ATHABASCA UNIVERSITY

# MONTESSORI AND AUTISM: AN INTERPRETIVE DESCRIPTION STUDY

BY

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A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTERS OF HEALTH STUDIES

FACULTY OF HEALTH DISCIPLINES

CENTRE FOR NURSING AND HEALTH STUDIES

ATHABASCA, ALBERTA
OCTOBER 2016

## Approval of Thesis

The undersigned certify that they have read the thesis entitled

**"Montessori and Autism: An Interpretive Description Study"**

Submitted by

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In partial fulfillment of the requirements for the degree of

**Master of Health Studies**

The thesis examination committee certifies that the thesis
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October 20, 2016

## Dedication

I would like to dedicate this study to all of the families who have children with autism and other learning differences, who seek to learn more about Montessori methods. It is through my work with families that I have continued to work at developing programs for children with autism and related disorders. My motivation for this study is to add research in an area where information is still very limited.

## Acknowledgments

I would like to thank the faculty of Athabasca University, in particular my thesis supervisors Dr. Simon Nuttgens and Dr. Caroline Park. I could not have completed this thesis without your valuable ongoing support and guidance. I would also like to thank Dr. Joyce Pickering for being on the committee for my thesis defense. You have always been a role model, and I am honoured that you agreed to support me with this project.

I would also like to thank all of the teachers at Athabasca University, in particular, Dr. Barbara Low who provided me with additional resources for this topic when I was having trouble finding information.

Thank you to all of the participants who shared valuable information for this study. I appreciate the time and the information that you generously shared.

Thank you to my loving husband Oren, for all of your support during the last few years as I completed my Masters. I could not have done this without you. Thank you to our children Alliyah, Amos, and Jaguan, for understanding that mommy had a very long paper to write.

Thank you to my father whose continued support and faith in me has allowed me to continue to explore my work in Montessori and autism.

Mom, thank you for your continued support from the skies above. Thank you and dad for putting me in Montessori as a child. This spark in education allowed me to be a free thinker and to believe that anything is possible.

**Abstract**

The rates of autism have increased dramatically in the last decade and more research is being conducted to find ways in which to help individuals diagnosed with autism, to function at their optimal developmental level. Montessori education, which has its origins in special education, has shown positive results in typically developing children and youth in the acquisition of cognitive and social skills. Montessori teachers who have practical experience working with a range of children on the autism spectrum were chosen for this study in order to learn from their teaching techniques. This is an area in which there is minimal research. In this research I asked the question "How do Montessori teachers adapt Montessori methods with children diagnosed with ASD?" An interpretive description methodology focused on the specific modifications participant teachers applied to the Montessori method when working with this identified group of students. This methodology will provide practical applications for Montessori teachers who do not have experience with children with ASD, as well as providing information for parents who are trying to decide whether or not to put their children with ASD in a Montessori learning environment.

*Keywords*: autism, ASD, Montessori, interpretive description

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# CHAPTER I – INTRODUCTION

"Today many pediatricians recognize our schools as Health Homes (Casa della Salute). They send children with functional illnesses that have resisted ordinary treatment to them, and astonishing cures have thus been obtained." (Montessori, 1936/1966, p.181)

## Statement of the Problem

Autism spectrum disorder (ASD) is a quickly increasing disorder, with a current incidence of 1 in 68 in the United States (Battalia & Radley, 2014; Centers for Disease Control, 2014). In 2011, approximately 190,000 Canadians were diagnosed with ASD, with a higher prevalence found in boys (Gale, 2011). ASD is a range of neurodevelopmental disorders that have a profound effect on language, social skills, and produces varying restrictive and stereotyped behaviours (Anagnostou et al., 2014).

To date, there is no single program that treats all features of ASD (Reichow, 2012). Current therapy programs used to treat symptoms of ASD include a combination of applied behavioural analysis (ABA) therapy, speech therapy, occupational therapy, play therapy, and social skill therapy. Montessori methods have been implemented as a global program of educational instruction for typically developing children (Hazel & Allen, 2013). Montessori methods also have a long history as a therapeutic method with an extensive history for teaching children with severe learning challenges (Constant, 2014a, 2014b).

There is little research specifically addressing the application of the Montessori method and educating children with autism. Park (2004) found that "Montessori schools

could possibly provide a good setting that would meet the needs of autistic children, but many people do not know there is such an option or whether it is a viable one" (p.51). Exploring how a Montessori educational setting could be utilized to help address symptoms of ASD, would provide beneficial information for parents, as well as teachers and other professionals who work in the field of ASD.

Learning about the experience of Montessori teachers who have worked with children with ASD could provide great insight into methods that work and that are challenging when teaching a child with ASD in a Montessori environment. The research question "How do Montessori teachers adapt Montessori methods with children diagnosed with ASD?" is best investigated using an interpretive description methodology. The information from this research will provide parents, teachers, and professionals who work with individuals diagnosed with ASD, with a base of knowledge on how best to teach children with ASD using Montessori methods.

# CHAPTER II – REVIEW OF THE LITERATURE

The purpose of the research was to investigate the use of Montessori methods for educating children diagnosed with ASD. I began my review by looking at some of the core themes that were associated with the diagnosis of ASD, with a focus on cognitive ability and social skills development. I then discussed the highest level of evidence-based research for children with ASD, which is applied behavioural analysis. I followed this with two other common treatments of ASD, speech therapy and occupational therapy. I continued to explore some of the areas that teachers in traditional schools find challenging and beneficial working with children with ASD in their classrooms. I concluded with a review of current research on Montessori education with typically developing children.

## Autism Spectrum Disorder

Children with ASD are diagnosed based on criteria that address language, stereotypical behaviours, and social skills (Anagnostou et al., 2014). For most individuals, an ASD diagnosis impacts these affected areas for a lifetime (Bowker, D'Angelo, Hicks, & Wells, 2011). Children with ASD are often diagnosed around the age of three; however, many parents are aware of symptoms much earlier (Barnard-Brak, Ivey-Hatz, Ward, & Wei, 2014). The 2013 edition of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-V), combines the historical subheadings of Asperger's syndrome, pervasive developmental disorders, and childhood disintegrative disorder into the single diagnosis of "autism spectrum disorder" (American Psychiatric Association, 2013).

