent forms and set up lesson times. Instructors were contacted through the university Physical Education club. Required qualifications

were; (1) currently certified in American Red Cross-Lifeguarding, (2) currently certified in American Red Cross-Water Safety Instructor, (3) a Physical Education major with a minor in special education,(4) possess previous experience working with special needs children. All instructors volunteered their time for the study. Subjects were given consent forms prior to the date of the interview via email and they returned their signed consent form at the time of the first lesson.

Consent forms described the purpose of the research, as well as procedures, benefits, and any potential harm/risk factors concerning this type of interview. Interviews were conducted at the pool.

Both interviewer and respondent had paper and pen available for note taking if desired. A tape recorder was placed in full view of the respondent; in keeping with the written protocol, permission to tape the interview was secured. The questions posed to each participant came from the protocol and the same order and wording of questions was used for each subject. Open-ended questions (Appendix A and Appendix B) were used to elicit the respondent's own ideas and terms of expression, so that questions meant to probe for more information were relevant to the respondent. Naturally, each respondent described and used terms from their personal experiences that were different from the other respondents. Therefore the base questions were the same open-ended questions for each respondent but the secondary questions or probing questions differed, based on the words and terms that the respondent used and based also on the interviewer's need to probe for clarification or to encourage the respondent to elaborate.

Ten lessons were provided on Sunday mornings over a 12 week period. All sessions were conducted at the university's indoor aquatic complex. Parents were not required to stay for the swim lessons; however, if they did stay, they were allowed to watch from the pool deck area. Interviews were conducted after the mid-point (fifth) lesson and the final (tenth) lesson.

The addition of the extra time element (and limited access), the use of the floating mat, and the implementation of the wetsuits into the teaching process were the only changes to the normal skill progressions of the swimming lessons. Therefore, the format and interventions of the learn-to-swim program were consistent with the traditional learn-to-swim lesson programs.

Participants

Each of the participants was medically diagnosed with ASD. This was confirmed only by the parent/guardian. The investigator had no access to medical records and accepted the participant based on the parents/guardians acknowledgement of the disorder. Participants were between the ages of 4-14 years old. Parents or guardians of the participants were not required to be at all sessions; however, attendance at the mid-point lesson as well as the final lesson was encouraged for interviewing purposes.

The particular design of a qualitative study depends on the purpose of the inquiry-what information will be most useful, and what information will have the most credibility. There are no strict criteria for sample size (Patton, 1990). Therefore, six individuals were chosen after a criterion sample frame was created. The criterion samples were made up of individuals who "fit particular predetermined criteria" (Hatch, 2002, p.

90). According to Patton (1990), this method of sampling is “very strong in quality assurance”. (p.44) Also, the reasoning behind criterion sampling was to review and study the cases that may have met some predetermined condition of importance and could add a significant qualitative element to ongoing program monitoring system. As Patton (2002) stated, “criterion sampling involves selecting cases that meet some predetermined criterion of importance” (p.238) and can be useful for identifying and understanding important components within the data. Purposeful sampling is a dominant strategy in qualitative research because it seeks information-rich cases, which can be studied in depth.

In this study the predetermined criteria include the following:

1. Age range 4 years old to 14 years old,
2. Medically diagnosed with ASD,
3. Previous swim lesson experience, and
4. Parent/guardian encouraged to be present for the middle (fifth) and final (tenth) swimming session.

Therefore, by using the criterion sampling method, the six individuals were selected as potential participants and provided the researcher sufficient data. As Kvale (1996) stated, “Interview as many subjects as necessary to find out what you need to know” (p. 101). If the number of subjects is too large, then it is not possible to make probing interpretations of the interviews. Ideally, the participant pool would have consisted of a wide diversity of candidates. The diversity of candidates was dependent on the avaliablity of the individuals as well as their willingness to participate in the study.

This study was only able to recruit males due to the availability and time constraints. However, the pool of participants provided a representation of a variety of ages and aquatic abilities.

The first lesson included an introduction to the pool facility and a brief time to get acquainted with the instructor. During all sessions, the instructors met the participants and the participant's primary caregiver(s) at the entrance to the pool facility. Once at the pool, the parent/caregiver then sat in the observation area on the pool deck, while the instructor and child approached and entered the water. During pool entrance, the instructor followed the child's lead to the pool, providing minimal assistance (e.g., holding the child's hands) when necessary. Every session began with water play (e.g., blowing bubbles, splashing, going down the water slide) for approximately 5-10 minutes as a warm-up period. The floating mat was utilized at all sessions for teaching. The introduction of the wetsuits was implemented for participants and instructors at the beginning of the second session and used at all remaining sessions. All sessions were one hour in duration.

Selection of Instructor(s)

Again, utilizing the criterion sampling method the investigators initial contact with instructors was initiated by the investigator through a university-sanctioned Physical Education Club. The Physical Education Club is an undergraduate professional organization that, among other duties, volunteers for local projects and special needs schools. After a brief description of the study, club members were asked if they would have any interest with assisting with the study by the investigator. Final selection of

interested potential instructors was based on four criteria: (1) currently certified in American Red Cross-Lifeguarding, (2) currently certified in American Red Cross-Water Safety Instructor, (3) a Physical Education major with a minor in special education,(4) possess previous experience working with special needs children. All instructors volunteered their time for the study.

After the selection of the instructors, and prior to enrollment in the study, the researcher arranged a brief meeting with each swimming instructor to confirm that they were willing to commit to the duration of the study and to attend all lessons as well as the training workshop. The researcher also collected background information on instructors' prior experiences teaching children with autism, swimming qualifications, and experience teaching swimming lessons. The researcher reviewed the study design and provided a brief overview of what to expect during each phase of the study. The instructors were then allowed to conduct all aspects of the swimming lessons for each child.

Setting and Environment

All swimming lessons occurred indoors (controlled environment) at a university leisure pool. The pool is a 47,000 gallon zero-depth entry pool with a maximum depth of four feet. The pool also has a two-story water slide and a 1,500 gallon hot tub. The leisure pool has a set water temperature range between 85°-86° F and is normally utilized for the traditional swimming instruction programs at the university. All instruction was conducted on Sunday mornings, between the times of 9:00 a.m. and 1:00 p.m., to alleviate any possible distractions or conflicts with normal aquatic programming. Instruction consisted of ten lessons over a 12 week period.

Equipment

The instructors utilized all standard swimming instructional equipment (kick-boards, pull-buoys, dive rings and water toys). Along with the standard instructional equipment, a 5′ X 8′ floating mat that is 2″ thick was used for instructional purposes. The mat is manufactured by Norbert's Athletic Equipment (Model: G-824P), and has 2′ wide panels that fold accordion style for easy storage. The exterior of the mat cover is manufactured of coated vinyl and stitched with Dacron thread. The intended use for the floating mat was for entries and exits from the water as well as a floating teaching station that can be used for a variety of drills and skill development.

Finally, the instructors introduced the form fitting wet suits as a possible, but not required, additional teaching tool. The initial intent of the wet suit was to provide warmth to the participants and added buoyancy. The wetsuits utilized in this study are "shorty" wetsuits and are designed for use in warm to cool water temperatures. The wetsuits have short sleeves, while the leg portion comes down to mid-thigh. The wetsuits are 3mm in thickness to provide warmth while not impeding movement in the water. The wetsuits were purchased from IST Sports Corporation and are model WS29 with a variety of sizes for participants to ensure proper fit. All instructors were required to wear wetsuits for all lessons to provide consistency within the study as well as comfort.

Data Collection

The two prevailing forms of data collection techniques associated with qualitative inquiry are interviews and observation. The interviews conducted in this study allowed the interviewer to probe and explore while allowing for individual variations (Patton,

1990). When considering interviews as a research tool, there were several approaches which could be taken. In this instance, semi-structured interviews were chosen. It was established that semi-structured interviews would give the parents and instructors the opportunity to express their opinions freely in as much depth as was required. The face-to- face, semi-structured interviews provided a balanced approach gaining a greater depth of information while maintaining focus. The interviewer will ask identical questions to each parent and instructor but may pursue more in-depth responses that emerge for each interviewee (Hill, Thompson, & Williams, 1997).

An interview guide was used during the semi-structured interviews for both parents and instructors (Appendix A and B). An interview guide provides focused subject areas within which the interviewer probes and asks questions that will clarify that particular research issue. With the guide, the interviewer remained free to develop a conversation within a particular subject area, and to establish a relaxed and informal style, while still focusing on a particular question that had been predetermined (Patton, 2002).

A primary reason for using semi-structured interviewing in this study was to allow the researcher to examine the strategies and techniques within the learn-to-swim program and identify any possible favorable outcomes from the parents' and instructors' perspective. Thus, interviews provided the needed flexibility to probe ideas that emerged during the interview dialogue in order to understand the parents' or instructors' true meaning. Interviewing and probing was also a necessity because the research questions focused on the benefits of the interventions with each individual child. Parents and

instructors were interviewed twice during the study; after the mid-point (fifth) lesson and after the final lesson (tenth) for a total of 16 interviews. This allowed the researcher to create dialogue and trust with the parents while collecting their responses. Direct quotations have been used and taken directly from the transcriptions of interviews to emphasize the recorded experiences of the research participants.

The interviews were conducted just outside the pool area with each of the three interviews being approximately 15-20 minutes in length. With consent from the participants, all interviews were audio-taped and transcribed (Appendix H). Notes made by the interviewer during the interviews were used to ensure that the interviewer's understanding of what the interviewees were conveying was accurate.

The interviews were audio taped and transcribed ensuring accuracy of the data collected. To ensure that the results of the data analysis were accurately reflected within the interviews, the participants had an opportunity to comment on the extent to which the themes extracted accurately reflected the parents' and instructors' thoughts and true meaning. According to Creswell (2007), this is referred to as respondent validation and is a method used to improve the thoroughness of qualitative research methods.

Observation

The second method used for data collecting is observation. Patton (2002) stated, "Through direct observations, the inquirer is better able to understand and capture the context within which people interact"(p.262). Furthermore, Patton (2002) argues that first-hand experience with a setting and the people in the setting allows an inquirer to be open and has less need to rely on prior conceptualizations of the setting.

Observation was used during the mid-point lesson and the final session. Observational data is used for the purpose of description, such as settings, activities, people, and the meanings of what is being observed from the perspective of the participants. Observation can also lead to deeper understanding than interviews alone, because it provides knowledge of the context in which the events occur, and may enable the researcher to see things that participants are not aware of or are unwilling to discuss (Patton, 1990). The unstructured observational strategy (Merriam, 1998) employed in this study, was to engage in limited interaction, with little to no intervening needed. Field notes were used to provide running descriptions of settings, people, activities, and sounds.

Observation was included to allow the researcher the opportunity to observe and take field notes. Field notes were taken (Appendix I) throughout the mid-point lesson and final lesson while focusing on what was observed during the lesson. The field notes assisted in determining what the observed events might mean and to provide help for answering the research questions during the data analysis process (Bogdan & Biklen, 1982). As with the interviews, the observation notes were then transcribed for later examination and coding.

Data Analysis

Analysis begins with identification of the emerging themes and categories from the raw data, a process referred to as open coding (Strauss & Corbin, 1990). During the open coding process, the researcher analyzed and identified the categories into which the occurrences where observed or reported. The goal was to create descriptive groupings

from which a preliminary framework for analysis could begin. The coding and analysis helped define and develop more descriptive categories, themes, patterns and concepts within the research data. Major themes were derived after the interviews for further analysis.

First, there was an introduction to the pool area and time for the participants to get acquainted with the program and their swimming instructor. Second, the instructor started their instruction for the beginning lessons based on the child's skill level (breath control, buoyancy, body position, arm and leg movements). Third, the investigator interviewed the parent of each participant to perceive if they felt their child was making progress and to inquire if they felt if the lessons were beneficial (child is learning new skills, adapting to the water, enjoying the lesson, accepting the wet suits, and willing to use floating mat). This was conducted at the mid-point interview as well as the final (tenth) interview of the parents; again asking if they see any benefits to the lessons (wet suits floating mats and extended time for lessons). The parents were also asked about the child's behavior at home before and after the lessons.

The investigator also interviewed the instructors after the midpoint of the lesson program and after the final (tenth) scheduled lesson. The questions (see Appendix A) the researcher utilized for the instructors dealt with the possible benefits to the children's learning, equipment (floating mat and form fitting wet suits) along with the extended time of lessons. Interviews were audio recorded, transcribed and coded immediately following each interview.

Patton (1990) stated that a "tape recorder is indispensable with recordings having the advantage of capturing data more faithfully than hurriedly written notes might, and can make it easier for the researcher to focus on the interview" (p.348). In order to protect confidentiality of the subjects, pseudo names were utilized in place of the participants' real name.

Research Instrumentation

Standardized, open-ended personal interviews were conducted for this study until saturation was reached or until redundancy in the responses or no new data was being presented by parents or instructors. The standardized, open-ended interview was very structured with the participants being asked identical questions, but the questions were worded so that responses were open-ended (Gall, Gall, & Borg, 2003). Additionally, Gall, Gall and Borg (2003) also suggested that this open-endedness allows the participants to contribute as much detailed information as they want, while permitting the researcher to ask probing questions as a means of follow-up. Although standardized questions were used, interviewees were encouraged to discuss what was most meaningful to them in their child's experience, which often leads to additional topics not specified in the sample questions. This, in turn, resulted in the addition of new questions to the researcher's list as the interviews proceeded.

Interviews were held at the pool facility with all parents or related caregivers of the 6 participants. The on-site interviews were held after the completion of the child's lessons.

As noted, interviews of parents and instructors were audio recorded and transcribed after the fifth lesson and the final (tenth) lesson. In addition, parents who preferred to be interviewed by telephone were provided this option.

Ethical Considerations

Ethical considerations form a vital part of qualitative research as it involves "collecting data from people, about people" (Creswell, 2007, p. 87). As a result, ethics should be an essential part of the planning and implementation of the research process (Mertens, 1998). Clearance for this research project was obtained from the university's Institutional Review Board (IRB), before embarking on this research study (Appendix C). This study also required organizational clearance which was obtained from the director of the School of Health, Physical Education and Leisure Services, along with the university's facilities director. Additionally, the parents had to give informed consent for their child to participate. This means that the parents were fully informed about the research study and the process to protect their child. After explaining the relevant details of the study, a written consent form was provided for parents to sign.

All the parents were reminded that their participation, as well as their child's, was voluntary and that anonymity and confidentiality would be maintained. They were informed of their right to withdraw from the study at any stage and it was explained that confidentiality would be maintained by means of keeping all records of their participation secured at all times and that it would be destroyed after the research was completed. As confidentiality and acknowledgement of privacy were of the highest importance, fictitious names were assigned throughout the study for participants, parents and

instructors. Additionally, any reference to schools or others have also been altered to protect confidentiality.

Chapter IV includes a detailed account of the data collected through the semi-structured interviews with parents and instructors. Analysis of the observational data will also be provided.

CHAPTER IV

RESULTS

The purpose of this study was to identify strategies and techniques within learn-to-swim programs that may benefit children with ASD. The qualitative method utilized allowed the researcher the opportunity to explore the perceived benefits of the program from the perspectives of the parents of children with ASD as well as the instructors. The questions addressed in this study were:

1. What physical, psychological and social benefits affecting overall health status of the students, if any, will be reported by the parents?
2. What benefits result from the increase in the individual lesson duration, if any, will be reported by the observer, the instructor and parents?
3. What benefits result from the utilization of a floating mat as a teaching instrument, if any, will be reported by the observer, the instructor and the parents?
4. What benefits are reported from the introduction of a wet suit as a teaching tool, if any, will be reported by the observer, the instructor and parents?

This chapter presents the results of the data collection and analysis, organized around the emergent themes of the interviews.

This chapter presents the study results. The first section presents a brief description of the participants as well as the swimming instructors. This is followed by the list of semi-structured questions asked by the interviewer to the parents and instructors. Next will be the results of the study including the perceived benefits from the parents and instructors perspective, while developing themes during data collection. The

next section refers to the benefits of the extended time/duration for each lesson. This is followed in the next section which describes the benefits of the floating mat as a teaching tool. The subsequent section discusses the implementation and use of the wetsuits. The observation data from the researcher will then be presented. Finally, a brief chapter summary of the results from the research will be presented.

Profile of Participants

The participants for this study included six boys with varying degrees of spectrum developmental disabilities. The age ranges for the participants was 4 -12 years of age. Each of the six boys in the study had a wide variety of spectrum issues as well as traditional swimming lesson experience leading up to the study. All participants had limited skill and loco-motor swimming skills. Six individuals were chosen and a criterion sample frame was created. The criteria for this study being that participants be medically diagnosed with ASD and be between the ages of 4 and 14 years of age.

The participants were selected from a support group for parents with children with ASD. The researcher asked to speak to a church support group and briefly explain the proposed study. After this initial contact, those parents interested in participating, were then asked to contact the researcher for further details (Appendix F). The parents were then given permission forms and dates and times were then established (Appendix C). All lessons were free of charge for all participants.

Prior to each interview, the interviewer's instructions to the participant were as follows:

> I would like to thank you for taking the time to see me and to be a part of this study. It is my hope that the information that you provide me today will help

> instructors with teaching techniques and strategies that may help children with autism learn to swim." All information that you provide to me today will be assigned to pseudo names rather than your real name. In that way, no one who has access to this information or the results of the study will have any knowledge of your full name or any other information about your identity. I will be recording this interview so I can create a transcript. The transcript will be used to help me understand and share the information you share today.

As previously noted, pseudo names were assigned to all participants. A description to each subject follows.

Don

Don is the twin brother of Bob who is also participating in the study. He is an 11 year old boy who is fully included into sixth grade. Don is verbal and has had few behavioral issues in school according to his mother. He has lower spectrum issues, is fully included at school; however, he does meet with an associate on a weekly basis to make certain he stays on task. His prior swimming experience with traditional lessons was not a positive experience, according to his mother, and he was initially quite reluctant to start this lesson program. Because of his lack of experience, Don had limited water skills and displayed some anxiety before the first lesson. He does display some sensory issues with sound. He did not put his face in the water, nor did he swim any strokes. Don was not comfortable in deep water and needed an instructor with him at all times. His mother wanted him to gain more experience and skills in the water for safety reasons.

Bob

Bob is the twin brother of Don. Bob is non-verbal and has more extreme spectrum issues and, therefore, attends the community's exceptional person's school. He does

understand verbal prompts from his teachers and instructors. Bob has difficulty with changes in his routine and has some profound repetitive behaviors and displays a fascination with a variety of objects. The exceptional person's school he attends has a pool that he has used since his enrollment at age four. Bob is more experienced and comfortable in the water because of the opportunities afforded him within the school curriculum. He will put his face in the water and has some rudimentary swimming skills. Bob is not comfortable in deep water and needs constant assistance and supervision. Like his twin brother, his anxiety level was quite elevated the first day of lessons as he paced around the pool deck for nearly half an hour before entering the water. He displays fixation with objects and has specific profound sensory issues. He also struggles in the classroom with maintaining focus and needs to be re-directed frequently.