Different assessment tools are used to identify the range of skill development found in children with ASD. The Autism Diagnostic Observation Schedule, Second Edition (Lord, Luyster, Gotham, & Guthrie, 2012; Lord, Rutter et al., 2012) is a revised tool that measures diagnostic algorithms from toddlers to adults to assess severity of ASD through observation. The Vineland Adaptive Behavior Scale, Second Edition (Sparrow, Cicchetti & Balla, 2005), is an assessment tool used to measure adaptive behaviour in ASD. These tools are not all encompassing and other tools are also used to measure a child's communication, socialization, and motor skills (Ventola et al., 2014).

Cognitive ability in preschool children with ASD is often linked to IQ scoring which varies from severely challenged to above average (Centers for Disease Control, 2014). Ten years ago only a third of preschool children with ASD showed average to above average IQ; however, the Centers for Disease Control (2014), stated that almost half of preschool children diagnosed with ASD today have an average to above average IQ. Poljac and Bekkering (2012) identified the need for further research in the cognitive development of children with ASD as the number of studies is very limited.

## Social Development and Autism Spectrum Disorder

One of the core deficits of ASD is the development of social skills. The Vineland Adaptive Behavior Scale II is used to assess a child's social capabilities (Ventola et al., 2014). Research on infants, who were later diagnosed with ASD, exhibited limited eye contact, imitation skills, and an overall lack of social interest as early as 6 months (Ventola et al., 2014). The infants in Ventola et al.'s (2014) study showed more interest in objects than in people compared to typically developing infants, and infants with other

developmental delays. Understanding people socially and emotionally is very difficult for children with ASD (Jureviciene & Sostakiene, 2014; Mathews, Erikfritz-Gay, Knight, Lancaster, & Kupzyk, 2013).

Children with ASD also have difficulty remembering social skill information. This suggests that their challenge may not be an impairment understanding social cues, but rather a lack of ability to retrieve learned skills from memory (Brezis, Galili, Wong, & Piggot, 2014). Lack of social skills has many detrimental impacts on children, exposing them to risk of bullying, isolation, and anxiety (Mathews et al., 2013).

Children with ASD need to learn social language such as imitation, joint attention, and play skills (Wu & Chiang, 2014). There are a variety of programs that work on social skill development in children with ASD. ABA programs teach social skills such as eye contact and conversation skills (Ranjan, Pradhan, & Wong, 2014). TEACCH® (Treatment and Education of Autistic and related Communication Handicapped children) (Wu & Chiang, 2014) and ABA are programs that teach skills to children with ASD through rote learning approach. There has been a trend toward child-directed approaches focused on creating engagement from the child instead of rote instruction (Wu & Chiang, 2014). Greenspan and Wieder (2006) created one of the most well known programs to address engagement of the child with social impairments called Floortime® (Greenspan & Wieder, 2006). Floortime® consists of the parent and child playing on the floor several times a day for 30 minute sessions (Greenspan & Wieder, 1998). DIR® (developmental, individual-differences and relationship) is another component of Floortime®. DIR® has six stages that work on attention and regulation, engagement, communications, complex problem solving, and communication (Greenspan & Wieder, 2006). One of the goals of

Floortime® is for the play to become intrinsically rewarding for the child (Greenspan & Wieder, 1998). Each of these programs has benefits and drawbacks and some work more effectively for one child over another.

Social skills groups can also be helpful for children with ASD; however, this option is typically reserved for children who are on the higher end of the ASD spectrum (McMahon, Vismara, & Solomon, 2013). When using the group modality, the facilitator works to engage children in various social situations to help them practice skills with one another before generalizing the skills to typical environments (McMahon et al., 2013). Social skills programs help the child with ASD generalize skills to real social situations. Social skills programs are common; however, there is little empirical evidence to support their use, due to difficulties inherent to assessing the effectiveness of these programs (McMahon et al., 2013).

Peer-mediated interventions involve training a peer of a child with ASD to help generalize social skills in a natural environment (Battaglia & Radley, 2014). Chan et al. (2009) identified that while the initial training of the peer can be time consuming, use of peer-mediated intervention is beneficial to teachers in schools because it provides the child with ASD an opportunity to practice learned skills during real life experiences (Chan et al., 2009). An additional benefit of peer-mediated intervention is that it frees up teacher time due to the peer's involvement with the ASD student (Chan et al., 2009). Cavanaugh and Rademacher (2014) stated that social skill interventions have a significant impact on how well social, emotional, and cognitive abilities will develop in children with ASD. Unfortunately, with all of its documented benefits, many schools do not implement social skill strategies such as peer-mediated interventions (Battalglia &

Radley, 2014). Speculations on why these strategies are not implemented are due to the careful selection of peers as well as the frequent monitoring and modifications that is needed for the program to be successful (Battaglia & Radley, 2014).

## Treatment Focus for Autism Spectrum Disorder

### Applied Behaviour Analysis

Applied behaviour analysis (ABA) is based on Skinner's (1976) theory of operant conditioning, which is based on the observations that behaviour that is reinforced will continue and behaviours that are not will disappear (McCleod, 2007). In the 1980s, Ivar Lovaas adapted Skinner's model of operant conditioning specifically for children with ASD, thus creating ABA (Thompson, 2013). In his classic research, Lovaas' applied an intensive 40 hours per week instruction to nineteen children aged two to five who had been diagnosed with what at the time was referred to as "Kanner's autism" (Lovaas, 1987). Lovaas reported that 47% of children who received his treatment achieved "normal intellectual and educational functioning" (Lovaas, 1987, p.7).

ABA is considered the most effective way to help children diagnosed with ASD (Bowker et al., 2011). It has the best impact when compared to all other evidence-based treatments that are available (Reichow, 2012). ABA aims to teach ASD children how to improve on academic, verbal, social, and daily living skills (Virues-Ortega, Rodriguez & Yua, 2013). Due to the intensive nature of ABA, and the range of severity in ASD, professionals in the field have mixed views on whether or not this type of treatment is best for children who are on the higher end of the ASD spectrum (Tchachonas & Adesman, 2013).