Bill

Bill is a 13 year old sixth grade boy. He is fully included into a traditional school program. He has an associate with him during the school day. He is verbal with prompting and has had several swimming lesson experiences since he was two years old. In the past, Bill had been involved with traditional group swimming lessons along with private lessons. He floats on his back, submerges his face in the water, but has limited loco-motor swimming skills. He follows direction but does have some maladaptive, repetitive behaviors. Bill also enjoys the water but can and often does get distracted easily. The mother noted that he often times is reluctant to try new skills and activities, due to new surroundings, people, and noise levels.

Dan

Dan is a 9 year old boy in 4th grade. Dan is verbal with prompting and is in an inclusive classroom. Dan understands directions, but he, too, has some profound spectrum issues and exhibits certain maladaptive and repetitive behaviors. He needs and has an associate assigned to him at school for all classes. The mother reported that he has always liked the water, but has difficulty with traditional swim lesson programs due to noise and other distractions. They have tried on several occasions the traditional group lessons as well as the private lessons. She also stated that Dan has difficulty trying new skills and techniques and functions better with set routines. He follows prompts from the instructor but often has difficulty staying on task. Dan does not swim any strokes but is very comfortable floating, face up on his back without assistance. He does not like to put his face in the water or any form of rhythmic breathing. The mother reported that she also wanted more skills and experience for Dan as a safety measure.

Paul

Paul is 12 years old and has limited verbal capabilities. He is home-schooled and the only participant not in a public school setting. Paul rarely makes eye contact and often experiences difficulty with following directions. He tends to follow verbal prompts initially in the lesson, but is easily distracted if others are in or around the pool area. Paul has some difficulty if a routine is not followed and if there is additional noise within the area. He will submerge his face under the water and float on his back with assistance, but has difficulty with any other strokes or skills. Paul displays some typical, repetitive behaviors and sometimes gets very upset quite easily. His mother indicated that he enjoys

being in the water, but has not had any formal swimming lessons experience and his skill set is below average for a child his age.

Andy

Andy is a 4 year old that attends an exceptional person's pre-school program in the community. He is verbal and shares an associate teacher at his school. Andy has had little to no previous swimming lesson experience. He has limited skills and experience in the water and struggles with putting his face in the water. Andy displays some typical repetitive behaviors and thrives when a predictable and set routine is established and followed. He is compliant with all instructions from his instructors. His mother also stated that she wanted him to acquire more skills and experience with aquatic activities.

Profile of Instructors

The investigator's initial contact with instructors was initiated by the investigator through a university sanctioned Physical Education Club. The Physical Education Club is an undergraduate professional organization that, among other responsibilities, volunteers for local projects and special needs schools. Criterion sampling was used for the selection process. After a brief description of the study, club members were asked if they would have any interest in assisting with the study by the investigator. Final selection of interested potential instructors was based on four criteria: (1) currently certified in American Red Cross-Lifeguarding, (2) currently certified in American Red Cross-Water Safety Instructor, (3) a Physical Education major with a minor in special education, (4) possess previous experience working with special needs children. All instructors volunteered their time for the study.

After the selection of the instructors, and prior to enrollment in the study, the researcher arranged a brief meeting with each swimming instructor to confirm that they could commit to the duration of the study and to attend all lessons as well as the training workshop. The researcher also collected background information on instructors' prior experiences teaching children with autism, swimming qualifications, and experience teaching swimming lessons. The researcher reviewed the study design and provided a brief overview of what to expect during each phase of the study. The instructors were then allowed to conduct all aspects of the swimming lessons for each child without intervention from the investigator.

Kathy

Kathy is a senior physical education major with a minor in special education. She has certifications in American Red Cross Lifesaving and Water Safety Instructor. Kathy has had extensive experience working with children with special needs throughout the community as well as at the university. She is past-president of the university's Physical Education Club and is a regular volunteer for many of the Special Olympic activities held on campus. She has taught swimming lessons for three years.

Karen

Karen is a junior physical education major with a minor in special education. She too has certifications in American Red Cross Lifesaving and Water Safety Instructor. Karen has worked with Special Olympics projects on and off campus for the past two years and has volunteered at the area's special needs school. Karen has taught traditional

swimming lessons for four years and has also taught private swimming lessons to several special needs students in the area.

Physical, Psychological and Social Benefits of the Lessons

One of the first research question that was asked of the parents of the participants was: "What physical, psychological and social benefits affecting overall health status of the students/participant, if any, were noticed?" According to the interviews with the parents, there appeared to be nominal benefits achieved with the participants' physical and psychological improvements throughout the lessons. However, several parents did note that they felt their child's self-esteem and self-confidence had improved due to the lesson program. The use of the parent's own words are offered to gain a sense of their child's experiences with Table 2 and Table 3 outlining some of the pertinent quotes and themes from the interviews. Along with the listed items in Table 2 and Table 3, Bill's mother stated that Bill's therapist has noted that he is making better eye-contact and is displaying an overall more positive attitude due to the lessons.

Because the instructors and observer were unable to asses if the participants displayed any physical, psychological or social benefits on a week-to-week basis from the learn-to-swim lesson program, this question was omitted from the interview questions.

Table 2

Parent Quotes Verifying the Physical, Psychological and Social Benefits

Reoccurring Theme	Responses
Self-Esteem	I know it has helped their self-esteem just being able to do um, accomplish things in the water. (Parent of Don and Bob)
	…even his counselor, he's seeing a therapist, had commented just this past week that he thinks some of the successes he's had in this and also like the play that he was involved in have really, really helped him as far as self-esteem. (Parent of Bill)
Self-Confidence	It provides a great physical outlet and a positive social activity where the children can be as interactive as they want. I think it is increasing his confidence in the water and with being with other kids. (Parent of Paul)
	Maybe helping his self-confidence, but otherwise, not too much. (Parent of Dan)

The literature suggested that water activities provide satisfying experiences that lead to increased self-esteem and socialization, and opportunities for leisure that can be shared with family and friends (Bundy, Lane & Murray, 2002). Self-esteem is a person's inner appreciation or assessment of him or herself (Alexander, 2001). Due to the characteristics and limitations of this condition, development of a sense of social worth can be especially difficult for children with ASD.

According to Pan and Frey (2006), physical activity can lead to positive self-esteem, behavior, happiness, and intellectual and social outcomes in youth. However,

they also noted, the only related research in youth with ASD has been the use of exercise to decrease self-stimulating or maladaptive behavior, although no long-term studies on this topic exist and parents did not report any decrease in maladaptive behavior. Within this line of questioning for the research and the responses of parents, most stated that their child's physical, emotional, and social experiences as associated with the lesson program, were somewhat limited or not even detectable.

Increased Time/Duration Benefits

The American Red Cross (2009) recommends modifying the swimming lesson program to accommodate participants' needs. They also recommend adjusting the time for those with special needs. According to Lepore et al., (2007), time refers to the duration of the session with the maximum time spent in the water determined by the participant's current physical condition.

This study increased the time for the lessons from the traditional 30 or 45 minute lesson timeframe to 60 minutes in length. Below, Table 3 clarifies the major themes found within parents' words from their responses.

Table 3

Quotes Verifying the Extended Time/Duration of Lessons

Reoccurring Theme	Responses
Comfortable/Comfort Level	Extra time is a must for anyone with autism. Sometimes with my boys it takes 15 minutes just to be comfortable in the surroundings (Parent of Don and Bob) The one-on-one instruction and the increased length of time is helping improve his comfort level and, I would say, increased the rate of his success with new tasks. (Parent of Bill) I noticed all the kids seemed to relax and get more comfortable about 20 minutes into the lesson and this is something I've noticed in my counseling work with kids on the autism spectrum, cause they tend to have a longer warm up time than other kids might. So when the sessions only last 30 minutes or so, they seem to end just when child is getting comfortable. I think the extra-long time is very beneficial. (Parent of Paul) Well it just takes him awhile to get in the water. He likes to get in the hot tub; then, when he is ready he gets going in the big pool. So, it helps him with his comfort level. (Parent of Dan)
Acclimation/Transition	I would say, I mean that's a h-u-g-e component of why this has been so successful because there has been enough time to get the kids kind of acclimated and warmed up and ready to learn without things just being like boom, boom, boom and then we rush out of here and have to rush home. The boys had more time to get adjusted and work on everything. (Parent of Don and Bob)

(Table continues)

Reoccurring Theme	Responses
	I think there is a lot, kids who have autism have a lot longer transition phases, so, you stick them in the water, there's a part of, a period of time that they're just getting acclimated mentally, emotionally, and everything, before they can really start to do anything, so I think that's a really great thing to have a longer period of time because some of that, even if you're not aware of it, they are mentally acclimating. (Parent of Bill)
	You know with kids on the spectrum, they sometimes need more time to adjust. I know it's nice for him because he doesn't have to be rushed into the water from one thing to another. (Parent of Paul)

Comfort was a major emphasis theme for parents and instructors throughout the entire interviewing process. Comfort or comfortable, was mentioned 40 times throughout the interviews and is an essential portion of learn to swim programs according to the American Red Cross (2009). According to Block, Block and Halliday (2006), movement and discipline in the aquatic environment is determined through the degree of comfort a child displays. Furthermore, swimming lessons can help children become more comfortable in and around the water which is essential to their overall safety (ARC, 2009).

In an aquatic environment some people with autism may need significantly more time to adjust to being in and around water due to the children reacting fearfully to new

situations (ARC, 2009). Children with an ASD may need to ease into the pool and get used to the water before they are able to enjoy the experience enough for concrete lessons to start (Ball, 2010). The extra time was noted by several parents as a needed "adjustment period" or "transition time" for their child. One parent has noticed that in her line of work as a special needs counselor, a longer "warm up period" is beneficial and often needed for children with ASD. Analysis of the keywords re-enforces the significance of comfort as an aspect of the felt experience of movement in the aquatic environment. Movement in the aquatic environment promotes a sense of comfort with their bodies for those with any special needs (Cocchio, 2009).

Table 4 illustrates and clarifies the extended time factor and the reoccurring themes of the instructor interviews. The themes and instructor responses are listed below:

Table 4

Instructor Quotes Verifying the Extended Time/Duration

Reoccurring Theme	Responses
Relaxed/Not Rushed	With an hour, there is no rush for anything. Students are able to have fun and still learn new skills. Lessons are more relaxed and more geared like for the students. (Instructor Karen) It was pretty cool because it gives us more time to break things down. It helped the boys cause they were not rushed to get in right away and I think it helped them be more relaxed with the things we tried to work with them. (Instructor Karen)

As the instructors noted, allocating the extra time was beneficial for their teaching as well as the learning process for the participants. According to Chickering, Gamson and Poulson (1987), allocating realistic amounts of time means effective learning for students and effective teaching will occur with this being identified as time on task. How one defines time on task expectations for students can establish the basis for higher performance for all (Chickering et al., 1987). Students with ASD often need additional time to complete assignments, or to orient themselves during transitions. Myles et al. (2005) states that children with ASD respond well to teachers who are patient, compassionate, flexible in their teaching styles and understand that students need additional time to match the student's pace. Moreover, it is important to provide extra time or modify requirements and avoid rushing a child with ASD, as time constraints can add to an already stressful day with the student becoming overwhelmed and immobilized (Myles et al., 2005).

The Use of a Floating Mat as a Benefit

Themes running through the conversations of the parents regarding the use of the floating mat were: balance, safe area/safety and comfort/secure. The reoccurring themes from the parent interviews are listed in Table 5 with their responses.

Balance and coordination concerns are notable conditions of children with ASD. Balance was an issue that was mentioned eight times during the interviews with parents and instructors. Because of proprioception and vestibular problems, a child with autism may have problems with balance according to the National Center on Health, Physical

Activity and Disabilities (2011). Balance is the ability to stabilize the body (Lepore et al., 2007). Incorporating balance and coordination activities into any physical activity program is important for individuals with autism because it utilizes the vestibular system. It is important to teach all swimming strokes and utilize a floating mat for balance issues for children with autism (Child's Play, 2002). Also, physical activity can be instrumental for a person with autism to assist with his or her sensory integration, coordination, balance and muscle tone (Yilmaz et al., 2004).

Table 5

Quotes Verifying the Floating Mat/Platform

Reoccurring Theme	Responses
Balance	I think it gives him a way to work on floating with his face underwater. It also is a great way for him to work on his balancing and coordination. That's something that has always been an issue for him. (Parent of Paul)
	I think first they thought it was kind of fun, just to stand and balance on it, but also it was a way for them to kind of practice doing some of the things, like lying on it and floating before actually trying it, and practicing either kicking or doing something with their arms, and it was kind of a safe place to be in the water. (Parent of Don and Bob)
	Yes, he really likes moving around the water this way and it does seem to help work on his balance. (Parent of Dan)
Safe Area/Safety	I can see how they could can get on it and do some kicking or use their arms too. And their comfortable and they like doing it. Just being able to have a new safe area to hold on to. (Parent of Paul)

(Table continues)

Reoccurring Theme	Responses
	I think improving balance is very important. Being comfortable in the water in various settings or experiences is extremely important for safety reasons. (Parent of Bill)
	It is a safe spot and one that they think is fun. (Parent of Don and Bob)
Comfort/Secure	Yes, I do feel that the floating mat was helpful. I think that helped him to feel comfortable enough to try doing a back float. (Parent of Andy)
	I think that was really a good transition for him to use the mat to get comfortable on that, and I think it was novel and new and he hadn't ever been able to do that in a pool before so I think that he really liked that um, experience. (Parent of Dan)

Parents also noted that the use of the floating mat as a safe area with the floating station making their child feel confident and comfortable. Establishing a safe, floating station was mentioned eight times throughout the interview question. The floating mats or platforms allowed children to feel secure and comfortable even in water that may have been over the child's head in relative safety anywhere in the pool, according to (NCHPAD, 2011). Children who practice in a safe pool setting will develop more swimming confidence and self-assurance in a secure and comfortable environment (Ball, 2010).

The prevalent theme from the instructor interviews was demonstration and comfort. Table 6 illustrates the predominant theme for the instructors while utilizing the floating mat in their instructional program.

Table 6

Instructor Quotes Verifying the Floating Mat

Reoccurring Theme	Responses
Demonstration/Comfort	And I thought that was the coolest thing I've seen, especially even just floating for the younger kids, such as like the front and back floats, just getting comfortable of just floating on a mat and then float with your body with support. (Instructor Karen) I think the floating mat is an amazing part of the swim lessons. The mat is like a great way to demonstrate a skill to the students without like getting out of the water. Like the kids are able to practice back floats and balance on it and float comfortably. It's like a safe spot for the students where they are able to be on the flat ground while still in the water. (Instructor Karen) Yes the mat is very helpful. For some kids, it gives a good way to ease into the water. We use the mat to learn new skills such as floating, kicking, and arm movement. (Instructor Kathy)

The mat was utilized as a teaching resource or teaching aid to assist the instructors with the lesson program. Persons with autism are often visual learners and greatly benefit from visual instruction using visual demonstrations, individual picture schedules, and

electronic work systems (NCHPAD, 2011). The instructors noted that demonstrating on the floating mat was helpful for the participants as it allowed for visual support to their lesson. Demonstrations are valuable tools for teaching skill techniques (Aquatic Exercise Association, 2011). A good demonstration permits a student to learn by observation in a step-by-step process, so that the learner will eventually be able to complete the same task independently and proficiently (Eley & Norton, 2004).

The Use of Wetsuits as a Benefit

The use of the wetsuits for warmth was mentioned 21 times during the interviews. Due to the extended time of the lesson program, and the temperature of the pool water, wetsuits where introduced into this research to help maintain body temperature. As noted in Chapter II, a neoprene wetsuit reduces the amount of heat loss, allowing the wearer to maintain their core body temperature and stay in the water comfortably for longer periods of time (PADI, 2011). According to the American Red Cross (2009), water temperature during swimming lessons is extremely important as students that become chilled will not achieve the intended progress, nor will the lessons be a positive experience. Table 7 illustrates the two reoccurring themes of warmth and comfort from the parent interviews.

It is recommended that children and those with special needs enrolled in learn-to-swim programs may need warmer water for comfort and wellbeing (Aquatic Exercise Association, 2011). The ability to change water temperatures in a swimming pool is not an easy, quick or inexpensive process (American Red Cross Scientific Advisory Council, 2012). Therefore, with the additional time in the water, the wetsuits kept the participants warmer and more comfortable during the swimming lessons.

Table 7

Quotes Verifying the Implementation of Wet Suits

Reoccurring Theme	Responses
Warm/Warmer/Warmth	Being able to remain warm removes the temperature variable out of the equation and improves the ability to concentrate on learning and interacting for children on the spectrum. (Parent of Bill) He has told me when we leave that he likes wearing it because he doesn't get cold when he's in the water, um, especially on days when he comes and it's dry already, then he's really excited… (Parent of Andy) They like the way they make them feel, they like the buoyancy, and it keeps them much warmer. (Parent of Don and Bob)
Buoyancy/Comfort	Also, I think the buoyancy of it certainly is great and probably made him more comfortable to try other things, like the uh, the mask, because he wasn't going to just sink to the bottom… Parent of Bill) I think that's one reason why he's so comfortable in the water. He is warm and is able to float a lot easier." "He kind of just looks like he's more comfortable with it on too. (Parent of Paul) Um, I did notice that when he was wearing the wet suit that didn't have the neck piece, he seemed fine to just hang out and float in it and it didn't bother him. He was just way relaxed and comfortable. (Parent of Dan)

Buoyancy was a theme that was mentioned 12 times by the parents as a benefit for their child. The tendency of the body to float in water was aided by the neoprene wetsuit material which has bubbles entrapped within the lining (Long, 1987). As noted by the parents, this added buoyancy allowed their child to be more comfortable and feel more secure in the water.

The emerging theme stated as a result of the instructor interviews was warmth and buoyancy of the participants. The instructors also revealed that this was a benefit to their instruction. Table 8 clarifies this reoccurring theme as stated by the two instructors and the benefits of the wetsuits to their teaching

Many people can become cold quite quickly in relatively warm water and can become nervous and tense, making learning difficult (ARC, 2009). Additionally the Red Cross stated that if children or persons with disabilities become cold, experience discomfort or otherwise become stressed, activity should be stopped for the day (2009). Because the instructors were in the water for four hours, it was essential to allow the instructors to wear the wetsuit garments. It is also believed that having the instructors and participants in the same garments, allowed for more conformity.