**Speech Therapy**

ASD has a profound effect on language skills (Anagnostou et al., 2014). Some children with ASD have no or very minimal pre-verbal skills, such as babbling for expressive language (Vitaskova & Rihova, 2014). At times these nominal expressive language skills develop into echolalia or other dysfunctional speech patterns (Carson, Moosa, Theurer, & Oram Cardy, 2012). Children with ASD may also have delayed receptive language skills, which many parents mistake for a hearing impairment (Vitaskova & Rihova, 2014). Often there is a correlation between the child's motor abilities (in particular the activities of the hand), and the child's limited speech development (Vistakova & Rihova, 2014).

Many speech therapy clinics continue to use traditional methods (e.g., imitation, production of speech) to teach language to children with ASD instead of using cognitive speech therapies that do not require imitation to learn language (Jalili, Jahangiri, Yazdi, & Ashrafzadeh, 2014). Traditional imitation methods used to teach language to children with ASD are time consuming and not very effective due to the child's limitations in goal acquisition (Carson et al., 2012). Children with ASD have impairments with imitations skills making it difficult to understand and learn speech (Jalili et al., 2014). In addition, traditional methods often focus on the production of speech and require prerequisite skills in understanding images, something that is challenging for a child with ASD (Tamaš, Marković, & Milankov, 2013). Speech language pathologists have a responsibility to fully inform parents of the treatments they are using with children to ensure that these practices are derived from evidence-based research (Auert, Trembath, Arciuli, & Thomas, 2012).

Speech language pathologists are essential members of the team in the treatment plan for children with ASD (Auert et al., 2012). It is the role of the speech language pathologist to assess and manage the intervention identified as best for the child (Low & Lee, 2011). Speech pathologists are trained to identify key areas affecting the child's social communication and their other language related abilities (Plumb & Plexico, 2013). In the school system, a major challenge in supporting children with ASD is the difficulty the school has in retaining funding to keep speech language pathologists who can support the ASD child (Edgar & Rosa-Luga, 2007).

When working with nonverbal children who have very limited communication skills the tools employed are, augmentative, and alternative communication such as Bondy & Frost's (1994) picture exchange communication systems (Carson et al., 2012). Augmentative and alternative communication have been successful because they allow the child to communicate with the use of prompts, which provide the therapist the opportunity to focus on the child's communication skills instead of the production of speech (Carson et al., 2012).

Speech language pathologists and applied behaviour analysis therapists, use behavioural principles to teach language and communication skills to children with ASD (Low & Lee, 2011). These therapists use techniques that shape and manipulate the child's environment while reinforcing positive language or communication development (Low & Lee, 2011).

**Occupational Therapy**

Second to speech therapy, occupational therapy is the most used therapy to assist sensory dysfunction for children with ASD (Ashburner, Rodger, Ziviani, & Jones, 2014). Self-regulation is challenging for children with ASD and is attributed to the child's inability to appropriately process the sensorial stimulation in the environment (Barnard-Brak et al., 2014). This inability to process sensorial stimulation is called sensory dysfunction, which can result in a hyper or hypo reaction to the stimuli within the environment (Schaaf et al., 2014). Sensory dysfunction affects 80 to 90% of individuals with ASD (Rogers & Ozonoff, 2005).

Many parents of children with ASD seek out occupational therapy to address sensory dysfunction (Preis & McKenna, 2014). Sensory processing deprivation can restrict a child's ability to participate in everyday activities (Schaaf, Toth-Cohen, Johnson, Outten, & Benevides, 2011).

Ayres (1989) developed sensory integration therapy in 1972. The therapy was designed to use sensory stimulation to strengthen the nervous system, which then develops the child's ability to attend, learn and manage behaviour (Ayres, 1971). Ayres expanded this treatment model in the 1980s (Preis & McKenna, 2014). Her work remains controversial for children with ASD, even though she has been influential overall in the area of helping children who have motor planning and learning issues (Ranjan, Pradhan, & Wong, 2014; Schaaf, Benevides, Kelly, & Mailloux-Maggio, 2012).

Despite limited scientific evidence to support the use of occupational therapy with ASD children, parents continue to ask that occupational therapists be included as part of a multidisciplinary team (Preis & McKenna, 2014). Several meta-analyses studies have

indicated that sensory integration therapy does not effectively promote social skills, attention, or self-regulation skills in children with ASD (Preis & McKenna, 2014). Contrary to this, May-Benson and Koomar (2010) demonstrated via meta-analysis that children with ASD had achieved some growth in their social, attention, and self-regulation skills having received occupational therapy. May-Benson and Koomar (2010) suggested that the discrepancy in study outcomes could be due to limitations based on homogeneous and small sample sizes which would result in low statistical power. In addition, May-Benson and Koomar (2010) suggested that there was a variance in the studies on outcome measures and that most of the outcomes were "component based and not based on occupational performance or participation" (p. 410).

**Education of ASD Children in Traditional School**

There is a lack of resources for children in the public school system and the teaching staff typically does not have training in therapeutic methods for children with ASD (Battaglia & Radley, 2014). The U.S. Department of Education (2014) stated that from 2003-2013, the number of school-aged children with ASD increased over 150%. Simpson et al. (2005), and Bellini and McConnell (2010), researched public school programs for children with ASD. They found that even tools that were relatively easy to implement (e.g., video modeling) were not being used to their maximum capacity to ensure the learning potential for children with ASD was achieved. Morrier, Hess, and Heflin (2011) found a correlation between teachers who lacked training to teach children with ASD and the lack of impact these untrained teachers had in addressing the learning needs of their student with ASD. They found that teachers had difficulty trying to come up with strategies to deal with disruptive behaviours often exhibited by children with

ASD (Morrier et al., 2011). Children with ASD require a learning environment that recognizes and addresses their individual needs. This is not always possible in the public school system especially during times of education funding cutbacks. School staff and administration at schools implementing the Montessori method are beginning to see a flow of ASD children to their programs. This is because some parents have identified the Montessori method as an educational philosophy built on a belief of individualized educational experience for children (Epstein, 1998). Park (2004) stated that although the Montessori method does not provide everything that is needed for a child with ASD, she discussed that many of the necessary features (e.g., consistency, sensorial materials) provide some of the basic requirements needed for a child with ASD.