Table 8

Instructor Quotes Verifying the Implementation of Wetsuits

Reoccurring Theme	Responses
Warmth/Buoyancy	The wet suits really help the kids. Like it allows the kids to stay warm and float. Like for example, Don gets very cold if he is in the water for too long. The wet suit allows him to stay warm, which leads him to stay in the pool longer and stay comfortable. (Instructor Karen)
	It keeps them warm which makes them want to stay in the water. It gives them more buoyancy and makes it easier to float and move cause we can hold on to them better. (Instructor Kathy)
	I think it was very helpful for everyone because a lot of times everyone just gets cold and doesn't want to do the things that we ask, or if the instructors get cold so they don't feel as enthusiastic, but since they have those wet suits, that really helps us um do a better job, and the kids obviously aren't cold as much, and I think also, another benefit is they um help them float, and so that helps too with swimming and floating and everything, so I thought that was pretty cool. (Instructor Karen)

Observational Data

According to Merriam (2009), observation is a major means of collecting data and allows for a direct account of the situation under study. Used in combination with interviews and document analysis, observation provides a thorough interpretation of the subject being researched (2009). Observational data was achieved from the researcher's

written field notes during the swimming lesson program. Field notes include descriptive accounts of settings, individuals, events, and dialogue, as well as the researcher's reflections (Bogdan & Biklen, 1982). Both participants and instructors were observed by the investigator and any comments were then noted for each individual and transcribed immediately. The data was then read and analyzed on multiple occasions looking for any identifiable themes. A number of supporting themes emerged from the analysis of the researcher's field notes.

The information within the outlined themes provided a picture of the major components that related to the level of success for the participants. The observer noted that relaxing was mentioned 20 times. This was followed by comfort/comfortable fifteen times. Also noted fifteen times was demonstration. Next was adjusting, which was referred to 13 times and finally, transition was used 12 times throughout the observational data. The reoccurring themes from the observational data are listed below:

Relaxed/Relaxing

According to Montgomery and Chambers (2009), being relaxed in the water is an essential skill for learning to swim. Relaxation of the muscles is perhaps the one of the most critical skills for all children while learning to swim. The observation field notes indicated that students were not only relaxed but also calm, not rigid in the water and free of tension. Quite often, inexperienced swimmers are afraid, uneasy and apprehensive about being in the water. For those individuals, relaxation is the key to adjusting and helping people relax (ARC, 2009). The observer noted that the extra time was beneficial for the students and instructors as they did not seem rushed during the lesson. Providing

more time and the proper learning environment can allow for a more calming approach to the lessons and the children with ASD to be more relaxed and comfortable (Child's Play, 2002). The observer did emphasize that being relaxed in the water could be due to the wetsuit buoyancy along with the warmth provided by the garment.

Comfort/Comfortable

Comfort is another theme that was predominant in the observational data. As the observer noted, comfort and relaxation worked together as an essential technique for learning to swim. Swimming instructors often refer to comfort level as being a main focus or factor in the learning process for students learning to swim (Kuhfoss, & Lucas, 2010). A child who becomes comfortable in the water can be encouraged to explore additional skills, techniques, aquatic programs and activities, thus, making swimming an opening into the larger world of aquatics (ARC, 2009). Being able to master one skill and move on to other skills builds self-confidence and a feeling of security. It is important to find ways to create a comfortable environment for children with ASD and allow the students to participate meaningfully in the lessons (Myles et al., 2005). When students reach this comfort level in the water, they will be ready to learn how to perform other essential water skills (U.S. Navy, 2007). Comfort was noted by the observer as an aspect that allowed the participants to feel more secure and relaxed while in the water. It was also noted that the overall comfort could be due to the less stressful setting of the pool environment.

Demonstration

Demonstration was noted fifteen times by the observer. Demonstrating is the process of teaching through examples According to Eley and Norton (2004), when using demonstration for students, the teacher performs the tasks in a step-by-step manner so that the learner will eventually be able to complete the same task independently. After performing the demonstration, the teacher's role becomes supporting students in their attempts, providing guidance and feedback, and offering suggestions for alternative approaches. Demonstration is an effective teaching approach for learn-to-swim programs (ARC, 2009) when performed correctly and is clearly visible to the students.

Adjustment/Adjusting

Adjusting or adjustment was another emerging theme that was observed. According to the United States Navy (2007), learning to adjust to the water takes repeated exposure, extensive practice, and effective instruction. The simplest tasks in the water such as standing, moving and floating require the swimmer to make adjustments due to the center of buoyancy being located in the chest region (U.S. Navy, 2007). The Navy found that when teaching, the instructor must be patient with their instruction, as considerable time might be needed for the student to adjust and become comfortable with these skills within the lesson. Before moving to more complex skills, students must be able to perform adjustment skills comfortably, without hesitation or fear in a relaxed manner (ARC, 2009). It was observed that Paul and Dan needed additional time at the beginning of the lessons, to adjust to their new surroundings. For the instructors,

adjusting the lesson was important due to the varying needs and abilities of each child (Child's Play, 2002).

Within the observations, it was observed that having students adjust their body positioning on the underwater ring retrieval was due to the increased buoyancy of the wetsuits. All students were able to adjust properly to retrieve the rings after several attempts.

Transition

Simply put, transitions are periods of time when teachers direct students to end one task or activity and begin another (Arlin, 1979). Transitions are often times difficult for individuals with ASD. Children with ASD usually rely on set routines in order to better navigate social situations, and a sudden schedule changes can be very disruptive and discomforting. The most successful transitions between lessons or activities are rapid ones that have clear ends and beginnings (Arlin, 1979). Additionally, the key to successful transitions is for teachers to use a variety of structured approaches (Smith, 1985). Therefore, preliminary and lead up skill activities can reduce the stress of transitions, resulting in confidence and comfort during these sometimes difficult phases (Autism Society of America, 2009). The observer acknowledged that the instructors were able to use transitions from one skill to another throughout the lessons. In one of the lessons, it was recognized that the transition from the hot tub to the pool was very effective for Dan due to the use of the floating mat. Also, having Andy perform a back float on the mat, then having the instructor slide him off the mat and into the water was another effective example of transitioning.

Summary

This chapter presented the results of the data collected. The intent of this study was to identify strategies and techniques within learn-to-swim programs that may benefit children with ASD. The methods and procedures described outline how participants and instructors were selected along with how the data was gathered and analyzed. A print transcription of each interview was provided to each interviewee for editing and verification. The prominent themes from the interviews of parents and instructors were revealed. Along with this, the observational data from the researcher was analyzed and the emerging themes were outlined to help guide the reader.

This study contributes to the existing literature in two important ways. First, this study examined new strategies and teaching techniques that are aimed to support children with ASD in swimming lessons. Unlike previous research, the instructors in this study were existing American Red Cross Water Safety Instructors, not graduate students or research assistants (e.g., Pan & Frey, 2006; Pan, 2009). In addition, unlike previous studies, the learn-to-swim lessons did not include the use of specialized teaching techniques that required additional training (Yilmaz et al., 2004), nor did it include complex or expensive teaching equipment that might have been challenging to acquire or implement. Rather, this study was based on previous literature, grounded in readily available teaching tools, and was easily implemented. Indications from the parents, instructors and the observer believed the strategies and techniques were beneficial for the children.

CHAPTER V

DISCUSSION

The purpose of this study was to identify and examine strategies and techniques within learn-to-swim programs that may prove beneficial to children with ASD. The qualitative design provided the researcher with a greater appreciation of the particular experiences of individuals with ASD. Standardized, open-ended personal interviews were conducted with parents and instructors along with observational data during most swimming lessons for this study. Themes were revealed within the transcriptions and field notes.

This study was framed around the four research questions with the findings presented in Chapter IV. The implications of the data, relative to the research questions of the study, are discussed in this chapter. This chapter provides an overview of the study and is divided into six sections. The first section contains a brief summary of the general findings for each of the themes identified in Chapter IV. The second section discusses the themes that where apparent within the interviews and observations. The third section describes possible applications of the research findings. The fourth section provides a discussion of the study's strengths and limitations. The final section offers suggestions and conclusions for improving research procedures, along with recommendations for future research.

Summary of Findings

Several topics or themes emerged from the detailed data analyses of verbatim transcriptions of the semi-structured interviews with the six parents and two instructors. The nine themes identified include (1) comfort/comfortable; (2) relaxed/not rushed; (3) balance; (4) demonstration; (5) warm/warmth; (6) safe/secure area; (7) acclimation/transition; (8) buoyancy; and (9) self-esteem/self-confidence. The implications of the identified themes are a direct result of the research questions that helped guide this study. This study can be deemed successful as measured by the parent, instructor and observer perceptions of the participants' experiences in this study.

Implication of Themes

Physical, Psychological and Social Benefits

The first research question was: What physical, emotional, and social health benefits may have been achieved? Given the parents perspective, results showed marginal benefits. Three of the six parents' noted some benefit, while three could not identify any identifiable changes. Results of the study indicate *self-esteem* and *self-confidence* were the major outcomes from this research question. Alexander (2001) stated that due to the characteristics and limitations, developing a sense of social worth can be especially difficult for children with ASD. Analysis of the study data showed that these marginal benefits may be a result of the once-per-week lessons instead of a more frequent lesson programming. Another issue may be the fact that most lessons occurred with one-on-one instruction in a closed facility with limited distractions and interaction with other children. Furthermore, due to the small sample size, and the limited number of

instructors, this research project attempted to restrict the possibility of interaction from other participants. As stated in the methodology chapter, this was incorporated to alleviate or minimize any sensory issues. It also must be noted that the parents were recruited from a local support group associated with a nearby church. Due to this, parents and participants were most likely friends and socially engaged prior to the research. A more random sampling should apply to further research. The observer did not perceive any benefits from the weekly lessons. This could be due to the time between lessons (once per week) and the one-on-one instruction with limited access from other participants during each lesson. Further research may include continuing the individualized instruction, but allow more students to participate at the same time during the program.

Extended Time/Duration Benefits

The second research question was: What benefits resulted from the increase in the individual lesson duration, if any, will be reported by the observer, the instructor and parents? From the statements by the parents, instructors and observer, the extended lesson time was a major benefit to children with ASD. According to the parents, the extended time allowed for a more *relaxed* and *comfortable* atmosphere for the children to learn. The instructors stated that the increased timeframe allowed them to feel "not as rushed" with their teaching. Parents noted that the extended time provided their child with a "more relaxed" and "less stressful" atmosphere than traditional lessons. The observer noted that having extra time allowed the participants a proper *adjustment* and *transition* time to the new surroundings and pool environment. Transitions for children with ASD

are often difficult and challenging. The review of related literature indicated that when teaching students with special needs, modifications are required in comparison to traditional lessons as students should not be hurried or slowed down by the rest of the class (JCCSF, 2010). All parents stated that having fewer distractions and diversions was a significant advantage. Having the pool facility limited to just the research group, along with the one-on-one instruction, was beneficial and helped alleviate some maladaptive behaviors and sensory issues. Having extra time was also beneficial for those participants with sensory issues as it resulted in a less restricted time schedule for task completion. According to Ball (2010), it is recommended to schedule lessons during off times, when less people are present, or if needed, teach private lessons while making every attempt to minimize distractions for the child with ASD. For this study, minimizing distractions was a significant aspect to the lessons according to the results.

Floating Mat Benefits

The third research question was: What benefits were realized by the use of a floating mat/platform? Results indicated that the use of the floating platform was very beneficial from the parents', teachers' and the observer's perspectives. *Balance* was an unexpected result or outcome that emerged from the use of the floating mat. As noted in the previous chapter, balance was mentioned eight times. The participants climbed on the floating mat and would attempt to stand on the mat, usually at the beginning of the lessons. One parent stated that the mat was an excellent tool for "balance, proprioception and strength" while the children were standing. The literature suggested that, although sensory processing abnormalities are not universal or specific to autism, the prevalence of

such abnormalities in autism is relatively high (Dawson & Watling, 2000). This unforeseen benefit could allow the participants to inadvertently improve their strength, balance and ultimately their vestibular system.

Another unexpected outcome of the floating mat as a teaching station, according to the parents, was that it was a *safe area* for their child to work on skills and to encourage play. Several parents indicated they felt their child saw the mat as a "safe spot" and one that provided a "safety area." This safe area can be located in water that is just over their heads or in shallower water. As three parents reported, the mat was beneficial as a safe, secure and comfortable area for their child to work on skills and technique in varying depths of the pool.

The instructors in this study felt that the mat was an extremely beneficial teaching tool as it provided an area for the instructors to demonstrate in the water so the participants could see clearly while providing a *safe* and *secure* station. Learning is only effective if students receive proper supervision, reinforcement of correct procedures and immediate feedback on how to correct errors. According to the American Red Cross (2009), proper demonstrations must be performed slowly, and model appropriate movements, and clearly visible to all students. According to the Navy (2007), demonstrations of water skills must be accurate and thorough to provide a precise role model for students to imitate.

Finally, the observer noted that the floating mat allowed participants and instructors a *new space* for instruction. The mat allowed instructors to physically move

the participants' arms and legs through the proper movements of a skill, while permitting the child to be in a relaxed, secure and comfortable area while being on a stable platform.

Wetsuit Benefits

The final research question was: What benefits were noted by the increase in lesson duration? Due to the extra time allocated for the lessons, the unpredictability of the water temperature (as well as air temperature) and the psychological benefits of staying warm during the sessions, wetsuits were introduced as a teaching tool. Results indicated that it was extremely beneficial for both instructors as well as the participants.

Table 9 illustrates the frequency and rate of occurrence of the themes from the interviews and observations.

Table 9

Frequency of Themes

Frequency of Themes	Parents	Instructors	Observer	Total
Comfort/Comfortable	39	8	16	63
Relaxed/Not Rushed	5	5	20	30
Demonstration	9	4	15	28
Buoyancy	5	5	12	22
Warmth/Warm	11	5	5	21
Acclimation/Transition	5	2	13	20
Balance	6	2	7	15
Safe Area/Secure	6	1	3	10
Self-Esteem/Self-Confidence	7	0	1	8

According to the literature, keeping *warm* and *comfortable* in the water is essential for proper learning to occur. Parents in this study commented on the added warmth that the wetsuits provided throughout the extended lessons. The results indicate that the warming factor along with the additional buoyancy of the wetsuits permitted the participants a sense of comfort and added security which allowed them to become more relaxed during the lessons. Moreover, as the data indicated, the instructors felt that the wetsuits allowed for a more comfortable teaching experience while allowing them to stay in the pool for extended periods of time in relative comfort. Data analyses revealed an unexpected result that emerged from the use of the wetsuits. The added buoyancy for the participants proved to be beneficial as a safety aspect because the instructors were able to hold on to the children more effectively in the water. Holding and support positions are an effective teaching method for instructors teaching skills in the water (ARC, 2009). Because some students are difficult to hold, the wetsuits permitted the instructors to have a more secure grasp of the child while using holds and supports in the water.

Strengths and Limitations

This research examined the strategies and techniques that were helpful when working with children with ASD in a learn-to-swim program. There were several strengths associated with this study along with the knowledge that was gained from this experience. The most striking feature presented by the data is the learn-to-swim programs' ability to provide assistance in some measure to all participants, regardless of their age or their comparative location on the ASD spectrum. The results indicated no

negative comments being reported by the parents or instructors throughout the lessons or interviews. One parent stated, the lessons were an “extremely positive experience” while another parent stated their child “enjoyed the lessons.” All parents indicated that their child was always excited and happy to attend each lesson. Parents also indicated that their child would be ready for lessons an hour or two before their start time.

Another overall strength of this study is that it relied on interviews from the parents. Using a semi-structured interview process is a positive aspect of this research because the parents could ask clarifying questions and could emphasize certain aspects of their child’s experiences that they felt were the most important. The data was formed from parents’ and instructors’ words and stories, which gave a stronger voice to the issues that affect children who have autism. A positive feature of this research is that the instructors did not go through additional training (Rogers, 2010) to implement this project, only their basic American Red Cross Water Safety Instructor certification. Finally, the instructors were able to utilize readily available equipment for their teaching, which is available at most pool facilities or would require minimal to no financial investment. The implementation of these strategies and techniques would allow most facilities to readily adapt this into their current programming and operations. Also, existing programs can implement these same strategies and techniques into their traditional lessons for non-disabled children to assist with all learn-to-swim programs.

A limitation of this study was the sample size of six (6) participants, which could be construed as small. Therefore, this study cannot be considered a broad based sample for that reason. Another limitation of this study would be the lack of female participants.

Even though ASD is more prominent in males, having female participants would have allowed for a broader analysis for this research. Finally, having a more expansive age range could have resulted in varying results to the data.

Conclusions

The impact of any disability affects individuals in a variety of ways, but persons with disabilities share many of the same challenges to ideal health and wellness. At this time, there is no cure and no single accepted treatment for ASD. Affected children have both increased health concerns and are more vulnerable to develop secondary conditions due to their inactivity. As the number of children diagnosed with ASD continues to rise with no identifiable cure, the importance of addressing the needs of this population is obvious. With an increase in drowning and wandering/elopement for children with ASD, the lack of research, and the use of traditional learn-to-swim lessons with this population, this study provides options for future studies.

Often parents of children with ASD have difficulty finding appropriate swimming lessons for their child as the environment and lessons are not adapted for children with ASD. Several parents noted that they would like their child to participate in traditional lessons but were dismayed by their previous attempts and the limited capacity of the program to provide instructional support for their child. This study allowed for those variances, adapted to each individual, while still teaching swimming techniques in a positive environment.

This study resulted in the following observations:

1. The extended time and one-on-one instruction was extremely beneficial for the participants and instructors as it allowed for a more relaxed and comforting learning environment according to the data.
2. The data revealed that the parents found the implementation of a controlled and limited environment was particularly beneficial for the participants as it resulted in reduced sensory issues.
3. According to the data in this study, the use of wet suits was highly beneficial for both participants and instructors as a comfort/warmth factor, a teaching tool, and a safety factor.
4. The results indicate that the use of a floating mat/platform was very beneficial for both the participants and instructors as a teaching station, safety area, and a balance/sensory processing tool.

Because of the wide variances in spectrum issues, no two children are alike, and this can make it challenging during the teaching process. This research suggests that the implementation of these strategies and techniques may be an effective way to teach learn-to-swim skills to individuals with ASD. The results of this research study add to the literature on different aquatic programs suggesting new methods and techniques to teach swimming lessons more effectively to individuals with ASD, and to autism research in general. Combining multiple perspectives and multiple procedures revealed that these swimming lessons were a positive outlet for these children and also the instructors.

This study was based on previous literature, grounded in readily available teaching tools and methods, and was easily implemented. Results indicated that the

parents, instructors and the observer believed the strategies and techniques were beneficial for the children.

Recommendations

Although this study produced promising results, there are several questions that should be addressed in future research. Based on the results, the following eight recommendations are offered for future research in this area:

1. Include more students per lesson time, while keeping the one-to-one ratio, to possibly assist with the social and psychological aspects.
2. Establish expectations and conduct for participants, with these being distributed to parents before the lessons begin to help reinforce proper behavior and discourage maladaptive behaviors.
3. Increase the frequency of the sessions to two to five times per week.
4. Introduce wetsuits prior to the first lesson by allowing parents to take the wetsuits home to provide their child with the opportunity to adjust to the garment.
5. Develop a plan of research protocol that address' balance and proprioception.
6. Include individuals with varying communication abilities, behavioral characteristics and swimming experience.
7. Future research should investigate the compression factor or "hugging effect" of the wetsuits as a possible means of decreasing sensory integrative dysfunction.
8. A more random sampling of participants should apply to further research.

9. Although previous research has indicated there is no difference in behavior characteristics between genders, it may be useful to include females in future studies.
10. Consideration should be given to establishing a control group of individuals without ASD for comparative purposes.
11. The use of additional strategies and techniques employed in teaching learn-to-swim lessons for children and youth with ASD should be explored in future studies.
12. The age span of individuals might be extended in future studies to include both younger and older youth. For example, the study could include children as young as 2 years of age and youth as old as 19.

There seems to be a strong rationale for future research that examines the potential of providing similar learn-to-swim programs to this population in other settings. The results of this research provided initial support for the effectiveness of these strategies and techniques which delivered effective swimming instruction to children with ASD. In summary, the above questions, themes, and outcomes produced by this study were quite positive but may merit further research.

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APPENDIX A

PARENT INTERVIEW QUESTIONS

Parent Semi-Structured Questions -Swim Group

- Was your child happy/excited to come to the pool for swimming lessons?
- Did your child enjoy the swimming lessons? If yes, how so? If no, why? If applicable can you please explain in more detail?
- Did the instructor provide lots of encouragement and praise to your child? If applicable can you please explain in more detail?
- Did your child learn any new swimming skills that you feel are beneficial? If applicable can you please explain in more detail? If applicable can you please explain in more detail?
- Do you feel the floating mat was helpful in the lesson? If yes, how so? If no, why? If applicable can you please explain in more detail?
- Was the instructor able to get my child's attention and keep him/her involved during the lesson? If applicable can you please explain in more detail?
- Did the extra time allotment in the lesson seem helpful to your child's lesson? If applicable can you please explain in more detail?
- Was this an overall, positive experience for your child? If yes, how so? If no, why? If applicable can you please explain in more detail?
- Do you feel the use of the wet suits was beneficial to your child? If yes, how so? If no, why? If applicable can you please explain in more detail?

- What would you change if anything about the lessons? If applicable can you please explain in more detail?
- Would you recommend this program to others? If yes, how so? If no, why? If applicable can you please explain in more detail?

APPENDIX B

INSTRUCTOR SEMI-STRUCTURED QUESTIONS

- Did the child seem happy/excited when they arrived for the lesson?
- Did you think the child enjoyed the swimming lessons? If yes, how? If no, why? If applicable can you please explain in more detail?
- Did you (the instructor) provide encouragement and praise to the child? If applicable can you please explain in more detail?
- Did the child learn any new swimming skills? If applicable can you please explain in more detail? If applicable can you please explain in more detail?
- Do you feel the floating mat was helpful in the lesson? If yes, how so? If no, why? If applicable can you please explain in more detail?
- Did the extra time allotment for the lesson, seem helpful to the child's lesson? Was the extra time helpful for your teaching? If applicable can you please explain in more detail?
- Did you (the instructor) use visual supports that were helpful to the child? If applicable can you please explain in more detail?
- Do you think this an overall, positive experience for the child? If yes, how so? If no, why? If applicable can you please explain in more detail?
- Do you feel the use of the wet suits was beneficial to the child? If yes, how so? If no, why? If applicable can you please explain in more detail?
- Do you feel the wetsuit was beneficial for you as the instructor? If yes, how so? If no, why? If applicable can you please explain in more detail?

- What would you change if anything about the lessons? If applicable can you please explain in more detail?

APPENDIX C

HUMAN PARTICIPANTS REVIEW

PARENTS: CHILD PERMISSION & PARENTAL PARTICIPATION CONSENT

Project Title: *Aquatic Strategies and Techniques and Their Impact on Children with Autism*

Name of Investigator: Jim Hall

Invitation to Participate: You and your child have been invited to participate in a research project conducted through the University of Northern Iowa. In addition, I am also asking you (as a parent/guardian) to participate as well. The University requires that you give your signed agreement to allow your child to participate in this project and signed consent for you to participate as well. The following information is provided to help you make an informed decision on whether or not to permit your child to participate and allow you to decide if you want to participate.

Nature and Purpose: The purpose of my study is to observe the response of autistic children during and after an alternative type of swimming lesson. By alternative, I mean: 1) the lessons will be private, 2) they will be longer than a standard lesson (60 minutes vs. 30 minutes), and 3) the lessons might include your child wearing a "form fitting" wet suit (tight fitting scuba suit that may provide comfort, slight compression, buoyancy, and warmth). If you agree, I will observe your child during several Sunday morning swimming lessons with you. While you and I are observing your child during the lessons, I will ask you to interpret his/her response (positive, negative, enjoying, resisting, etc.). I will also interview you separately on three occasions to ask you about your child behavior after the lessons and prior to the lessons (happy, resisting, upset, etc.) Interviews will be after the first session, fourth session and the final (6^{th}, 7^{th}, or 8^{th} session) session.

Explanation of Procedures: 1) Swim lessons will be 1 hour in duration on Sunday mornings with a minimum of six lessons (more lessons may be set up if parents/child would want) 2) All lessons will be taught in the Wellness Recreation Center/UNI 3) Audio recording equipment may be used when interviewing 4) All information/data will be kept in researchers secured office 5) Students should be willing to try wet-suits but are not required to use them if not wanted 6) Parents or children can opt out at any time for any reason. With your permission, I will make an audio recording of our interviews to save your time. If you prefer, I can write out your responses as you give time. I will delete all of the recordings as soon as I type out your responses. With your permission, the interviews will be conducted at the pool and take place at the Wellness Recreation Center Pool after the first lesson, fourth lesson and after the final (eighth) lesson. The interview questions will only deal with the lesson program (use of form-fitting wet suits, floating mats as well as time/duration of lesson,

etc…) and how your child is progressing (positive, negative, enjoyment, resisting, etc…). In addition to your permission, I will also ask your child if he/she wants to swim today before each lesson begins. In your presence, I will say something similar to: "Hi Joe – would you like to swim today? Are you ready to get in the pool?" If there is hesitation or resistance, we will wait, reschedule, or discontinue your child's participation depending on your input and the circumstances.

Discomfort and Risks: As with any water activity, there are physical risks to participating in this study that can include physical injury or drowning. However, all sessions will be supervised by experienced and trained lifeguards to minimize the risks to your child. You and/or your child could also perceive these swim lessons as stressful. However, you and your child's participation is voluntary and you can withdraw at any time. We will also be monitoring your child's behavior along with you during the lessons and we will modify or stop the lesson or activity if you indicate, or we see, signs of anxiety.

Benefits: Although your participation may be of no benefit to you or your child, and you will not be compensated, your child might gain: 1) Improved swimming skills from involvement 2) Improved physical health from the lessons3) Improved mental health 4) Comfort and security in the aquatic environment.

Confidentiality: Information obtained during this study which could identify you and your child will be kept strictly confidential. The summarized findings with no identifying information may be published in an academic journal or presented at a scholarly conference. All names will be fictional.

Right to Refuse or Withdraw: You and your child's participation is completely voluntary. He or she is free to withdraw from participation at any time or to choose not to participate at all, and by doing so, your child will not be penalized.

Questions: If you have questions about the study you may contact or desire information in the future regarding your child's participation or the study generally, you can contact Jim Hall at 319-273-2406 or at James.Hall@uni.edu
You can also contact the office of the Human Participants Coordinator, University of Northern Iowa, at 319-273-6148, for answers to questions about rights of research participants and the participant review process.

Agreement:
I am fully aware of the nature and extent of my child's participation in this project as stated above and the possible risks arising from it. I hereby agree to allow my son/daughter to participate in this project. I have received a copy of this form.

_____ _____
(Signature of parent/legal guardian) (Date)

_____
(Printed name of parent/legal guardian)

_____
(Printed name of child participant)

_____ _____
(Signature of investigator) (Date)

_____ _____
(Signature of instructor/advisor) (Date)

APPENDIX D

PARENT CONTACT PROTOCOL (GROUP)

Good morning/afternoon
My name is Jim Hall, a doctoral student at the University of Northern Iowa and Aquatics Instructor in Physical Education at UNI. As part of my studies, I am conducting alternative swimming lessons for autistic children. The purpose of my study is to observe the response of autistic children during and after an alternative type of swimming lesson. By alternative, I mean: 1) the lessons will be private, 2) they will be longer than a standard lesson (60 minutes vs. 30 minutes), and 3) the lessons might include your child wearing a "form fitting" wet suit (tight fitting scuba suit that may provide comfort, slight compression, buoyancy, and warmth). If you agree, I will observe your child during several Sunday morning swimming lessons with you. While you and I are observing your child during the lessons, I will ask you to interpret his/her response (positive, negative, enjoying, resisting, etc.). I will also interview you separately on three occasions to ask you about your child behavior after the lessons and prior to the lessons (happy, resisting, upset, etc.)

Let me first assure you that neither your name or your child's name will not be revealed nor will it be connected to your responses. Nobody will be able to tell that you or your child participated in this study by reading my results. Please know that you have the option to withdraw from the study at any time.
I am willing to meet with you at your convenience, however, we typically would meet immediately after the swim lessons for the interviews if that works for you. I would like to record the interview for my review.
*If you are interested in participating with your child, please provide your name and contact information so that I can reach you.

_____ _____ _____ _____

Name (Printed) Telephone Number Email

**If you are not interested in participating, please leave the form blank. If you prefer, you can write your name below to be certain that I do NOT contact you in the future if someone would happen to suggest your name as a possible participant (I will not have a list of attendees from tonight.).

APPENDIX E

PHONE SCRIPT/NON-ATTENDEES FOR PARENTS

My name is Jim Hall. I am a doctoral student at UNI and currently an Aquatics Instructor at UNI. At your last parent support meeting you indicated that you were interested in having your child participate in my research study private, extended length swim lessons at the UNI Wellness Center. I am calling to ask you if you are still interested or if you have further questions about my study and you and your child's participation.
Are you still interested in having your child participate?

[If no] I understand your reluctance to participate and appreciate your time today. If you change your mind and decide you would like to participate, I can leave my phone number and email with you. Would you like that information?
Thank you and I hope you have a great day.

If "Yes", still interested: "Great". Do you have additional questions" (The PI will answer questions and explain the process of permission/consent from the parents and assent for the child, and where/when to meet.)

Thank you. Before we go any further, let me share my contact information with you so that you can reach me at any time during the study. My office phone number is 319-273-2406 and my cell phone number is 319-266-6595. Email is James.Hall@uni.edu.
[Close with identifying times/dates that will fit their schedule for the first meeting/lesson and obtaining consent.]

APPENDIX F

INITIAL PHONE CALL TO POTENTIAL PARENTS

Good morning/afternoon (Name)
My name is Jim Hall, a doctoral student at the University of Northern Iowa and aquatics instructor in Physical Education at UNI. As part of my studies, I am conducting alternative swimming lessons for autistic children. I received your name from (name or how).

Are you interested in hearing more? (see "no" response below; if "yes", continue)

The purpose of my study is to observe the response of autistic children during and after an alternative type of swimming lesson. By alternative, I mean: 1) the lessons will be private, 2) they will be longer than a standard lesson (60 minutes vs. 30 minutes), and 3) the lessons might include your child wearing a "form fitting" wet suit (tight fitting scuba suit that may provide comfort, slight compression, buoyancy, and warmth). If you agree, I will observe your child during several Sunday morning swimming lessons with you. While you and I are observing your child during the lessons, I will ask you to interpret his/her response (positive, negative, enjoying, resisting, etc.). I will also interview you separately on three occasions to ask you about your child behavior after the lessons and prior to the lessons (happy, resisting, upset, etc.)

You are being contacted as your son/daughter has been medically diagnosed with autism.

Would you be willing, along with your son/daughter to participate in the study?

[If no] I understand your reluctance to participate and appreciate your time today. If you change you mind and decide you would like to participate, I can leave my phone number and email with you. Would you like that information?
[If no] Thank you and I hope you have a great day.

[If yes] Great! Let me first assure you that your name will not be revealed nor will it be connected to your responses. Nobody will be able to tell that you participated in this study by reading my results. Please know that you have the option to withdraw from the study at any time. My contact information is 319-273-2406 or 319-266-6595. Email is James.Hall@uni.edu

I am willing to meet with you at your convenience, however, we typically would meet immediately after the swim lessons if that works for you. I would like to record the interview for my review. Would you be comfortable with that? If not, I'm OK, but will ask your patience as I take notes.

Thank you.
Good bye

APPENDIX G

DSM HISTORY

History and Criteria of Autism with the Diagnostics and Statistics Manual of Mental Disorders-DSM

The Diagnostics and Statistics Manual of Mental Disorders (DSM) is the standard by which autism spectrum disorders are diagnosed within the United States. As of the most recent release of the DSM, the DSM-IV, there are five types of autism spectrum disorders specifically identified. This outline of autism in the DSM is useful in understanding the increased diagnostic rates of today.

DSM-I

The DSM-I was originally released in 1952. Although autism was recognized as a unique condition as early as 1943, it was not included in the DSM. Instead, children who exhibited autistic-like symptoms were diagnosed under the schizophrenic reaction, childhood type label (American Psychiatric Association, 1952).

DSM-II

The second release of the Diagnostics and Statistics Manual of Mental Disorders came in 1968. As with the first release, autism was not included as a separate diagnostic category. Continuing to be labeled as childhood schizophrenic, with some of the behaviors fitting the criteria for diagnosis being “autistic, atypical, and withdrawn behavior” (American Psychiatric Association, 1968, p. 35).

DSM-III

In 1980, the DSM-III was released and autism is included as a distinct diagnostic category. However, ‘infantile autism’ was designated as the only form and solely 6 characteristics were listed, with individuals needing to possess each feature to be labeled autistic (American Psychiatric Association, 1980).

DSM-IV

With the release of the 1994 DSM-IV, 16 symptoms were now listed with only six needing to be exhibited in order to be diagnosed with autism. Two of the six symptoms must be based on impairment in social interaction and communication, the second based on restricted and repetitive behavior (American Psychiatric Association, 1994).

DSM-V

The DSM-5 is the first major revision to the manual in nearly twenty years. This latest version, which was published in May 2013, eliminates many familiar autism spectrum diagnoses. Under the DSM-5 criteria, individuals with ASD must show symptoms from early childhood, even if those symptoms are not recognized until later. This criteria change encourages earlier diagnosis of ASD but also allows people whose symptoms may not be fully recognized until social demands exceed their capacity to receive the diagnosis. Also, Asperger's syndrome, pervasive developmental disorder, not otherwise specified and childhood disintegrative disorder are now incorporated into the single diagnosis of autism spectrum disorder. Researchers found that these separate diagnoses were not consistently applied across different health centers and treatment facilities. While DSM-5 does not outline recommended treatment and services for mental disorders, determining an accurate diagnosis is a first step for a clinician in defining a treatment plan for a patient (American Psychiatric Association, 2013).

APPENDIX H

TRANSCRIPTS

Tape 1A: DS_20001
Location: Pool
Session: #5 of 10
Parent of Don and Bob-PDB

Inaudible whispering and shuffling noises.

I. Okay I think we're ready. Okay, do you think the boys were happy to get to the pool for swimming lessons today?

PDB. Yep, both of my boys were excited to come to the pool.

I. Did you think the boys enjoyed the lessons today?

PDB. Yes. I think this was the best lesson yet. They both enjoyed conquering some fears, trying on flippers, and trying new things like getting into the deeper water. They just seem to do new things every day.

I. Good. Okay. Now, do you think the instructor provided lots enough encouragement to the boys?

PDB. Yes, Karen was working with Don on being more comfortable in deep water. She kept telling him she was right there and was encouraging him. She had him back float by himself in deep water while she was near. Then she had him swim out to the middle of the water, turn around and go back. It really helped his self-confidence.

I. Good. Do you think these new skills helped the boys?

PDB. Yes, Bob put on flippers and was able to swim in the water with them. Don learned how to better swim in deep water. Don even jumped off the diving board. That was a major fear in the past about jumping. Bob has jumped off the board before, but he was just loving it. Don also worked on the back stroke, I believe. Don also got into the hot tub, which I don't believe he has ever done before.

I. How do you like the floating mat? Um, do you think it was helpful in the lesson?

PDB. I think it was used mostly during the first 10 minutes of swimming. Don stood on it a lot as he was shooting the new water gun, which he loved. It is a safe spot and one that they think is fun.

I. Now, um, was the instructor able to get the boys attention and keep them involved enough?

PDB. Yes. Karen worked with Don and had lessons for him in various parts of the pool like back floating and swimming in deep water. He was lovin' it all.

I. Okay. Good. Um (pause).Now, did the extra time allotment in the lesson seem helpful ?

PDB. Extra time is a must for anyone with autism. Sometimes with my boys it takes 15 minutes just to be comfortable in the surroundings, like the pool. They also might not catch on to everything as quickly to new things. So, yeah, it's a must for them.

I. Did the instructor use visual supports that were helpful to your child?

PDB. I don't think visual supports were used this time. Um, I know they demonstrate really well and that helps.

I. So, how'd you think the wet suits are working so far? Is this something that helps, uh, helpful for them?

PDB. Yes, both boys get into the wet suits willingly. They like the way they make them feel, they like the buoyancy, and it keeps them much warmer. We also used them on vacation, and it made a big difference in terms of swimming at a hotel pool.

I. Has this been a positive thing, experience, for the boys?

PDB. Yes. The boys both love having the big space cause they are sometimes really nervous when there are people in close to them that they don't know, more time, a one to one instructor, and they love the attention. All of their respite providers have been college students (mostly women) so they are very comfortable with this age of students. They did so many new things this time. It was really fun to see them enjoying the water so much and not feeling afraid! This experience has kind of taken them to the next level in terms of um being comfortable and having fun in an autism friendly environment. This has been a great opportunity for the boys.

I. Have you noticed any physical or emotional benefits from the lessons for the boys?

PDB. A little, yes. I know they are proud of their accomplishments so far, but I guess I haven't noticed too much. Maybe more with Don than Bob, you know, because Bob is in the water more than Don.

I. Very good. Okay. Now, would you change anything in the lessons?

PDB. It might be nice to have a bigger area for the kids to change that is a little more private. They are really nervous about changing in front of their peers. At some point it might be helpful to have a visual schedule of the lessons. This would have been helpful for Bob the first few lessons.

I. Alright, I think that'll be good for now. Thanks.

END OF INTERVIEW – 1 TAPE TOTAL: DS_20001

Tape 1A: DS_20002
Location: Pool
Session: #5 of 10
Parent of Paul-PP

I. Was Paul happy to come to the pool today?

PP. Oh yeah. He looks forward to swim lessons. Since starting lessons it's much easier to get him up and ready for church because he knows he's going swimming right afterwards (laughter).