## Montessori Research

The Montessori method was created by Maria Montessori based on the work of Itard and Seguin (Montessori, 1948/1967 version). When she was in the early stages of conceiving her method, she believed that children needed encouragement from external rewards (Montessori, 1948/1967 version). However, she found that the children were able to educate themselves using hands-on activities (which is a primary component of the Montessori method). She found that children showed little or no interest in external rewards (Montessori, 1948/1967 version).

We know that traditional educational settings may not be the optimal choice to ensure the best educational experience for children with ASD. In the literature, there is very little research on the application of the Montessori method for educating children

with ASD. However, for typically developing children, some of the research clearly demonstrates the effectiveness of the Montessori method.

Lillard and Else-Quest (2006) demonstrated in a randomized control study that typically developing children who attended both Montessori preschool and elementary programs outperformed typically developing children in non-Montessori schools. The children were selected based on a lottery system which included the experimental group (Montessori) and the control group (non-Montessori) (Lillard & Else-Quest, 2006). Use of a randomized sample addressed the concern of potential bias that Montessori parents are different than non-Montessori parents when choosing education for their children (Lillard & Else-Quest, 2006).

In a study that compared Montessori with non-Montessori middle school students, Rathunde and Csikszentmihalyi (2005a) used an experience sampling method to try to eliminate bias in their study. The experience sampling method is an instrument used to obtain data on an individual's self-report (Csikszentmihalyi & Larson, 2014). It is used to assess the quality and intensity of patterns and frequencies of psychological states and activities of study participants (Csikszentmihalyi & Larson, 2014). Rathunde and Csikszentmihalyi (2005a) found that Montessori middle school students had increased intrinsic motivation when engaged in academic activities; however, there was little difference when the two groups were compared in non-academic activities. Rathunde and Csikszentmihalyi (2005b) found that Montessori middle school students showed greater social responsibility, and positive social attitudes towards their peers and teachers, when compared to students in non-Montessori programs. Likewise, researchers of a longitudinal study that compared high school graduates from Milwaukee Public Schools,

and the Montessori high school program, determined the Montessori students had significantly higher test scores in science, and math than non-Montessori high school students in the area (Dohrmann, Nishida, Gartner, Lipsky, & Grimm, 2007).

There have been a few studies that have not come to the same conclusions such as Lopata, Wallace, and Finn (2005), whose results failed to support that Montessori students had higher academic achievements when compared to non-Montessori students. Lopata, Wallace, and Finn (2005) found mixed results, but also noted that some of the limitations of the study could be based on one school of each type being researched per program (e.g., Montessori, non-Montessori). In Montessori research, one of the challenges that has affected study outcomes is the diversity in regards to various training among certified Montessori teachers (e.g., AMS or AMI) (Lillard, 2005). Even with the diversity in training, Montessori continues to be recognized as a method that effectively supports the development of executive functions of the brain; these control the ability to concentrate and problem solve (Diamond, 2012).

Hazel and Allen (2013) have identified over 8,000 Montessori schools around the world. It is possible that there are children diagnosed with ASD in Montessori schools, however, there is little data on children with ASD enrolled in Montessori schools. There is also limited research in the field of ASD from the professional educator's point of view (Auert et al., 2012). This lack of information contributes to the general lack of research on the benefits of using the Montessori method for educating children with ASD.

## Conclusion

Having researched the methods incorporated by Montessori teachers who have experience with children with ASD provides insight and practical applications into some of the challenges and successes educating them. Children with ASD currently do not have an intervention that will treat all the symptoms of their disorder. The main treatment methods identified are ABA, speech therapy, occupational therapy, and social skill development. The research question asked "How do Montessori teachers adapt Montessori methods with children diagnosed with ASD?" Are their methods effective? Would information gained in this research be useful for other Montessori teachers and parents of children with autism?

There continues to be challenges for parents of children with ASD as the significant gap in research hinders the ability of a parent to make a truly informed decision when selecting an education setting for their child with ASD. Parents want to know what makes an effective program, a program that will ensure that their child attains his or her potential. Yet these parents have very limited resources to help them discern this information. Acquired information from this interpretive description study provides more information for all the stakeholders: the children, their parents, and their educators.

# CHAPTER III – RESEARCH METHODS

## Study Design

The research question was best addressed using an interpretive description (ID) methodology. The goal was to provide a practical outcome from the research for Montessori teachers working with children with ASD in Montessori school environments. Interpretive description is a qualitative approach used to disseminate knowledge of a phenomenon within applied professions (e.g., health and education) in order to provide practical applications from the research (Thorne, 2008). Interpretive description is intended to extend research and prior information on a topic into new insights driven by the interpretive mind of the researcher (Thorne, 2008). This methodology provides researchers an alternative method of inquiry that is based on traditional methodological approaches (i.e., grounded theory, phenomenology) but still provides goals that are consistent with health issues (Thorne, Reimer Kirkham, & O'Flynn-Magee, 2004).

The goal of this research was to gain practical knowledge from the experience of Montessori teachers who have worked with children with ASD. An ID methodology in this study focused on specific adaptations to the Montessori method of teaching that have been used. Interpretive Description studies focus on the individual and experiential knowledge for insight into a certain phenomena, as well as an understanding that an individuals' experience is varied and at times contradictory (Thorne, 2008). Specific strategies identified by Montessori teachers who have worked with children with ASD, suggest practical applications for other Montessori teachers who may have a child with ASD in their classrooms. This information is valuable for teachers who have not actively

worked with children with ASD in their classrooms, or lack the experience, or education with children with ASD.

## Researcher Characteristics

Drawing on my knowledge and experience in the field of Montessori and autism, I discerned which information was most useful for Montessori teachers working with children with ASD (Lane, 2009; Lane-Barmapov, 2014). The researcher needs to have sufficient grounding in the field being researched in order to provide necessary interpretation of the knowledge gathered (Thorne, 2008). As the researcher, I looked for associations and patterns when investigating the phenomenon of Montessori and autism (Thorne, 2008). There are no step-by-step guidelines in ID; however, the researcher needs to analyze the information gathered using inductive logic, and then provide a clear and transparent analysis in order for the findings to have credibility (Thorne et al., 2004).

## Sampling

Thorne (2008) stated that ID employs a purposive sampling method, which supported my objective to recruit individuals who have specific experience with Montessori and autism, in order to provide information that will answer the research question. Purposive sampling is used to gain a particular perspective on a clinical phenomenon from the participants' experience and environment that is related to the research being investigated (Thorne, 2008). The participants are typically called "key informants" in ID, as they are known by the researcher to have information necessary to answer the research question (Thorne, 2008, p.90).