I. Okay. Back on track now (laughter). Do you think he enjoyed, Paul enjoyed the lessons this morning?

PP. Yes. He has always enjoyed water and he said he likes the way the suits feels and has fun with the kids and teacher. I know he's just seems more comfortable.

I. Did you see the instructor give Paul any encouragement during the lesson today?

PP. Yeah (pause).No. Only the teachers demonstrating a few things I think.

I. Okay, um, good. Did he learn any new skills today that you think are helpful for him?

PP. Um, well, I noticed he seems much more comfortable with just floating around. I've never seen him lie with his legs up on a floating thing with his head into the water. He used to be very uncomfortable with his face in the water.

I. Does Paul like the floating mat? Um. Do you think it is helpful for him?

PP. For sure. I think it gives him a way to work on floating with his face underwater. It also is a great way for him to work on his balancing and coordination, when he stands on it. That's something that has always been an issue for him. So yes, it's good for him.

I. Okay (pause).Tell me your thoughts about the time. The extra time for the lessons. Do you think this is helpful? (microphone noises)

PP. I noticed all the kids seemed to relax and get more comfortable about 20 minutes into the lesson and this is something I've noticed in my counseling work with kids on the autism spectrum, cause they tend to have a longer warm up time than other kids might. So when the sessions only last 30 minutes or so, they seem to end just when child is getting comfortable. I think the extra long time is very beneficial.

I. What about the wet suits. Is this something that is helping Paul?

PP. Yes. I saw him trying new things more confidently. And he seems to like the suits, although he got a little hot after an hour (laughter). It looks easier for him like he's more confident and relaxed in the water.

I. Good. Okay. Alright. Can you tell me if this has been a positive experience for Paul up to this point?

PP. Oh yes. It provides a great physical outlet and a positive social activity where the children can be as interactive as they want. I think it is increasing his confidence in the water and with being with other kids. This has been really helpful for him.

I. Have you noticed if the boys have any physical or emotional benefits from the swim lessons? Have you noticed anything after you get home?

PP. Not really. We just go home and I try to get the boys feed right away. So nothing out of the ordinary.

I. So, what would you change if anything about the lessons?

PP. The only thing I might add, I'm speaking as a mom and a mental health counselor whose worked with kids on the spectrum for nearly a decade. Kids on the spectrum actually do well with rules. Sometimes we assume kids know the rule about no running in the pool, but it might be helpful in the future to have a list of rules, for parents to go over with their kids before the lessons start so instructors/parents can reinforce. That's about all.

I. Good. Some things to think about. Thanks. (microphone noises)

END OF INTERVIEW – 1 TAPE TOTAL: DS_20002

Tape 1A: DS_20003
Location: Pool
Session: #5 of 10
Parent of Andy-PA

I. This darn thing. Okay. It's running.

PA. Good. (laughter)

I. Was Andy happy or excited to come to lessons today?

PA. Andy was very excited to come to the pool for swimming lessons. We took him swimming a lot this summer and he loves it. He was a little nervous at first because he didn't know the people or their names of who was going to be there, but he got over that very quickly. When he arrived he had a huge smile on his face.

I. Do you think Andy enjoyed the lessons today?

PA. Yes (laughter), Andy enjoyed the swimming lessons. He said he enjoyed going down the slide and being on the purple mat and shooting baskets.

I. Did you notice if the instructor gave any positive encouragement?

PA. Yes. The instructors were saying good job after almost everything he did and a lot of high fives. They praised him the entire time. I thought that they did a nice job working with him and let him work at his own pace.

I. Did Andy learn any new swimming skills that you feel are helpful for him?

PA. Yes, they taught him how to do a back float. It was surprising at how relaxed he was with the two girls working with him that he allowed them to get him all the way on his back.

I. Do you think, do you sense the floating mat was helpful in the lesson?

PA. Yes, I do feel that the floating mat was helpful. I think that helped him to feel comfortable enough to try doing a back float.

I. Did the extra time for the lesson help Andy?

PA. I really like this. Yes, I think that the extra time in the lesson is helpful. They were able to go at Andy's pace instead of feeling like they had an agenda that had to be followed. Andy does well if things can go at his pace, if we rush him that tends to be when issues arise.

I. Do you feel, do you think that the wet suits are helping Andy?

PA. Yes, I feel that it keeps Andy warm during the hour lesson and he likes it.

I. Was this an overall, positive experience for your child?

PA. Yes, we enjoyed it very much and can't wait for our next lesson. Andy loved it and was very excited. He tells his dad and daycare lady all about each lesson.

I. What would you change if anything about the lessons? If applicable can you please explain in more detail?

PA. Nothing at this point, I was very pleased with the lesson.

END OF INTERVIEW – 1 TAPE TOTAL: DS_20003

Tape 1A: DS_20004
Location: Pool
Session: #5 of 10
Parent of Bill-PB

I. Alright. Here we go. Was Bill happy to come to lessons today?
PB. Yes, Bill was excited about going and looked forward to the lessons.
I. Okay. Do you think he enjoyed the lesson?
PB. Bill enjoyed using the floating mat and had fun shooting baskets from it. He enjoyed getting to go down the slide and expressed that he liked the teachers.
I. Are the instructors giving positive feedback or encouraging Bill? Did you see any of this?
PB. Yes, from my point of view it appeared that the encouragement and praise was very positive. Some high fives and he was smiling a lot.
I. Did Bill learn any new skills that are helpful for him?
PB. I thought being able to balance while standing on the floating mat was an impressive skill that Bill obtained through the first few sessions. At first, he had some difficulty standing on the mat, but this improved over the first few sessions.
I. So, do you think the floating mat is helpful for Bill?
PB. Absolutely. I think improving balance is very important. Being comfortable in the water in various settings or experiences is extremely important for safety reasons.
I. How about the time? Is the extra time beneficial for him during the lessons?
PB. Definitely. Bill has had private swimming lessons for several years. Being in a regular swimming class would absolutely not have ever worked well for him. The one-on-one instruction and the increased length of time is helping improve his comfort level and, I would say, increased the rate of his success with new tasks.
I. Did you notice if the instructors used any visual aids with Bill?
PB. I think the instructors modeled actions for him. This is a beneficial approach for him. He seems to pick up things faster when you demonstrate.
I. Do you feel the use of the wet suits was beneficial to your child?
PB. I think the use of wetsuits is a brilliant idea. Bill had never had one on, previously, and the initial use of it was a little unsettling to him, I think. Being able to see his instructors using it first was a good way to slowly introduce it. I think he got a little cold the first session (before the introduction of the wetsuits), so thinking of it as a way to stay warmer was a good technique. Being able to remain warm removes the temperature variable out of the equation and improves the ability to concentrate on learning and interacting for children on the spectrum. It also helps him float, his buoyancy.

I. Was this an overall, positive experience for Bill? (laughter)

PB. This is absolutely a positive experience for Bill. To be able to have intimate instruction in a pool without distractions from others in the pool is terrific! He is loving this experience and it most definitely is of benefit for him.

I. What would you change if anything about the lessons?

PB. It might be beneficial to have some discussion with the instructors prior to starting work with the kids about some of the child's individual issues and some of the things we are working on at home and school. Other than that, I would change nothing!

END OF INTERVIEW – 1 TAPE TOTAL: DS_20004

Tape 1A: DS_20005
Location: Pool
Session: #5of 10
Parent of Dan-PD

I. Was Dan happy to come to swim lessons today
PD. Yes. Always. He enjoys being in the water, loves playing in the water and hot tub especially. He has always loved being in the water, even as a baby.
I. Do you think Dan enjoyed the swimming lessons today and up to this point?
PD. Yes, he seemed to enjoy himself, he was nervous around the slide area. He just enjoys the water.
Inaudible whispering. Shuffling noises.
I. Just checkin' to see if this thing is still working. Sorry.
I. Okay. Alright. Now, did the instructors give some positive feedback to Dan?
PD. She did, she works positively and encourages him to do different things. Encouraging him to do other things and trying to get him out of his comfort zone.
I. Did Dan learn any new skills that you feel are helpful for him?
PD. Building comfort (inaudible) with wetsuit and some increased kicking. Improved comfort in floating, not sure of others at this time.
I. Do you feel the floating mat was helpful in the lesson?
PD. Yes, he really likes moving around the water this way and it does seem to help work on his balance. It helps him in the large pool, helped get him out of the hot tub. (laughter)
I. Did the extra time allotment in the lesson seem helpful to your child's lesson?
PD. Yes, it gives him time to build his comfort level.
I. How so?
PD. Well it just takes him awhile to get in the water. He likes to get in the hot tub then when he is ready he gets going in the big pool. So, it helps him with his comfort level.
I. Do you feel the use of the wet suits was beneficial to your child?
PD. (inaudible) will help for future swimming in lake water and such, I feel it is a good safety feature for him. I do like how it helps his buoyancy and how he floats.
I. Was this an overall, positive experience for Dan so far?
PD. Absolutely, he loves the water and the interaction with someone while he is in the water is a good thing. Very positive, he enjoyed exploring the pool, wasn't distracted by the loud noises that a lot of kids swimming at once can bring. We were at a hotel pool the other day and he did not want to get in, I think there were too many kids.

I. What would you change if anything about the lessons?

PD. Keep pushing him and challenging him to get out of his comfort zone. Perhaps more visual supports, not sure how this will work in the pool?

I. Well try to keep pushing him. Thank you

END OF INTERVIEW – 1 TAPE TOTAL: DS_20005

Tape 1A: DS_20006
Location: Pool
Session: #5 of 10
Instructor: Karen-1A

I. Okay. Ready?

1A. Yep.

I. Okay. (pause) Did the kids seem happy when they arrived today?

1A. All the kids seemed very happy and excited. The only child that was nervous seemed to be Dan.

I Why Dan?

1A. I just think it takes him longer to adjust on some days.

I. I could tell the children enjoyed the swim lessons. Bill really enjoys playing basketball. Do you think the boys enjoyed the swimming lessons you know for this session?

1A. Yeah, like by playing basketball for a while and then teaching them something it allows for em not to get frustrated or overwhelmed with a skill. Don has really advanced since the last time I saw him. He was demonstrating the elementary backstroke. The legs are the area we need to work on but he is beginning to be less afraid of the water compared to the first lessons. Bob wanted the water slide at first but then Katie was able to work with him and took his attention to other things besides the slide. Andy was so excited to get into the water. He was floating and jumping in the water. Dan and Paul seemed to have fun too.

I. How about the floating mat? Was it helpful in the lesson? Do you think this helps?

1A. I think the floating mat is an amazing part of the swim lessons. The mat is like a great way to demonstrate a skill to the students without like getting out of the water. Like the kids are able to practice back floats and balance on it and float comfortably. It's like a safe spot for the students where they are able to be on the flat ground while still in the water.

I. Do you like the extra time for the lessons? Um, do you think this helps the boys?

1A. Yeah, having an hour lesson for the student is like a huge benefit. For some students getting into the water takes so much time. For example, like for Dan, it takes Dan anywhere from 15 to 30 minutes to get into the big pool. Like, if lessons were only 30 minutes long then Dan maybe wouldn't spend any time in the water. With an hour there is no rush for anything. Students are able to have fun and still learn new skills. Lessons are more relaxed and more geared like for the students.

I. How do you think the kids like the wet suits? Does it help? Do you like them on?

1A. Yeah. The wet suits really help the kids. Like it allows the kids to stay warm and float. Like for example, Don gets very cold if he is in the water for too long. The wet suit allows him to stay warm, which leads him to stay in the pool longer and stay comfortable. The suits are also a fun experience for the students because like it's a new for them and it is really helpful for them to float better..

I. So, has this been a positive thing for the boys? Do you think it's good for them?

1A. I think this is a great experience for the students. It is (inaudible) like for the student to concentrate and it's a one- on one situation where the student is the main focus. Lessons are relaxed and like not rushed. I think students are able to learn better.

I. Changes to the lessons? Anything you'd like to do different?

1A. Nothing. I think it's awesome to like see the boys really getting in to it.

I. Alright. Good. Thanks

END OF INTERVIEW – 1 TAPE TOTAL: DS_20006

Tape 1A: DS_20007
Location: Pool
Session: #5 of 10
Instructor: Kathy-1B

I. Did the boys seem happy to be here at the pool when they arrived?

1B. Yeah, all of them seemed really happy to get in the water.

I. Do you think they enjoyed lessons this morning?

1B. I think all the kids enjoyed the lessons cause the facility has at least one thing the boys enjoy doing and we usually pick something the child enjoys doing first as a way to ease into lessons. At the end, we also have the kids pick something they enjoy as a reward. This like motivates em during the lessons.

I. Did you provide any encouragement to the boys at all today?

1B. Oh yeah. Um, I try to give out high fives and give some positive feedback. We always like to keep it a positive atmosphere.

I. Any new swimming skills taught today or over the last couple of lessons?

1B. Oh yeah. The skills include kicking on front, front and back float, using arms. We also use some type of object to help with these new skills such as kick board, noodles, or the mat.

I. How'd they do with the kicking?

1B. I thought it went really well. They seem to like using the mat for kicking and stuff.

I. Okay. Do you like the floating mat for the lessons? How about the boys?

1B. Yes the mat is very helpful. For some kids, it gives a good way to ease into the water. We use the mat to learn new skills such as floating, kicking, and arm movement. We like have the kids lay on the mat as if they are doing a back float. This helps them listen to the instructors better since their ears aren't underwater or anything. I can like move their arms and feet around, so the kids know what their body should kinda feel like in the water. I like to use the mat to teach how to kick and use their arms. They lie on their belly and have their legs dangled out. I help out by moving their legs, so the kids can feel how they are supposed to kick and move. If the mat is moving something has to be going right. I also like to use the mat for the arm movements.

I. Good. Okay, how about the extra time for the lessons. Did it seem helpful?

1B. Ya know, the extra time helps the kids learn new skills plus play on what they enjoy doing. If this were a shorter lesson, I know I would have to focus more on the skills than their fun things they want to do. I feel if this happened, the kids would not be as successful because they are not motivated because there would be more stress for them.

I. Good. Visual supports. Did you um, use them and are they helpful at all?

1B. I feel the pictures do a good job with the boys visually seeing what to do. I also think the instructor demonstrating for the student helps a lot too. Whenever the student sees skills, I think it helps them better.

I. Do you feel the use of the wet suits was beneficial for you or the boys?

1B. Yes the wet suits are beneficial to the child. It keeps them warm which makes them want to stay in the water. It gives them more buoyancy and makes it easier to float and move cause we can hold on to them better.

I. Do you think this is a positive experience for the kids?

1B. Yes, this is a great positive experience for them. It is one on one time for an hour. The time makes the instructors not rush. It is a relaxing environment and not noisy or distracting because we have the pool to ourselves.

I. What would you change if anything about the lessons with the kids?

1B. For me, as an instructor, I think we need to have more like structure for the swimmers, so we do not shoot hoops for too long or work on skills for too short. We need to do a better job of balancing out the fun and skills. This way it gives them their free fun time and it transitions well into work/skill time.

I. So maybe some, you know, ground rules for the kids to follow. Something before the class starts. Is that what you're saying?

1B. Yeah. That would kinda help everyone more.

I. Excellent. Thanks.

END OF INTERVIEW – 1 TAPE TOTAL: DS_20007

Tape 1B: DS_20008
Location: Leisure Pool
Session: #10 of 10
Parent of Don and Bob-PDB

I: Can you give me a little background on Bob and Don?

PDB. Um hum. They just turned 12. Bob goes to Special needs school, and Don goes to Public school in mid-western town. Um. as far as their swimming background, Don has always been extremely afraid of water and started doing swimming lessons when he was maybe 2 years old, and he never got in the water once until the very last swimming lesson, then it was over, and then due to um, chronic ear infections and things, we just never got back into swimming lessons until maybe 2 years ago, and it probably took, I mean almost a solid year before he would even put his face in the water. He did lessons at, Don did lessons at the public outdoor pool in really cold weather in the morning, and that was very, very difficult. He also did lessons at a local junior high and the lessons there were pretty crowed, pretty loud, a lot of kids, and not as many instructors. Um. Bob has never been afraid of water, ever, um, but just due to the fact that he couldn't follow a lot of the directions, it was hard for him to do lessons. And, um, really his swimming has took off when he was at Special needs school working with his teacher in swimming. And he hasn't. He did an adaptive aquatics one time at the local outdoor pool but it was again in the morning, um, and one instructor for 3 or 4 kids, so it didn't work very well. He had fun but he wasn't really learning anything. (laughter) Um, yeah, that's about it.

I. How about if you could go back to the first, the first few swim lessons, were they happy, were they excited, um, were they nervous, and kind of relive that a little bit for me.

PDB. Okay. Okay. Yeah. Um. Well, I think when they came the first few times, they were really unsure as to what it was going to be about, um, and their whole experience has just based on other swimming lessons (laughter). So they were just kind of nervous about what it would be, how many people were going to be here, where it was. They had never, I don't think, ever been here to this pool before. I think Bob had, um, but never Don, um, I think they were kind of unsure as to what the routine would be, what they would be expected to do, and they were surprised because initially you just kind of let them check it out, like check the facilities out and kind of get comfortable which is something that no other program has ever done for them. And um, they weren't too sure about the wet suits either when those were introduced. And then, after they put them on, they never wanted to take them off then. They liked them.

I. Were they happy, were they excited, were they nervous to come to the pool the final lesson?

PDB. Well. It was 9 o'clock and Bob was dressed. He had his swimming trunks on, he had his coat on, he had his, he was wearing his little backpack that we take our swimming stuff in, and he kept saying "diving board, diving board." And we don't, you know, we don't come over 'til close to 11, so he was pretty upset that he couldn't go, earlier, um, and Don said when we were driving over here, "I want to do everything. I want to sit in the hot tub, I want to go down the water slide, I want to do swimming, I want to go in the pool next door, I want to dive off both of the diving boards, and I want to try to swim to the bottom of the pool." Next door, um, with the lane swimming.

I. The lap pool.

PDB. The lap pool. Yes. So he was really, he's really excited.

I. Good.

PDB. Um hum. (laughter)

I. Have you noticed any physical, social or health benefits from having the boys involved in the lessons?

PDB. Yeah, I know they are starving when we get home (laughter). Um, I um they come home and eat then get into their normal routines. They may be a bit more interactive with the instructors. I know it has helped their self-esteem just being able to do um, accomplish things in the water. That's what Don talked about on the way home.

I. Do you think he enjoyed the swim lessons, and if so, why? And. What do you think worked?

PDB. Okay. Well, they definitely both enjoyed the lessons, and I think they're gonna to be sad that they'll be over, um, and I think they enjoyed it because it was a little bit more free as far as what they were doing. It wasn't, you know, everybody standing in a line, you do this, you do this, you do that. It was…

I. It wasn't so structured. Is that what you're saying?

PDB. It wasn't. And you would think that structure would be better, but in this case, I think it really wasn't. I think it was just to get them comfortable, and then they were more likely to do what was expected of them. And it was also nice to have the wet suits because they were a little warmer. A lot warmer. And then they

were able to have a little bit more um buoyancy there. And also because they had similar instructors and the same people who kind of had one-on-one with them, they got a lot more attention and just were a lot more comfortable, and it was a lot more fun than the other lessons.

I. How were the instructors? Where they uh, did they encourage, did they praise, did they explain things well? You kind of hit on that just a second ago, but can I get a little more detail?

PDB. Yeah, they did. And, um, they've seen the kids outside of school sometimes, err, outside of this pool before, and you know, have said hi and that kind of stuff. Yeah. They are very encouraging, and they're very patient. They demonstrated to the boys what they wanted them to do really well. And, like for Don, for instance, he is afraid of being in deep water, but um his teacher took him over to the deeper part of the pool, the lap pool, and just had him go a short distance, and she was there, and then back, until he got some confidence built up, which that's the kind of thing you want someone to do, but in a group, big setting, you just can't do that. Yeah. They've been really great.

I. Okay. New swimming skills. Did the boys learn any new swimming skills that you think will be beneficial to them in the long run, and if so, what skills do you think they picked up?

PDB. Um. Well, I think. Everybody. Well Don, especially, is a lot more comfortable doing back floating, front floating, like any kind of crawl (pause) stroke, and that kind of thing. He's. I don't think he'd ever before been swimming underwater, which he learned how to do that. Um. Jumping off the boards. Both of the kids. Well, the kids have never been able to do that much. Bob has always liked to jump off the boards, but Don has never done it without being super nervous, and he was the first to say he wanted to do it. Both boys just seemed more comfortable in the water. Um, they just did so well with the floating and swimming underwater and even their strokes. I know it's only elementary backstroke, but they were actually swimming. I know it's helped their confidence, um, to be able to do more in the water and everything.

I. Do you think the floating mat was helpful, was it helpful to your boys in the instruction?

PDB. Yes. Absolutely. The kids liked the mat. I think first they thought it was kind of fun, just to stand and balance on it, but also it was a way for them to kind of practice doing some of the things, like lying on it and floating before actually trying it, and practicing either kicking or doing something with their arms, and it was kind of a safe place to be in the water. Yeah. They had a lot of fun with it.

Definitely was something that they enjoyed and I think they liked the skills that they were working on.

I. Okay. Was the instructor able to get your child's attention, keep your child's attention during the lesson? Did they lose focus? Sometimes that's an issue with traditional classes.

PDB. Yeah. They seemed able to do that, with Don especially. Um. With Bob, sometimes he wasn't always listening, and sometimes um there would just be another thing presented, like, well, you know, let's do this instead or let's get out the basketball and shoot for a little bit. But yeah, overall, definitely, they kept their attention. I know sometimes that's an issue with traditional classes but it worked out great to have one on one instruction for the boys.

I. The time allotment. Is this good? Was this a good thing for your children, the extra time, the longer sessions instead of the half hour or 40-minute session that you might have done in the past?

PDB. Yes. I would say, I mean that's a h-u-g-e component of why this has been so successful because there has been enough time to get the kids kind of acclimated and warmed up and ready to learn without things just being like boom, boom, boom and then we rush out of here and have to rush home. The boys had more time to get adjusted and work on everything. Having a little bit more time makes them a little bit more comfortable too. Yeah. That's great.

I. Okay. So, overall, was this positive experience for your children?

PDB. Yes. Definitely.

I. Why? What do you think are two or three things that made this a positive experience?

PDB. Um. Small class size. Longer classes in terms of how many minutes. More personalized instruction, and actually having it be a little bit less structure and having the wet suits so they are warmer and feel like they can float. I think those. And having it be more fun. I think that has helped them more than anything.

I. Okay. Excellent. Wet suits you've already talked about. Uh, what would you change? If we were going to change anything, um, any thoughts on what might make it better, or is it pretty much okay the way it is, so.

PDB. Yeah. Hum. I think things are going pretty well right now. Um. Yeah. It's hard to say. It would be interesting to see how it would work with a few more kids and

instructors at the same time (pause) I don't know. So yeah, other than that, I don't have any suggestions.

Shuffling noises

END OF INTERVIEW – 1 TAPE TOTAL: DS_20008

Tape 1A: DS_20009
Location: Pool
Session: #10 of 10
Parent of Paul-PP

I. Okay. Is Paul in a public school or a special needs school?

PP. None, I'm home schooling him.

I. Good. How is that going?

PP. I think it is going really well for him. He's 12 years old and I think he needs a little more attention, so I'm home schooling him

I. He is 12. (microphone noises)

PP. Yup.

I. 12 years olds. Okay. Any issues with them coming to the pool? Any problems with them coming in the pool?

PP. This pool?

I. Yeah. To come to these swim lessons?

PP. Um, the only problem is that Paul is ready far too soon (laughter). No, he really loves it. It's easier to get him up on Sunday mornings (more laughter).

I. Okay. Um… (inaudible whispering)…Well what did you think about the floating mat? Do you think this was helpful for him?

PP. Well. I think at first it kind of is more of a toy, but I can see how they could can get on it and do some kicking or use their arms too. And their comfortable and they like doing it. Climbing on it and kicking. Just being able to have a new safe area to hold on to. I also like how they can lay out on the mat too.

I. Has the extra time for the lessons been helpful for Paul?

PP. Yes. You know with kids on the spectrum, they sometimes need more time to adjust. I know it's nice for him because he doesn't have to be rushed into the

water from one thing to another. So yes, it's been a good thing for Paul and from the looks of it, I'm pretty sure it's helped the others too.

I. Good. Okay. How about Paul using the wet suits. Do you think this has helped him with the lessons?

PP. I think that's one reason why he's so comfortable in the water. He is warm and is able to float a lot easier. When he was younger and I had him at another pool, he'd be in the water for what seemed like five minutes and then he'd want to get out. He kind of just looks like he's more comfortable with it on too.

I. Have you noticed any physical, or social benefits from having him in these lessons.

PP. Well, not really that I've noticed. Maybe a little bit because we do go to church right after this and he might be a bit less fidgety. I guess not much though.

I. Have the instructors been helpful and able to keep Paul focused.

PP. Yes for the most part. I know he does not follow directions very well at times but the instructors were able to work with him and get him going again. It's really nice to not have too many people, you know the distractions, going on in the pool. I think that helps.

I. Okay good. Has this been a positive experience for him and what might you do different?

PP. This has been really good. Because he is home schooled, I really like to get him out of the house doing things with other kids. The lessons have been very positive because he has not had any real swim lessons before and I really think that is important for all kids.

I. Any changes that you might make for future lessons?

PP. Just that there should be a schedule with pool rules for parents to go over with their child before the lessons start. Otherwise (pause), I think it was really a great experience for Paul.

I. Alright. Thanks.

(Shuffling noises and inaudible)

END OF INTERVIEW – 1 TAPE TOTAL: DS_20009

Tape 1A: 20010
Location: Pool
Session #10 of 10
Parent of Bill-PB

I: All right. Was Bill happy to come to the pool for swimming lessons?

PB: He was thrilled every session, including the first time. He's always really liked water so he's never had any. He's always liked water. He's not always liked what he's been asked to do in water so if, when we first started swimming lessons with him back when he was a little kid, he would have been happy if he could have just stayed and played and splashed around in the baby pool at the Y, and um, of course his teacher kept pushing his comfort zone, and so he didn't always like what he was asked to do but he's always like water, so he was excited to come from minute one.

I: Good. Did he enjoy the lessons as we have them set up here at the pool?

PB: I think he loved the way the lessons were set up. I think he loved his teachers. (Chuckling) Probably pretty smittin' by his teachers. (Laughter) Um, but yes, definitely, he enjoyed the, uh, floating mat. He enjoyed shooting baskets. He. I mean I never heard anything but happy to be here, enjoyed the session every time.

I: Okay, I'm asking about the physical, social and emotional aspects of the lesson. Do you think the lessons that he got, was he more calm, more focused when you got him home?

PB: I think so. You know, that's a, he's a pretty calm kid.

I: I was gonna say. He's pretty calm, so he's not…

PB: So, he's not the poster child for a study that would determine whether he was more calm, really, after something, um so that's a hard thing to quantify. Um, you know, it's one of those things that, let's see, typically we would get done and we would go home and have lunch and stuff. And so, so in that period of time I'm starting to prepare lunch and he's off doing whatever he's doing, getting his, you know, I guess he would have his suit on, but anyway, so he typically absconds off to somewhere in the house while lunch preparation's happening, and then we probably have lunch and all that so um so I can't say that I notice any more calmness or, or necessarily anymore verbal behavior but he certainly, it was only positive, any results that came of it.

I: Did the instructor provide enough encouragement and, were they, um, helpful in trying to explain or demonstrate skills and activities that they wanted Bill to do?

PB: I thought it seemed like it. Um I thought they did a, er I watched them demonstrating and getting his attention prior to demonstrating, and um they understood it seemed that they needed to use visual prompts and that kind of thing as opposed to a lot of verbal um instruction. Uh considering that they, I don't know how much knowledge about autism they had prior to this, but I thought they did really well, kind of reading his needs and that kind of thing. I guess the only thing I would comment on that which is not their fault or yours or anything is um that they, most people do, um respond to his, his funny little stereotypic behaviors because they do, and he engages people with his little silly little head thing and all that stuff or forehead touching or getting too close and people think that's cute, and so they go along with it not knowing that that's something we're trying to work to extinguish because that's not typical of social behavior so that's, but, that's my fault because I could have provided you with that information or his IEP or something like that, and it's not a big deal, because, you know, once you get to know someone they're okay with that, but for him to go into a public place and start doing that to strangers in the store or something is not really what we wanna have. (Laughter)

I: Right. Um. Any new skills that you thought were beneficial to Bill?

PB: Geez.

I: Yes. Um. That he learned. (Participant laughter).

PB: (Laughter) Let's see. Any. Okay. I've tried for. Let's see, for at least 8 or 9 years to get him to put goggles or a face mask on, and zero, zilch, ever. I told you we tried discover snorkel in December and that was a bust in spite of a really well-trained teacher who was very patient, and it was somebody separate from, you know, different from myself, I thought we'll get somebody else to try it, and I won't be in the water, and she did an outstanding job, and we tried for at least an hour to get fins, snorkel, mask on all at the same time and he would have one on for like 24 seconds and rip it off, so, yes, that was an enormous accomplishment of this semester. So I discussed that with the dive instructor in Mohlaki, and he said, "oh yeah, we'd be happy to work with a kid like that," and I like seriously! God. That's crazy." So. Heck. That's awesome.

I: Yeah. The floating mat. You mentioned it earlier. Do you think it was helpful for Bill in his instruction and um, can you expand on that?

PB: Yeah. I think it's really good for balance and proprioception and strength, and I don't even know all the physical benefits that you probably know of that a person

might derive from using a mat, you probably have knowledge of a lot more than I do, but it seemed like a really good tool, so yeah, I thought that was awesome.

I: Okay. Uh, what did you think about the extra time allotment for the lessons, for uh, for Bill?

PB: Yup. I think there is a lot, kids who have autism have a lot longer transition phases, so, you, you know, you stick them in the water, there's a part of, a period of time that they're just getting acclimated mentally, emotionally, and everything, before they can really start to do anything, so I think that's a really great thing to have a longer period of time because some of that, even if you're not aware of it, they are mentally acclimating, so, yeah, I thought that was great.

I: We noticed with one of the other participants that, uh, that it took him, the first couple sessions, it took him awhile to get in the water.

PB: Oh my gosh. I remember 30 minutes of standing at the edge of the pool. (Laughter) Bill not jumping in.

I: Okay.

PB: You know, and all kinds of things like that. Because there was a time when we were working on him jumping into the deeper water and that was torture, and he finally did it, and once he finally did it, he was so proud. But it took weeks. So, yeah. I think a longer period of time is really, really helpful and, probably the more severe the autism, the more helpful that is, or the more fear of water, or whatever, so.

I: Okay. Next question would be… (pause) Did the instructor use visual supports for Bill?

PB: I don't think, because I know they had some papers. I didn't really see them using them with him. They may have. Um, but they also demonstrated.

I: Okay.

PB: Visually demonstrated things which I think is helpful. And I think they did a lot. They probably did hand-over-hand type of thing, and he needs that sometimes because he has a lot of proprioception kind of stuff. You know.

I: So kinesthetic?

PB: Kinesthetic. Yeah. Totally. I mean, he, he, I don't know what it is about him, but he will not extend his limbs, you know, so to swim, you know, and extend his

arms, he just doesn't do, so sometimes it does physically require this is extending, huh, and, right, you know, like going off the board, I've tried for all these years to get him to do just like a pencil or whatever you call it where they straight… jump in, and he's always just (skew noise) … flail (laughter) and it doesn't really matter, but it's interesting that he just has that something he struggles with. So yeah, I think they did, I think they did a good job. I don't know… You know, we did, when I had him taking swimming lessons a few years ago, we had a laminated copy of his behavior card – it would be used in the pool – because, um, he couldn't get through any of the instruction without getting into his behaviors, stereotypic behavior kind of stuff. It was really, really destructive, and so the instructor actually had to use his card in the water, and you know, it would be something we could even try in the future with him if we wanted to work more on that behavioral, you know, in your face. It is, it is destructive and it's distracting from the, the um, instruction, I think, to be. And it's been a problem at school is that he gets distracted from whatever he is doing; he's not paying attention. So, so sometimes that can be useful. Sometimes just his knowing that teachers know the rules is all it takes because then he realizes he can't get away, away with it.

I: So, basically, was this an overall positive experience for your child?

PB: Laughter.

I: If so, how so?

PB: It's been an extremely positive experience for Bill. Um, even his counselor, he's seeing a therapist, um, had uh commented just this past week that he thinks some of the successes he's had in this and also like the play that he was involved in have really, really helped him as far as self-esteem.

I: So the therapist was.

PB: So the therapist was um commenting that he feels like Bill has better eye contact lately, and that he has, that he's overall in a more positive frame of mind, um, and he's come a really long way. I mean this has been one of the hardest years he's ever had, in his life, and um, you know, he's had a lot of major things happen. But, I mean he's seeing a psychiatrist, and has behavioral psychologist, and a therapist here, and we've, we've done a lot of things, but I thought it was interesting that the therapist locally commented just on Tuesday of this week that he thinks the swimming and the play; its one of those positive experiences that are pushing his limits, pushing him outside of his comfort zone, have been extremely positive. So yes, I couldn't be more pleased with the results of this experience.

I: Okay. The ah. Two more questions. The use of the wet suits. Do you think that was beneficial for Bill, and if so, why? If not, why?

PB: I think, uh, for one, it helped with the coldness factor, especially being in the pool for an hour. And these pools are cooler. (Laughter) I didn't realize until, yeah, so, yeah, I think that was great, and he really liked it, sooo, he's definitely a kid who likes touch, and you know, some kids with autism don't want any compression or touch, he always has, and he likes to be hugged, and so it makes sense that a wet suit would be comforting. He says he likes it. He can't put it into really other words than that, but I think, I think it has been helpful. Also, I think the buoyancy of it certainly is great and probably made him more comfortable to try other things, like the uh, the mask, because he wasn't going to just sink to the bottom while he's trying to think about a mask. So yeah, I think that's awesome. Great idea

I: Finally. What would you change, if anything, about the lessons if this study were to go further and he would have. What would you have changed with the lessons that we had and then maybe where can we go with it and what would you change?

PB: How can you change something that's going really, really well? Uh. Like I said, the only thing I would potentially investigate if you guys wanted to is some of the behavior plan because I think, and every kid is so different on that, but it would maximize learning, certainly, because it's been a plan that's worked really well for him. We've had to tweak it a lot over the last 5 years, but whenever we get into trouble at school where he's just not focusing, they're getting nowhere, which they've gotten into this year, had a really big bind with that, but um, whenever we go back to that plan, things start to take off again. So it's like it is calming to him to kind of have that structure, and it, I think also his mind kind of spins out of, you know, it's like a major distraction; all of a sudden you're out there when you're suppose to be here. So that would be something that we could do, but um, other than that, I think it's awesome.

[Inaudible scrapping noises on tape for about 10 seconds]

PB: Great improvement. I'm always, as you know, pushing him out of his comfort zone, so for me, this is perfect.

I: All right. Thank you.

END OF TAPE DS_20010 (1 TAPE TOTAL)

Tape 3: DS_20011
Location: Pool
Session: #10 of 10
Parent of Dan-PD

I: (microphone noises) A little bit of background information.

PD. Dan. Like his, like his background as far as his autism? Details?

I. Yes.

PD. Okay.

I. How old is he?

PD. Yup. Dan is 10. He's at public elementary school in 3rd grade. He is somewhat verbal. Um, verbal with prompting. He is working on following directions. He does like water. He's liked water since he was a teeny tiny little kid, um, but never, but on his terms. You know, doesn't want to put his face in the water, doesn't like water in his face or on his face, and he's very nonconventional in his approach (chuckling) to swimming. He's generally a pretty good natured kid, though. He doesn't seem to be affected too much by strangers. Just kind of has his own plan of how he wants to do things, and that's kind of how he approaches life, in his way.

I. Good.

PD. What else do you want? Do you want any other details?

I. No. Is he usually happy, is he excited to come to the pool?

PD. Oh yeah, he's absolutely thrilled to come to the pool. Like last week he was in the car a half hour before it was time to come, and we were still early. (laughter) He's been really excited to come. If you tell him like you are going to a pool, that's usually a positive thing for him.

I. Oh, okay. Okay.

PD. He does like water. Sometimes new places. Like he's only been swimming here once before. so sometimes new places can be a little intimidating for him if he doesn't know what to expect. So sometimes it's difficult to try new things with him.

I. Um hum.

PD. But, um, I think he's fairly comfortable around water, so the idea that okay, this is something different but it's a pool, that adds a little bit of, okay, this might be okay.

I. Do you, are you seeing any benefits from the lessons such as health, social or any physical benefits?

PD. Not so much. Maybe it's too early on, but he's so easy going, I'm not seeing anything along those lines yet. I just know he is having fun and I haven't seen anything like that yet. Maybe helping his self-confidence, but otherwise, not too much.

I. Could you talk a little bit about the instructors – the one-on-one?

PD. Yup.

I. Do you think that's beneficial for your child?

PD. I think the one-on-one is beneficial because he, like I said, he likes to do kind of his own thing, so getting him to participate with like group directions would be a challenge. He could, I think, be part of a group, but he would probably need someone specifically assigned to him to keep him on task with um what the group's doing.