My purposive sampling originally consisted of seven individuals who I believed would provide a comprehensive answer to the research question. Six of the seven

individuals agreed to participate in the study. Four individuals are Montessori teachers who have experience working with children with ASD. Two of the teachers are the principals of accredited private Canadian Montessori schools and one teacher is a principal of a private school in the United States. The fourth had experience in a typical Montessori school as well as having owned a Montessori school for children with ASD. A pseudonym was applied to each participant to protect their identity. Bailey and Beth are AMS credentialed, and Teresa and Millie are AMI credentialed. The fifth participant, Padma, started off as a special education teacher, but also completed her Montessori training. She has been adapting Montessori methods for children with ASD for several years. The last participant, Cadence, is an autism consultant for parents who have children with ASD in Montessori school settings. Bailey and Teresa are from Canada, while the other four participants are from the United States. I have included both Padma and Cadence because in ID, being able to ask questions from alternative sources helps to challenge and broaden concepts when analyzing the data (Thorne et al., 2004).

## Data Collection

Data collection was based on interviews, which has become a main source of data in clinical qualitative investigations (Thorne, 2008) (see Appendix A for interview questions). Semi-structured interviews, using primarily open-ended questions, were used with the study participants. Interviews ranged from 1 to 2 hours in length. Local interviews were digitally audio-recorded, while interviews out of town were conducted using FaceTime, Skype, and telephone (when FaceTime and Skype were not available options for the study participant). The out of town interviews were also audio-recorded. Once the interviews were completed, I transcribed them myself as the process of

transcribing the information gathered is often when analytical insights arise (Lofland, Snow, Anderson, & Lofland, 2005).

## Interpretive Description Analysis

The process of reviewing and analyzing the data is ongoing until the researcher begins to see new possibilities emerge (Thorne et al., 2004). Prior to the analysis, the data was reduced to transcripts of the interviews as well as information from the literature review. I took time during the analytical process to code the data. I did this because rushing the process can defeat the process of logical reasoning (e.g., seeing patterns, intuition), and can cause the researcher to "fill in the bits" as well as become mentally exhausted (Thorne, 2008, p.167; Thorne et al., 2004). Therefore, I took time to read, reflect, and reread before I began the process of coding the data.

I used a variety of tools to help analyze the data. During the data analysis stage, I used the process of memoing in order to write down my ideas, reflections, and interpretations (Creswell, 2013). This process is part of the reflection and critical examination necessary in ID analysis (Thorne et al., 2004). I used NVivo11 software to store data. It was used as a tool to help me record and organize themes and codes that I deducted from the data (Thorne, et al., 2004). I am also a visual learner, so the use of other tools such as concept maps, added to my development and organization of codes and themes that I deducted from the data (Thorne et al., 2004).

Once I had read the transcripts several times, I began to identify what parts were significant. These parts were grouped and sorted into patterns as part of my inductive reasoning process (Thorne, 2008). This process was done by coding parts of the interview

that I found to be important. I coded the data using NVivo 11 by generating nodes. I maintained a level of skepticism, in order not to reinforce ideas that arose from my initial inductive analysis of the data (Thorne et al., 2004). The six interviews generated 215 nodes. A visual representation of the patterns that emerged from these nodes is provided in Figure 2. As I began to look at the relationship between the patterns that emerged from my inductive reasoning, I kept the following questions in mind: "Why is this here? Why not something else? And what does this mean?" (Thorne et al., 2004, p.13). I listened to the original audio-taped interviews several times, as the process of listening to the interview, as well as re-reading the transcribed text, brought up different insights (Thorne et al., 2004).

The goal in ID is for the researcher to transform the raw data into an interpretive account of what the data suggests (Thorne et al., 2004). This was done by reflecting on my notes (i.e., memoing) and asking myself "how is it that I came to that understanding?", while being able to provide a sound answer to the question (Thorne, 2008, p.139). My goal in analyzing the data was not to indicate facts that had emerged, but rather "constructed truths" which are practical and justifiable for Montessori teachers to be able to work with children with ASD (Thorne et al., 2004, p.13). In order to provide an interpretive account of the data, I needed to test and challenge my initial ideas (i.e., conceptual framework) in order to provide a well-organized and coherent final write up of the study (Thorne et al., 2004).

## Data Reconstruction

Data was reconstructed in a manner that is faithful to ID methodology by having a final product that provides a coherent description of the phenomenon with well-developed themes and patterns (Thorne et al., 2004; Thorne, 2008). In ID, it is not enough to simply report the findings of the data, but rather to reveal what the various findings mean on their own, as well as in relation to each other (Thorne, 2008).

Wolcott (1994) stated the way in which a researcher should convey the transformation of data, which was my goal when reconstructing the data:

> When you emphasize description, you want your reader to see what you saw. When you emphasize analysis, you want your reader to know what you know. When you emphasize interpretation, you want your reader to understand what you think you yourself have understood. In different ratios, for different purposes, and with differing degrees of success, we try to accomplish all three. (p.412)

Although there are pros and cons to a variety of reconstructing tools, I have reconstructed the data using a conceptual/thematic description method (Sandelowski & Borroso, 2003). This method focuses on the interpretation and integration of the themes that are deducted from the data, instead of merely labeling them (Sandelowski & Borroso, 2003).

In writing up my findings, I was cautious not to write too much description or too little in case the reader finds it challenging to understand my interpretation of the data or in the latter case, may not substantiate the phenomenon (Thorne, 2008). Some of the

questions I asked myself during that stage of the thesis writing were "What are the main messages here? What is it that I know now, having done this study, that I did not know before? Or, that I did not know in the same way?" (Thorne, 2008, p.195). My data analysis generated new information that was not in my original literature review. New literature was added when discussing the results of the research (Thorne, 2008).