I. Um. Do you think the instructors were, did they praise, were they helpful, did they?

PD. It's not recording anymore.

I. (noises) I got this thing over the summer. Do you think the instructor's praised him enough? Were they able to, uh, was it a good fit for him and all that?

PD. Yeah. I think it was a good fit because they seemed pretty comfortable with him and were really encouraging him and connecting with him. He responds really well to positive reinforcement, and I think they game him that. They weren't afraid to kind of physically redirect him, and he does need that on occasion, and I think sometimes there is a stereotype that kids with autism don't want to be touched, and that might be true for some, but Dan doesn't, it never has bothered him, so, um, I think they just, they kind of, they learned from him, and you know, said okay, this is working for Dan, and this isn't, so let's change it, and found some ways to get him engaged and really worked hard to connect him because he is not a kid, like if he, like if he can get away with ignoring you, he will. But they

were really good at getting in front of him and engaging him and building a rapport with him. He seems very comfortable with them.

I. Good. Do you think the uh, do you think the mat was helpful?

PD. Yes. Especially because he likes the hot tub. (laughter) So, he uh, I think he likes the bubbles and the warm water, so then getting him into the pool, I think that was really a good transition for him to use the mat to get comfortable on that, and I think it was novel and new and he hadn't ever been able to do that in a pool before so I think that he really liked that um, experience.

I. What about the wet suits? He's just a little bit different. Everybody else was in the wet suits, but he'll wear them sometimes and other times he won't?

PD. Right. I think for him, I did notice that the neck keeps bothering him, and he is kind of, he is very sensitive to clothing and textures of clothing so that has been always a struggle for us, even like I can't get him to wear a shirt with a collar, so I think it's just things around his neck he doesn't like. Um, I did notice that when he was wearing the wet suit that didn't have the neck piece, he seemed fine to just hang out and float in it and it didn't bother him. He was just way relaxed and comfortable. Kathy said one time that when he was wearing the one without the neck piece, she's like "I think he was going to fall asleep. He was just floating and totally relaxed. I think he was going to fall asleep."

I. Do you think the extra time allotment was helpful? Or huh, you know, instead of going a half hour?

PD. I think what's nice for a longer duration is it does give him a chance to, because he's kind of, I don't know, build his comfort level or just kind of get some of the things he wants to do out of his system and then he can focus more on what the instructor would want him to do. Um, he is a lot happier if he's not instantly forced into doing something that wouldn't be necessarily his choice. So this has been good for him.

I. Last question. The uh, do you have any changes or thoughts on say, like uh

PD. Absolutely.

I. Any changes or thoughts uh, for, if we were going to do this again later?

PD. Okay. Um, changes or thoughts. If we were going to do this again. Um. I would say, you know, maybe trying a different wet suit with him more consistently. Um, and even having like maybe a picture schedule of you're gonna to go in the hot tub for 5 minutes, you're gonna, um, you know, and then we're gonna do this

for 10 minutes. He does (pause) seem to respond really well to um visual cues and schedules. It's kind of a strength of his. But I have, I have honestly, the instructors have interacted with him so well that I wouldn't change anything about that. Um, it might be interesting to have them partner up so there's two kids, even two instructors maybe with two kids or three kids, and have them trying to get them to do, you know, a different stroke or um, something different in that regard. And that's it. (noises)

I. Okay. Good. Thanks (microphone noises)

END OF INTERVIEW – 1 TAPE TOTAL: DS_20011

Tape 4: DS_20012
Location: Pool
Session: #10 of 10
Parent of Andy-PA

I: Okay. So Andy. Could you give me a little background on him.

PA. Um. From when we first started, Andy was excited to come. He was nervous about the people. Not knowing the people that were going to be here. Um. Just. I had explained to him that Jim was the person, and he knows somebody named Jim, so he associated with a friend of ours gonna be here, but um, he responded very well when he came in. Um, he was very excited when we first left that first day he was super excited and has been excited every day to come back, um, since that first day, so um.

I. How old is he?

PA. Um. Other background on Andy? He is 5 years old. Um. You want background from?

I. Just what school he's at and any other school details.

PA. He attends a public elementary. He's in preschool. He um. Before that also he attended preschool at special needs school, so this is the second year of preschool he has been having. Um. He is in a full-inclusion classroom, um, with about 15 to 20 students.

I. Is he verbal, non-verbal?

PA. He is very verbal. Um. Andy was not when he was 3, but um since then we've had him at the mid-west university speech clinic, and um, ever since for 2 years, and now he talks a lot. He is very verbal. He still has differently expressing, um, when he gets angry, or expressing his wants and needs at times, but very verbal.

I. Uh, the swim lessons. Did the extra time allotment, instead of the normal, I guess the normal time slot is probably like a half hour to 40 minutes, 45 minutes, has this been something of benefit to Andy?

PA. Yeah. I think that having the hour long is very nice. Um, it kind of allows them to let the students be able to kinda go at their own pace, and in 30 minutes which is typical, um, I don't know how much they would get done, but it's really nice to have it one-on-one. Um, we've even looked into doing swim lessons this summer, and it's like 8 kids with 2 people, and, um, like 20 to 30 minutes, so this

has been very, very nice. He has enjoyed it. He gets the attention of one person which is what he likes, um, and has freedom to do some things within his lessons that he kind of picks as well.

I. Good. Uh, the implementation or the use of the floating mat, do you think that has been beneficial, and if so, how?

PA. think that, um, for Andy, at least, the floating mat has been very helpful because in the deeper area, I think that's one of the areas that he would've not have gone into as much, so using the floating mat has helped to get him from different places and get him to feel comfortable going in that area, um, so I would think, I, I would say that has been very helpful.

I. Good. And the uh, the use of the wet suit. Do you think that has been of any benefit to Andy, and if so, how?

PA. I think yes, it has been very beneficial. He has told me when we leave that he likes wearing it because he doesn't get cold when he's in the water, um, especially on days when he comes and it's dry already, then he's really excited, I
but, yah, he likes um to be able to wear it so he doesn't get cold when he's in the water. Which helps and it helps him to stay in the water longer (chuckling).

I. Overall, has this been a positive experience for Andy, and what are your thoughts on that?

PA. This has been a VERY positive experience for Andy. He has never had any type of swimming lessons previous to this. Um, I guess we were very nervous about having him do swimming lessons and how he would react and if he would have meltdowns, and um, but he has enjoyed it very much so. Not one single meltdown, only when he has to get out of the pool. (laughter)

I. Yeah.

PA. Which is typical. He doesn't want to leave. Um, but he really, he has really, really enjoyed them.

I. Have you noticed any physical, social or health related benefits from the swimming lessons for Andy?

PA. I think a bit. I know he really likes the instructor. He is actually just excited. I think he feels like he is making strides on his skills, so I think he feels good about that.

I. Okay. Future use. If we were to do this in the future, would you change anything, would you add anything, would you take anything away, is there anything that maybe we've never even thought about?

P. Um, I think that everything that you've done has been very beneficial. Um, just for an example, yesterday we had a birthday party and it was at a swimming pool, and um, he had floaties on and he went in, and we saw he was, my husband and I were watching him, and I go, "watch what he's doing," he's kicking his legs and he's trying to swim. I mean, he never did that kind of stuff before, so he is getting stuff out of this. Um, so that was very cool to see.

I. Okay. Thank you.

END OF INTERVIEW – 1 TAPE TOTAL: DS_20012

Tape 5: DS_20013
Location: Pool
Session: #10 0f 10
Instructor: Kathy-1A

I: Can you tell me what you thought about the lessons being longer in duration, the hour-long lessons, did that work out better for the instructors?

1A: Um, instructors or the?

I. Instructors and for the participants.

1A. Um, yeah, I think an hour is a perfect amount of time just because it's, like you get a little warm up, like Andy always has a little thing he does before he gets in the water, and then you have, you know, kind of the lesson part of it, and the last 15 minutes is a lot of, you know, going down the water slide and that kind of thing, so I think the hour is the perfect amount of time to get in the water. Experience it and then kind of have a play at the end, so.

I. What did you think about the floating mat, uh, the little mat platform? Did you think that was beneficial for the instructor for the participants?

1A. Yeah. I think it has a lot of purposes to it if like kids are working either on their hands, like the strokes with their hands or with their feet, like that part of their body can be on it and then the other part can be in the water and it's just kind of an easier way, it's an easier way of getting them acclimated to the water and involved in the water. Plus they like it. Then they like to stand on it, they like to sit on it, it serves multiple purposes, and I think they all really enjoy it.

I. What about the wet suits? Did you like, did you guys like having the wets suits on, and did you like having, do you think the participants liked having it on?

1A. I think that the kids really enjoy it. I think it's a, keeps them, like the purpose of them is to keep them warmer throughout the lesson, and I think that they served that purpose very well for the kids and for the other instructors.

I. Do you think it helped them become more comfortable in the water?

1A. Absolutely. I think that it kinda was like a, an aid in making them feel more comfortable and enjoying the water.

I. Yes.

1A. Plus it like kinda was like a mental thing, too, like I have this wet suit on so I can do anything in the water sort of thing. That's kinda of how I feel like, especially with the younger kids, and they seemed to like really enjoy wearing them.

I. If you were to change anything about the lessons, do you see any changes being needed, is there anything you might add, take away?

1A. Ummm. (pause) I don't think so. I, I like the idea of the purple mat, and I think that was used very well throughout the lessons. I would definitely leave that in. Um. But I don't think I would change anything. I like the one-on-one a lot, and I think the kids like the one-on-one, and I think that worked out really, really well, especially with these kids. It's a smaller class size, and they get more attention, and I think that worked out really, really well, so.

I. (microphone noises) Thank you.

END OF INTERVIEW – 1 TAPE TOTAL: DS_20013

Tape 7: DS_20014
Location: Pool
Session: #10 of 10
Instructor: Karen-1B

I: Okay. Just uh. Uh, Karen, just ah, how did you think the floating mat worked for, as far as instruction? Did the kids like it? Did you find it helpful, beneficial at all?

1B. Um. Yeah. I thought it was very helpful, especially um when you're teaching, a new stroke, you can demonstrate on the mat so the kids can see what's going on and how the stroke works on the mat, and then we can also have the kids um do the stroke on the mat first so it's more comfortable, and then before they do it in the water, so I thought it was very good just for even that reason, and also, um.

I. So you're saying they felt, you think they felt a little more secure on the mat?

1B. Um hum. Yes. Yes. And I thought that was the coolest thing I've seen, especially even just floating for the younger kids, such as like the front and back floats, just getting comfortable of just floating on a mat and then float with your body with support. I feel like they, it's a big um, comfort issue, err, it helps with that. It also nice cause we don't have to hold them all the time and the feel more comfortable trying it kinda on their own.

I. Okay. What did you think about the ah, the wet suits? Do you think those were beneficial for the instructors? Do you think those were beneficial at all for the participants?

1B. I think it was very helpful for everyone because a lot of times everyone just gets cold and doesn't want to do the things that we ask, or if the instructors get cold so they don't feel as enthusiastic, but since they have those wet suits, that really helps us um do a better job, and the kids obviously aren't cold as much, and I think also, another benefit is they um help them float, and so that helps too with swimming and floating and everything, so I thought that was pretty cool. I also thought it was nice to wear em' cause they kept us warm too. I know they are more comfortable and it's really cool to see them relax so much.

I. Okay. What did you think about the extra time? Instead of a normal half hour lesson we went with an hour-long lesson? Do you think that was, that proved beneficial at all for the children?

1B. It was pretty cool because it gives us more time to break things down. It helped the boys cause they were not rushed to get in right away and I think it helped them be more relaxed with the things we tried to like work with them on.

I. Okay. Do you think that was beneficial to have more time?

1B. Yes, because um it helps us break things down more for the student, and it just makes more time, and I just think it's for the better, we're not rushing through things or anything. I think cause we're not so stressed like to get everything done they aren't so stressed either. It like helped keep them calm and it made it easier to teach some things. We're just, it's just really helpful.

I. Okay. Thanks

END OF INTERVIEW – 1 TAPE TOTAL: DS_20014

APPENDIX I

OBSERVER FIELD NOTES

Observations-Session #5 Bill

1. Wetsuit on

   OC-I think it's helpful to have instructor in wetsuits too. Kids like to do the same thing/not look out of place/not look different. Third session with wetsuits-seems more comfortable for boys and instructor.

2. Standing on mat shooting baskets to begin lesson

   OC-Bill has very good balance standing on the mat and shooting baskets. Mat is moving all over and he can keep standing. Great balance! Instructor is holding mat and offering encouragement to Bill. Mother states "I can't believe how many muscles he must be using just to stay upright on the mat. It has to be so good for him".

3. Crocodile slides are demonstrated from mat and then Bill does several.

   OC- Bill seems to be pleased with himself…looking over at mother. Sliding across mat into the water is fun and good lead-up technique for moving through the water.

4. Laying on mat prone position-instructors working with his arm movement for dog paddle and breast stroke. Then move to kicking on kickboard-he can flutter kick independently.

OC-Good transition from mat to kickboard. No need for wall kicks. I think using the mat allows for adjusting to new skills and techniques while using the fun apparatus

5. Noodles under chest – arms breast and dog paddle. Legs are not doing any movement

   OC-The instructor is talking to Bill and encouraging. Bill seems to struggle with moving arms AND legs at the same time. First time trying this arm movement. Very well supported by noodles, but think the wetsuit is helping with buoyancy too.

6. Noodles under arms and legs on the mat. Bill is moving through the water.

   OC-Seems to take a little time to adjust but is now moving both arms and legs in propulsive movements. Think wetsuit is helping him float and not struggle to stay at the surface.

7. Going underwater for dive rings. Bill struggles due to wetsuit buoyancy. After 3 attempts he adjusts and is able to grab rings!

   OC-he did not give up or get upset, just kept trying until he got the rings. He keeps looking over at Mom after grabbing rings. I believe he wants to please her-would be my guess. Excellent breathe control even after multiple rings.

8. End lesson with Bill swimming under mat and then shooting baskets from mat. 1 hour 5 minutes

OC-Bill is making tremendous strides. He looks confident, more comfortable and relaxed trying new and old skills. The instructor is keeping things moving and fun for him.

Observations-Session #5-Paul

1. Got wetsuit on and got in water right away.
2. Paul walking around pool adjusting and exploring…about 5 minutes.

   OC- He still needs time to adjust to the surroundings. He seems to really like having a set routine. He does appear to be more comfortable than the first few lessons and adjust to the routine quicker each session.
3. Started Paul out on the mat with flutter kicking.

   OC-Paul likes to climb on the mat, instead of holding the edge, and does need to be re-directed. Paul jumping off the mat into the water feet first. Standing and trying to balance and doing a better job than earlier. He does have trouble staying on task.
4. Instructor allows him to play on mat for several minutes.

   OC-Paul is adjusting and having trouble focusing because of his issues…may be due to transitions and needs longer adjustment period.
5. After redirecting him Paul does start to work on flutter kicking from mat.

   OC-Extra time helps instructor not rush him. I could not see Paul in a traditional class setting-too many distractions. Mother states that "Paul has difficulty transitioning from one thing to the next at times. He really likes to go at his own pace".
6. Switch to Elementary backstroke kick-laying on mat. Demonstration from instructor with verbal prompting-very good.

OC-Good slow demonstration from instructor. Paul is able to see legs moving.

7. Paul floating on back doing elementary back kick.

   OC-He is very relaxed and not sitting in water---good body position. The buoyancy of wetsuit is helping him stay on the surface and in a good line.

8. Demo elementary back arms- Paul is laying back and swimming

   OC-He really seems to enjoy accomplishment-good praise from the instructor. Paul looks relaxed and comfortable for this attempt. Again, instructors are demonstrating slow, clearly visible, and methodical steps while he sits on edge to watch.

9. Session ends with waterslide. Session last right at 1 hour.

   OC-difficult child at times, but it seems okay in one on one instruction. Instructors are showing patience and praising positive outcomes.

Observations-Session #5-Don

1. In wetsuits right away and in water immediately. 3rd session with wetsuits.
2. Slide first for 5 minutes

   OC-Boys seem to be having fun with slide but I sense they are losing interest with slide. Not going down as much as first few lessons.
3. Laying on mat-mat floating on back

   OC-Don is very relaxed and does not seem tense with head laying back in water. This was a struggle the first few lessons. Now standing and crawling on mat. Good balance for Don and he seems to enjoy having the mat move under his feet.
4. Rolling from back to front and front to back

   OC-Instructor verbal prompts only. With 1-1 he seems more willing to please his instructor. I sense he is becoming more comfortable with his instructor. The extra time for the lessons is helping make them more comfortable with the pool area and the instructor.
5. Holding/Hugging kickboard floating then adding elementary backstroke kick.

   OC- Don has been working on this for two sessions now and seems quite ready to move on to full stroke soon.
6. Don floating on back with wetsuits-Unassisted

   OC-Instructor right there but not assisting. Mother said “I don’t think he’s ever done that before”. He looks calm and relaxed, I think because of the wetsuit buoyancy. Mat is a good safe transition.
7. Instructor helps Don roll over to tummy then to back- turning shoulders.

OC- Don seems to struggle with this at first on his own but prompting and demonstration from the instructor helps. The instructor is praising and using excellent facial cues-happy face.

8. Move to underwater swim for rings.

   OC-He struggles at first, but like Bill, is able to adjust and grab rings. Shows Mom he got the rings. He is proud of accomplishment. The instructor is using high fives and good facial cues while praising. He struggles with breathe control at times but seems like he is adjusting well to the process and lessons.

9. Swimming under the mat.

   OC-The instructor helps him by moving the mat out of the way as he swims under…sometimes only a few inches underwater. Instructor is constantly watching him-good safety measure.

10. Session ends 1 hour

    OC- Says he wants to stay longer, but is told by his mother that the lesson is over and complies without incident.

Observations-Session #5-Bob

1. Wetsuit on right away.
2. In water after opening doors several times. Not like first day though.

   OC-Still fascinated with automatic doors/handicapped door. He needs time to get adjusted to the pool area, but not nearly as bad as the first session-first session it took 30 minutes to get him into the pool.
3. Slide for 5 minutes then turn off

   OC-rules set for slide…first 5 minutes of lesson and last 10 minutes. I think having set rules has helped keep him more focused and on task…will need to look at that for future studies.
4. Over to mat-working on flutter kick

   OC- It's not going well-he wants to shoot some baskets from the mat. He does stand and shoot but is also sitting and shooting from mat. He does have good balance, but want to do his "own thing".
5. After 3 minutes he is re-directed and works on flutter kick from the mat.

   OC-Mother states, "Bob just seems to take his time getting going unless it's something he really wants to do". Instructor tells him that he won't be allowed down the slide at the end of the lesson if he does not comply.
6. Now laying back on mat working on back floating

   OC-He is very calm and relaxed and seems to be more focused.

7. Instructor explains and demonstrates back star float. Bob jumps off mat and with prompting lays back and with some assistance does a star float assisted and then unassisted.