## Rigour

In ID, making a long drawn out list of various aspects such as trustworthiness, transferability, and audit trails is typically not as important as ensuring there is credibility in the way in which the findings are organized and described (Thorne et al., 2004). Part of the process of demonstrating rigour, was to make my perspective on the research transparent in the report (Thorne et al., 2004). In addition, Thorne et al. (2004) suggested that the following be avoided:

- "Going native", which is assuming that the researcher came up with the understanding of the phenomenon.
- "Premature closure", which is when the findings are discovered too early without enough analysis to support them.
- "Bloodless findings", which does not explain the themes in detail (Thorne, Reimer Kirkham, & O'Flynn-Magee, 2004, p.16).

I was careful not to assume that all of the information in the data was relevant or accurate (e.g., ideas that appear frequently, quotes from participants) (Thorne et al., 2004). All interpretations that I made with the data were written in a manner that is

transparent for the reader in order to substantiate my reasoning for my findings (Thorne et al., 2004).

## Validity

The researcher is an essential component for the validity of the findings and must go through what is referred to as a "thoughtful clinician test" (Thorne et al., p.17). This test is done to ensure that the researcher can provide "clinical hunches" based on expertise within the phenomenon being researched (Thorne et al., p.17). The researcher then uses these "clinical hunches" to generate new credible findings (Thorne et al., p.17).

Part of the criteria to determine the validity of the study is based on the researcher's ability to convey how the findings were determined, and to provide transparent associations of the findings in the final written report (Thorne, 2008). In ID the researcher is expected to go beyond what most people will discern from the phenomenon, therefore having the participants provide validation of the findings can be "quite misleading" (Thorne et al., 2004, p.17).

An audit trail is not necessary to show validity. However, providing evidence on how the data was collected, the way in which the data was reflected upon (i.e., in a systematic manner), and clearly expressing what has been found to be meaningful, as well as explanations for why certain ideas are linked together, needs to be apparent (Thorne, 2008). Therefore, the manner in which this report is presented plays a central role in ensuring the validity of the research (Thorne, 2008).

### Peer Review

Peer review or debriefing provides the researcher with an outside verification of the research process (Creswell, 2013). This is to make sure that the researcher remains accurate with the findings by asking questions about the methods, as well as how the interpretations were founded (Creswell, 2013). Thorne et al., (2004) asserted that new researchers need lot of support and guidance as well as "disciplined reflexivity" in order to make sense of concepts that emerges from the research (p.10). The co-supervisors of this research, Dr. Caroline Park and Dr. Simon Nuttgens, were my peer reviewers and were kept abreast of all aspects of the research (e.g., methods used to analyze data, process used to link findings).

## Ethical Considerations

Providing optimal conditions for participants by ensuring there is informed consent and only asking for information that they are comfortable disclosing, is important in ID approaches (Thorne, 2008). Prior to beginning the research, ethics approval was obtained from the Athabasca University Research Ethics Board. Ethical research is contingent on participants having full knowledge of the purpose and nature of the research study, associated risks and benefits, and their role as a participant. The individuals in this study freely consented to participating in the research at the outset of their participation (see Appendix D for the consent form).

The scope and direction of the study was maintained as an ethical obligation related to the informed consent process (Thorne, 2008). This needed careful consideration because the researcher has the power to influence what is reported in the study's finding. To the extent that themes may arise in the research that were not originally anticipated, it is incumbent upon the researcher to remain focused on the

purpose that the participants had original agreed upon during the consent process. As Thorne (2008) noted "…it would be a significant violation to divert the product of the research toward objectives they [the participants] might not have sanctioned" (p. 117).

**Confidentiality**

All of the information collected was kept in a password-protected document that could only be accessed by the researcher. Participant names or other identifying information were removed when the interviews were transcribed. No personal identifiers were included in the data collection or final report. Pseudonyms were used to facilitate anonymity for all participants. Interpretive description studies uncover perceptions from participants instead of facts, and there were times when the participants discussed information about certain children, parents, or other schools (Thorne, 2008). All names were either deleted from the transcripts or in the case when participants were discussing children they had worked with, their names were replaced with a pseudonym (i.e. Child A) when writing up the transcripts.

**Storage Procedures**

All digital audio recordings of the interviews were labeled using a pseudonym. Field and interim texts were organized into an NVivo document, which can only be accessed with a password protected computer. All of the information stored in the NVivo document will be safely discarded after 5 years.

# CHAPTER IV – RESULTS

The results of the study are based on the findings constructed from the semi-structured interviews with the participants. In ID it is important that the research provide a practical application and meaning for Montessori teachers and other stakeholders. The themes are illustrated in Figure 3 in Appendix B. Seven themes were found to represent key factors contributing to the ability for participants to adapt their methods for children with ASD. These themes were observation, adaptation, individualization, additional supports, inclusion, social skills and parent involvement.

## Observation, Adaptation, and Individualization

The Montessori teacher is trained to observe the child. From these observations, the teacher is able to make various adaptations in order to provide an individualized learning environment for all children. All of the Montessori participants shared that they were able to individualize the learning for some of their students with ASD based solely on their Montessori training. Other students needed a combination of approaches (i.e., ABA). The fact that Montessori (1912/2013) based her method on work with children with learning differences could explain why some students benefitted solely on the Montessori method.

> And so it's [Montessori method] all about observation and it's not just about the materials she [Montessori] created…She looked more at the process than the method that she developed for typical kids. Then you start understanding umm, you know how to adapt

> to a child who's different. And so umm, so I kinda just tried different things and I was really amazed. (Millie)

> …because we adapt for every child in a way. I don't know if they [the Montessori teachers] would go further than the norm or this is not working with this typical child, or this gifted child or this distracted child. That is what we [Montessori teachers] do, we always adapt. (Teresa)

Beth shared a specific experience she had with one of her first students with ASD. Here she recounts her experience with him and how she used the skills she learned from her Montessori training to guide her work with the student.