   OC-He again looks comfortable and extremely relaxed laying on the surface. Mother states that she thinks he is more relaxed due to being warm in the wetsuit.

8. Instructor now demonstrates dog paddle on stomach. Instructor moves his arms, then lets him dog paddle on stomach.

   OC-The buoyancy of wetsuit allows for Bob to float but not have to use legs very much. Having his legs float allows him to move easier through the water.

9. Bob wants to shoot more baskets. Instructor lets him shoot a few times.

   OC-I think this is okay for Bob. Because of his severe issues, he seems to only stay on task for a short time, then he is somewhat able to go back to the set agenda. He seems happy and compliant after he does this and is ready to move on.

10. Instructor redirects and gets him to go underwater for diving rings.

    OC-He really enjoys getting the rings…smiling and laughing. Good breathe control for him and does not seem to have a problem with the wetsuit.

11. Session ends with waterslide and Bob shooting baskets. 1 hour.

    OC-Not too happy to leave at first but does comply with the instructor.

Observations-Session#5-Dan

1. Dan in wetsuit right away and into hot tub

   OC-Dan always starts in the hot tub. I think it takes him awhile to adjust and with his issues this seems to work out. He is very set in his routine. Mother states that "He is always on his own schedule. I know it just takes extra time for him to get comfortable with directions".

2. Floating on back in hot tub. Instructor laughing saying "he looks like he's going to fall asleep!"

   OC-Dan is very relaxed and spinning around slowly in the jets. This must feel good to him and he has to be very comfortable and feeling quite secure.

3. After 6-8 minutes instructor prompts Dan to get into the pool.

   OC-The instructor uses mat to prompt him. He climbs out of tub, onto mat, and then the instructor slides Dan and the mat into the pool. This seems very effective for him and think this helps him transition into the lesson.

4. Moving around exploring pool.

   OC-This seems to be a pattern for Dan after the hot tub. He is checking out ALL areas of the pool.

5. Dan climbs out and goes back to the hot tub and not following instructor's prompts.

6. Takes wetsuit off. Mother says "He doesn't like things around his neck and he is very sensitive to some clothing and textures." I must look into wetsuit designs without a high collar because of the sensitivity issues in future studies.

7. Instructor playing with noodle in hot tub trying to get him back in pool

   OC-Instructor having difficulty getting Dan to do anything.

8. Instructor physically lifts him and places him on the mat. Back to pool.

   OC-Instructor has done this before for Dan. Mother states that she wants the instructors to "push him" because he just likes to do his own thing if he is not "pushed".

9. Dan now playing on mat. Rolling ball back and forth on mat.

10. Instructor "tents" (folds) mat and has Dan walk through/under mat. Then swim/paddle under folded-up area.

    OC- Instructor is trying to push him to comply.

11. Turned slide/fountain on and seems fascinated and enjoyed fountain and standing in fountain. Water splashing on his back and neck.

    OC-He must like the feeling of the water. Mother has said he doesn't like to get face wet even in the shower. This is something new as he seems quite fascinated with the water flowing over his back.

12. Slide is turned off and the instructor has Dan float with kickboard and moves his legs in flutter motion.

    OC-Instructor physically moving his legs in desired motion-kinesthetic.

13. Instructor moves him back to the mat while working on flutter kicking. He is moving the entire mat with just his kick.

    OC-This seems to be a good transition for him and he is complying much better with the instructor.

14. Crocodile slides on stomach.

    OC-Instructor is helping him by pushing/sliding him off the mat and back on to mat.

15. End of session in hot tub floating. Session ended 5 minutes early due to previous commitment at home.

Observation-Session #5-Andy

1. Wetsuit on.

   OC-Mother states that “Andy really likes how the wetsuit keeps him warm”.

2. Instructor has placed several toy ducks around the pool edge.

   OC-He likes playing with the ducks and counting them as he collects them. Really enjoys this routine and works well with it.

3. Andy jumps in the water while instructor helps him collect the rubber ducks.

4. Climbing out of water and instructor moving to slightly deeper water for him to jump into.

   OC-This allows him to jump in, submerge in deeper and deeper water, than paddle back to the edge of pool. Wetsuit buoyancy seems to help make Andy more secure the deeper they go.

5. The instructor brings over the mat and asks Andy to lay down on his back.

   OC-It looks like she is trying to have him work on body positioning for back float.

6. Instructor now pulls/slides him off the mat and with assistance he is back floating.

   OC-This is a very good transition and Andy seems relaxed and confident.

7. The instructor now moves him back to the mat. Now rolling a ball back and forth from instructor to Andy-on top of mat.

   OC-He seems to really like this ball rolling. Looks fun and keeping him interested with the lesson.

8. Instructor moves him into deeper water while he is hanging on the edge of mat. Now rolling ball back and forth. Andy climbs on top of mat and is standing on mat-trying to balance while instructor slowly moves mat.
9. Back to shallower area. Diving sticks are on the bottom.

   OC-I think having multiple things to do for the boys is helpful. If the instructors only focus on 1 or 2 skills during a lesson than the kids can lose focus quickly.
10. Andy reaching and going under water to get dive sticks.

    OC-Instructor again starts him in shallow water with sticks and progressively gets deeper. Some coughing when he gets up from time to time but otherwise very good. Mother states “I know he couldn’t do that before we started lessons here”.
11. Instructor places duck in water and blows the duck around. Andy does the same.

    OC-Breathe control for working on rhythmic breathing later on.
12. Back to mat and now shooting baskets from sitting and standing position.

    OC-The instructor is using the mat to move Andy to different areas of the pool. Andy’s balance is much better than the first lesson.
13. Swim noodle under his arms and working on dog paddle. Then breaststroke arm movement.

    OC-Demonstration first and is now moving his arms. He seems to be very focused yet relaxed trying this new skill/movement.
14. Instructor has him lay back and is floating unassisted.

    OC-The wetsuit is keeping him warm and really makes him float. Not shivering, calm relaxed and still focused.

15. End lesson with counting ducks and putting equipment away. 1 hour.

    OC-Mother states that he likes to help put everything back where it belongs and also counting each piece as he does this often at home.

Observers Notes

Session #10 Bill

1. Start 5 minutes early. Bill in wetsuit and in water right away.

   OC- this is a good indication that he is ready to learn and is having a good experience with the lessons.

2. Bill is sitting and standing on mat shooting baskets.

   OC-He really seems to like this routine. Mother says he likes to shoot baskets at home too.

3. Instructors have Bill flutter kicking right away.

   OC- Instructors are going to try to get Bill into swim fins to help him with flutter kick. Mother states, we have tried before but he doesn't like the fins. It would be great for him to use fins and a snorkel.

4. Laying on mat with hips/legs off of mat…flutter kicking.

   OC-Looks like instructors are slowly getting him acclimated and getting ready to get fins on him. He does seem ready for this new challenge.

5. Instructor brings over fins as Bill sits on mat. She gets them on!

   OC-The instructor struggles with putting them on a bit (rubbery ankles and not pointing foot), but she gets them on him. If we use these again for other kids, I may have to get more fins and or open heel fins.

6. The instructor is physically moving his legs in alternating up and down movement/flutter kicking.

OC- Same technique used for traditional classes. This helps him work on pointing the foot and alternating the kick.

7. Sliding off mat to lay on mat and kick.

   OC-He is flutter-kicking but keeps looking back behind. This must be a weird feeling for him to have fins on. He has never had them on before so this is all a new experience for him.

8. Now with kickboard only and he is moving!

   OC-Another good transition for Bill…instructors have figured out what works best for him.

9. Instructor has brought over mask and puts it on him. Strap out of the way at first. He puts his face in the water and comes up smiling.

   OC-Mother states that "If they get this on him that is a huge accomplishment as we have tried this many times before".

10. Instructor puts strap around head.

    OC-Bill pulls strap down too far below ears but it still has a seal. He is swimming around! Good transition…baby steps! Again, the instructors seem to sense Bills want and needs and are able to adjust…the strap is not on correctly but they allow him to make adjustments.

11. Mother is really excited and taking pictures. She says, "He has never done this before!"

    She is also talking about taking him snorkeling on their next vacation already.

12. Bill is swimming around exploring with mask and fins on.

OC-Bill doesn't wear goggles, so this must be really cool for him. He can see clearly underwater maybe for the first time. Something to think about for future projects….using masks and or goggles to help the kids.

13. Bill takes his fins off and mask off by himself. Had them on for 12-15 minutes.

    OC- This may be because they are bothering his feet and ankles. They can sometime hurt after a while.

14. Bill goes over to the lap pool and finishes lesson jumping off the board.

    OC-Mother is absolutely thrilled with his accomplishments today. Referring to the mask and fins, she states, "I didn't think this would ever happen for him. This is so exciting".

15. 1 hour 10 minutes

    OC-Went a little over the scheduled time but mother seemed okay with that.

Observers Notes

Session #10-Paul

1. Got wetsuit on and went into water and walked down ramp right away.
2. Playing in shallow area (2-3 minutes) until re-directed by instructor.

   OC- He seems to be quite distracted today. Paul's severe issues usually begin early on in the lesson.
3. Instructor brings mat over and has Paul flutter kick to a little deeper water.

   OC-Paul is laying half on half off mat. Not doing too much kicking but is complying with the instructor
4. Instructor has him lay on side and moves his legs for scissors kick on mat.

   OC-Instructor demonstrating everything very slowly and making certain he is watching and staying focused.
5. Instructor demonstration on the mat then practice scissors kick with him holding on to edge of mat. Instructor is moving his legs in proper pattern.
6. Diving for dive rings. He has no trouble getting rings.

   OC-Great breathe control. He has made progress since the start of the lessons. Seems more comfortable each lesson.
7. Back float and rolling over to tummy. Tummy to back unassisted.

   OC- This is an excellent survival skills for all children. The combination of warmth and buoyancy seems to make him more relaxed and comfortable.
8. Having trouble staying on task. He wants to shoot baskets. Instructor has to redirect.

OC-Again, The instructor has trouble keeping him on task as his attention span is quite short.

9. On mat working on freestyle arms. One arm at a time from the edge of mat.

   OC- The instructor is able to demonstrate and keep him comfortable on mat.

10. Trying to swim crawl stroke arms. Not going to well.

    OC-Instructor noticed he was starting to get frustrated and switched to backstroke. Excellent technique….don't let him get frustrated and upset, just keep him working on other skills.

11. Back to mat. Backstroke arms from edge-one arm at a time.

    OC-The instructor is physically moving his arms through proper movement. This technique of kinesthetic seems to really work with some of the boys, especially the non-verbal boys.

12. Backstroke unassisted.

    OC-Paul is having some trouble wanting to sit in water, but he is still moving through the water!

13. Paul having trouble with focusing. Now shooting baskets and floating.

    OC- Paul needs frequent re-directing. Extra time during the lessons is valuable for instructors and students. He is a difficult child at times…he does seem to enjoy himself but has some extreme issues.

14. Lesson over 55 minutes.

Observers Notes

Session #10 Don

1. Wetsuits on and over to the lap pool. Following his brother.

   OC-Doesn't want to miss out but seems slightly nervous about the deep water in the lap pool.

2. Started with jumping off 1 meter diving board. About 10 minutes.

   OC-This is new for the boys since lesson #8-Swimming to the side after going off boards unassisted. The wet suit buoyancy seems to be really helping in deep water. He instructor is in her wetsuit and floating out in deep water-encouraging.

3. Moved back to small pool and started with floating on back.

   OC- No troubles with this transition from boards to the little pool…think this would have been an issue the first few lessons

4. Elementary backstroke and actually moving really well.

   OC-He has made the most progress of all the boys. Confident, relaxed and looks quite comfortable.

5. Trying some breaststroke kick and arms.

   OC-He can do the arms but not legs or legs but not arms but not the other way around as of now. He'll need more time for coordination of arms and legs…very normal progression.

6. Diving for rings

OC-Don really enjoys going underwater and showing off to his mother. Again…very confident/relaxed and using good breathe control. Wetsuit is not bothering him at all.

7. Back to big pool and 1 meter board.

   OC-Did this several times. Brother than tries high board. This may be some sibling pressure.

8. High board/6 times

   OC-This is huge! Jumping off high board (3 meter) and swimming to side unassisted! He is very proud of himself. Great accomplishment! Mother says, she can't believe it"! He is swimming unassisted to the side in deep water and not too nervous.

9. Ended lesson 1 hour 10 minutes.

Observers Notes

Session #10 Bob

1. Wetsuits on and over to the lap pool with brother.

   OC-Bob is leading the way and brother follows. Sometimes peer pressure works in a positive direction as his brother doesn't want to be out-done by sibling.

2. Bob is going off low diving board jumping into deep water. 10 minutes.

   OC-Wetsuit is helping him float and also seems to help his confidence level by being able to complete this by himself.

3. After prompting back to little pool.

4. Working on back floating.

   OC-Bob seems very calm and relaxed and seems much more at ease with this transition to the smaller pool

5. Wants to go back to diving boards. Needs to be redirected.

   OC-This is typical for Bob….difficult to stay on task sometimes and wants to do things his way. Instructor seems to get Bob back on track.

6. Instructor demonstrating back float with flutter kick.

   OC-Good demonstration but Bob not ready yet. Making noises and pointing to diving board. This is his way of communicating what he wants due to his non-verbal/limited verbal skills.

7. Bob still upset, but finally lays back unassisted and flutter kicks.

   OC-Instructor is very calm with him and tolerant of his outbreaks.

8. Instructor wants him to use his arms and is moving his arm through movement…1 arm at a time. Not using the floating mat at this time.

   OC-Instructor is very patient and keeps him focused.

9. Backstroke with some assistance from instructor!

   OC-Really making great strides as some kids don't like to be on their back, but think being more buoyant due to wetsuit is helpful.

10. Diving rings for Bob.

    OC- Good breathe holding for Bob with a little underwater swimming.

11. Back to big pool and diving boards.

12. Started with low board and now is diving from high board!

    OC-Bob is very excited and seems proud of himself. He is swimming to side without help. Wetsuits really help with buoyancy and aid in his comfort in deep water. I don't think this would have been possible without the wetsuits and how they help these two boys.

13. 1 hour 10 minutes.

Observers Notes

Session #10-Dan

1. Wetsuit on.
2. Jumps in hot tub immediately. 8 minutes

   OC- This is his set routine and the instructor is very patient with this part of his actions.
3. Instructor trying to get him to cooperate. Using the mat to try to get him in the pool. Also, using the noodles to try to get him back on track.
4. Instructor carries Dan to mat and gets him on mat then into pool.

   OC-Instructor physically lifts him onto mat. He is a big kid.
5. Dan walking all over and exploring the pool area. Instructor following and at times trying to engage him in into the lesson.
6. Dan fascinated with fountain. Standing and water spraying on his back.

   OC-Mom states that since the lessons started, “he now puts his head under the shower for the first time ever”.
7. Instructor gets Dan onto mat and has him lay on his back.

   OC-He seems fairly relaxed then starts moving around on the mat.
8. Dan climbs off and starts to back float on his own. Not paying attention to directions but is still back floating.

   OC-Very relaxed, but not showing any interest.
9. Instructor lifts Dan back onto mat.

OC-Dan really doesn't seem to mind being picked up…interesting. I would think this might bother him.

10. Instructor now demonstrates breaststroke arm movements and then has him do the same.

    OC-He does seem to watch and looks like he is paying attention.

11. Dan not interested.

12. Dan goes over to water slide and rolls ball up the slide. Watches it roll back and repeats many times.

    OC-Dan has his own agenda and seems very head-strong at times. Instructor is not showing any sign of frustration…good.

13. Instructor allows him to do this.

    OC- Instructors maybe not strict enough with him and really need to take charge. Maybe too easy going for him and he is taking advantage of this.

14. Instructor finally redirects Dan to do elementary backstroke. He complies and is actually good at it.

    OC-Instructor is pushing him to stay on task is good for him. I may need to have those rules in place before lessons start.

15. Dan walks through the water back to water slide and rolling the ball up the slide.

    OC-This seems to fascinate him watching the ball roll back down.

16. Dan wanders over to hot tub.

    OC-Instructor follows and looks to be losing patience.

17. Dan back floating in hot tub.

18. Slowly spinning around because of jets.

    OC-Totally relaxed and calm.

19. End of lesson 1 hour and 5 minutes.

    OC- This was a difficult lesson for the instructor as Dan really had trouble complying with most of the directions. He could be just having a bad day, but he is trying today. We might need to think about 12 or 15 lessons instead of the normal/traditional 10 for those difficult days that the child may encounter. Also, having some more visual prompts may be really helpful for those him on those bad days.

Observers Notes

Session #10-Andy

1. Wetsuit on.
2. Ducks lined up around pool

   OC-Great routine for him using the ducks for Andy and the instructor came up with this idea all on her own-very creative.
3. Andy grabs a duck then jumps in water and hands of duck to instructor. Moving around pool.
4. Jumps are in progressively deeper water.

   OC-Looks over to mom frequently to make sure she is watching. He is more confident in his entries and breath control. Jumping of the bottom/Bob-to-safety is a great skill for him.
5. Over to the mat and working on elementary back. The instructor demonstrates what she wants Andy to perform and he complies.
6. Sliding Andy off mat and he swims E.B.

   OC-This is a great transition from the mat to the water and Andy must feel very comfortable to have the instructor slide him off the mat.
7. Back floating/Star float and front float to recovery, all unassisted.

   OC- This is a huge accomplishment and one that has just been learned and is helped by the wet suit buoyancy. He does not even look around like so many kids do with this new skill.
8. Jumping from mat into water.

OC-The depth of the water surprises him but he is not really bothered by it. The wetsuit is definitely helping him helping with buoyancy. Because he has such a small skinny and frame, being warm in the water must be helping keep him more relaxed.

9. Swimming under mat….instructor moving mat to help.

   OC-Can't see under or through mat…safety measure so he doesn't get hung up under mat when coming up. Mother comments that she has "never seen him swim like that underwater before". This is an excellent skill even though he was only swimming a couple of feet underwater.

10. Instructor "tents" mat and Andy dog-paddles from one side to the other.

    OC-I really like this technique…the instructors came up with this technique by themselves and it seems to work well with the boys.

11. Andy is flutter kicking while holding on to the mat edge.

12. Instructor has Andy do backstroke on the mat edge-laying on mat. Moving his arm so he can fell movement.

13. Swimming backstroke in the water with assistance from instructor. She is supporting his waist and talking/encouraging him to keep moving

    OC-Really doesn't need to be supported due to wetsuit but instructor feel she needs to keep a hold of him. He does look comfortable for his first time with this skill.

14. Ending lesson with swimming (dog paddle and walking) from edge out to ducks and back. Progressively farther each time.

OC-I really like dog paddle as this can give them some early success in the lesson program.

15. Lesson 1 hour. He looks a bit tired but he’s not cold!