> And by the time he [student with ASD] left our classroom he had begun to recognize that there were other kids in the class and umm he was talking, he started to initiate and request for things. He became much more compliant, we went literally from where you hand over hand were making him wash his hands. And he's screaming bloody murder, and I'm hoping there is no one at the window observing that. To three days later he just went to the sink replicated exactly the process I'd been doing with him without assistance. And I was like, whoa, okay, this is how he learns, maybe this is a bit like Helen Keller, she needed a little more force in the beginning then he could do it on his own. I realized he had learned six or seven of the Montessori activities. And if he went to

> the shelf, and the first one we taught him wasn't available, he would go and sit down and wait until the first one was available. And he did them in the exact same order that they had been taught. I went okay, I talked to my assistant, we're going to have to mix this up a little bit and he's not going to like it but, tomorrow we're going to make sure the first activity is not available and we're going to make him do this second activity first. And sure enough, you know, it was not a happy moment for him, but he lived through it and so did we, and then he began [to see] that it doesn't matter when, and that he could live through a little bit of change you know, in his routine, and we worked with him on various kinds of change. And this is all without any training, just using what I understood about Montessori and a child's need to learn and to build upon that learning and that it's kind of their environment and I needed to help him, engage his environment. (Beth)

The participants also shared that even though they were comfortable and felt that it was Montessori's message to adapt the curriculum for individual children, they also shared that not all Montessori teachers are in agreement in adapting the curriculum. One of the participants shared how some Montessori teachers still work rigidly with the Montessori materials taught in the training.

> You know one of the things that I have come to find out is that a lot of Montessori teachers don't like it [adaptations she shares in her tutoring group]…and the reason is, I think, is that they have

> never worked with a kid with special needs in their class, or a student. They have told me firstly, some of them; I'm not following it, Montessori. Which is because I tweak things, as you can tell from some of my tips for the student, for the client, because it may not be working. (Padma)

One participant shared that the foundation for Montessori education is for the teacher to look at the child from a scientific point of view.

> …I was just at a [Montessori] conference in Portland, and it was the most amazing thing because the opening keynote address was totally different than what everybody expected, but was what I had been waiting for, for 10 years. It was very well researched, powerfully delivered address on scientific pedagogy. And how we [Montessori teachers] must stay grounded in scientific pedagogy, rather than be so obsessed with doing it exactly like we were trained…A lot of strict Montessorians were fainting at that, but I was cheering in my seat because, umm that was her [Montessori] whole message, was we need to create an educational method that was scientific. (Millie)

## The Montessori Curriculum

In order to understand how the Montessori method had been adapted by the study participants, adaptations are described and arranged by Montessori curriculum areas of sensorial, math, language, culture, and practical life.

**Sensorial**

The sensorial curriculum was originally created from Seguin's physical teaching tools (Montessori, 1912/2013). He developed materials to train children who had severe learning differences to discern sensory information through their senses (Montessori, 1912/2013). Montessori expanded on some of these activities and used them to teach children with learning differences as well as typically developing children as part of the Montessori method (Montessori, 1912/2013). Participants did not share specific adaptations to the sensorial lessons. However, they did share that when working with some of the activities that are often based on the denomination of ten (which include many activities in sensorial such as *the pink tower, brown stairs* that consist of ten pink cubes or ten brown prisms) if the teacher observed the child having difficulty attending to the activity, one adaptation is to brake the activity down into denominations of smaller numbers. The sensorial activities have the denomination of ten because they are meant to train a child's mind for the decimal system in mathematics (Montessori, 1948/1967). However if the lessons are too challenging for the child with ASD, they need to be broken down in order for the child to be able to build his or her attending skills.

**Math**

Montessori (1947/1995) continued with the use of hands-on tools to teach mathematics based on the sensorial material, so that children would have "its roots implanted in the absorbent mind" (p.186). These math lessons are part of Montessori's "system of materialized abstractions" (Montessori, 1947/1995, p.186). Bailey discussed that one of her students with ASD did not like to do *spindle boxes*, but the teachers

observed that he was very fascinated with superheroes. They adapted the traditional *spindle box* activity to another activity. Instead of counting spindles, the child counted superheroes. The activity was made by having the child put the different number of superheroes into a little bucket (i.e., each bucket corresponded to the number, based on the zero to ten concepts of the spindle boxes). The Montessori teachers kept the child's focus and interest by creating stories of how many superheroes were saving the world based on how many were in the buckets. Padma explained a different way that she adapted the *spindle box* activity for another child with ASD. She created a similar activity to the *spindle boxes* but this time used dowels and doughnuts from the local craft store. She cut the dowels to the height of each doughnut so that only the number of doughnuts could fit on each dowel (i.e., number one could only fit one doughnut on the dowel).

Participants also shared that changing some of the materials in existing lessons can help a child with ASD attend better to the activity. Another adaptation of a math material called *numbers and counters* was to replace the red counters with attractive jewels that the child with ASD found engaging.

Beth observed that one of her ASD students would get frustrated manipulating the wooden numerals that are used for counting the *number rods*. She adjusted this activity by creating laminated number cards for each corresponding rod with a Velcro strip on the back. Because she made this adaptation, this same child was able to continue to do more challenging math operations. For example, Beth continued to make corresponding laminated number cards to match four digit multiplication equations. She continued with this modification because when she tried to show him with the traditional multiplication material, he would become very frustrated when the numbers would slide around, or

would get upset if the numbers weren't exactly straight on the paper. Beth observed that he understood many math concepts at three years of age; he just did not have the coordination. Making these adjustments to the activities kept him engaged in the work, reduced his anxiety, and provided the right conditions to help him be successful.

Cadence had observed that many children with ASD need more visual supports with their work. In particular, some of the children who would work on math operations (e.g., multiplication), had difficulty completing all of the equations. Cadence adapted these activities by reducing the number of equations until they developed their understanding and attending skills.

**Language**

Montessori (1948/1967) discussed how reading and writing are different skills than understanding the meaning behind letters (p.215). As such, the Montessori method uses cursive letters to teach children how to write. Padma observed that many children with ASD were not doing well using cursive letters. She felt that it was difficult enough to teach one vowel, let alone having to teach all of the cursive letters, when later on they would need to learn print in order to read.

Millie, on the other hand, observed that one of her four-year-old students with ASD, who was regarded as severe on the spectrum, was able to spell words like Michelangelo using cursive letters. He was very interested in writing letters, and sought to write them repeatedly. Millie also observed that when he would practice writing a couple of letters of the alphabet, he would have to complete all twenty six letters or he would become very upset.

Millie's student had originally been taught to write in print letters, but because she observed his interest in language, she decided to challenge him by teaching him to write in cursive. She found that once he was taught, he was able to write cursive letters. She also found that she was able to communicate with him through writing. The initial perception of the other teachers, and children in the class, was that he was not capable to do very much academically. Once they saw the way he worked with the Montessori materials, he was able to show through his work that in some ways he was more capable than his peers.

Padma observed that some of the children she worked with did not want to touch the sandpaper of the *sandpaper letters*. It was for this reason that she adapted the *sandpaper letter* activity, and made a set of letters out of felt. She also adapted the *moveable alphabet* for some of her students who she observed needed a heightened sensorial experience. She created a textured moveable alphabet (i.e., with bumps on the outer side of the letter), and she put magnets on the back. The magnets were for some of the children with ASD who would get upset if the letters got messed up. Sometimes the children with ASD would trace her version of a moveable alphabet, and the texture made it more appealing. This helped the children to stay more engaged with the activity.

**Culture**

Montessori (1947/1995) recognized that children are fascinated with experiences of acquiring knowledge about culture. The culture curriculum includes lessons on geography, history, science, and biology. Padma was teaching a five-year-old child with ASD about internal organs in the biology curriculum using *the three parts Montessori*

*cards*. When this student first arrived at the school, she would spend most of her time sitting in the corner clapping. Padma did not adapt the three card lesson, but was able to observe that the child was able to read the different words on the cards (e.g., pancreas, small intestine). The director at first did not think she could read it, but Padma held up the card to the child who said "ascending descending colon". The child then retrieved the correct picture card that matched the words. Using the hands on materials of the Montessori curriculum was a way for the teacher to demonstrate what the child was capable of doing. The way the child worked with this activity showed that she did understand the words she said.

**Practical Life**

Montessori (1948/1967) designed the practical life activities to help children become more independent with various self help skills, as well as teaching children how to be considerate and social with one another. Cadence discussed that specific goals (e.g., fine motor, coordination) paired with social goals are necessary for children with ASD to interact with their peers. For instance, one of the children Cadence was working with was cutting snack, and part of this practical life activity was the direct social goal of offering the snack to his classmates. Teresa shared that including children with ASD to participate in activities that are part of the practical life curriculum, such as setting the table and cooking, provides the child with a sense that they are a valuable and contributing member of the community. In these examples adaptations were not discussed, but the value inherent in the Montessori method is already an adaptation from many other traditional educational methods for children with ASD.

## Inclusion

Being able to adapt the Montessori method for children with ASD, promotes inclusion. The participants shared that many typically developing children were accepting of the children with ASD in the classroom. It was important that the teacher also displayed a desire to create an inclusive environment for the class. Bailey shared a technique that the teachers at her school incorporated in the classroom to help all of the children become aware, and celebrate one another's differences.

> …we do something at the beginning of the year, we talk about things like can you imagine our world if we only had a garden that had one kind of flower? And it was a yellow flower that you saw everywhere, and you did not see anything else? How would you change that? It is a group kinda collaboration and the kids are like 'I'd want to say purple', and I will say why? And someone will say 'it's my favourite colour', and someone else will say 'that's my favourite colour too, but I don't like that flower I want this one. Then we start to explain ourselves within our classroom with stories like that. Right, so can you imagine if this room only had one kind of person. They say 'oh that would be so boring' or if we wore the same clothes all of the time… (Bailey)

Participants shared the value of inclusion for typically developing children in the classroom. Teresa discussed that many times other children in the class would ask if they could work with the child with ASD. Three girls in one of the higher grades wanted to

understand their classroom friend. Although every child with ASD is different, they read Higashida's (2013) "The reason I jump", in order to try and understand their friend better. Teresa also shared that these opportunities to learn about each other is something that can be easily implemented in a Montessori environment, because Montessori teaches children not curriculum. Teresa went on to say that children use specific materials for learning, but the lessons are not fixed. Having students accustomed to children with ASD and other learning differences, is an opportunity for all children to develop their social skills and understanding of one another.

**Specific Strategies**

Cadence discussed that children often benefited from having visual supports. This could be simply having a marker for the child to learn left from right, to having a checklist, or personal schedule. Bailey also talked about the many children with ASD who had a visual schedule prescribed by the consultant or therapist working with the child. She found that often other children in the class also wanted a visual schedule. To have full inclusion Bailey would encourage the other children to help the child with ASD with their visual schedule, or draw their own schedule, or start learning how to make journal entries. Bailey felt that there were many ways that typically developing children could engage with the idea of a visual schedule that could still meet their needs of being creative, as well as further develop their own writing and organization skills.

Bailey also discussed that they had a poster of different facial expressions on the wall to help a child with ASD learn and understand what the expressions mean. She found that they could provide an inclusive experience by having all of the children use

this poster. Some of the younger children knew their emotions, but were unable to express them. They were able to use the poster by pointing to one of the photographs to share how they were feeling. This way the poster did not stand out as being a special tool for the child with ASD, but rather a tool for anyone who could benefit from it in the classroom.

## Social Skills

Participants discussed the importance that children with ASD socialize with their peers. Participants also discussed that teachers can observe a child's social skills by the way the child interacts (e.g., their body language). Beth found that using specific social skill techniques helped some of her students attend during social situations. Video modeling, a technique often used to develop social skills in children with ASD, worked well for one of her students who had a difficult time sitting in circle without becoming very upset. She did this by taking an average of six different videos of him sitting in circle, and then edited the footage to show him appearing happy for the full duration of the circle time. When she had the final edit of the video, she provided a copy for the child's parents and one for the school. The child, after viewing the tape several times, took less than a week to be successful at sitting in circle.

Beth discussed the benefits of using various social skill resources to help children with ASD. Attwood's (2016) workbooks and Gray's (2013) social stories, were two resources that Beth found useful for children with a milder diagnosis of ASD to learn to manage their emotions. Beth noticed a distinct difference in her ability to provide appropriate peer modeling when she worked in a traditional Montessori school (inclusive

setting) as opposed to her own school that was exclusive to children with ASD. Although she was able to have some of the siblings of the children with ASD come and help in her exclusive school, it was not as beneficial as having ongoing peer modeling that is naturally found in a traditional Montessori classroom.

## Additional Supports

The participants shared that having additional training in various techniques that are used with children with ASD was important. This was mainly because sometimes the teacher does not understand what they are observing, and therefore need support to provide the best learning environment for the child with ASD. This is especially true for teachers who do not understand the various differences found in children with ASD.

### ASD Teacher Training

Bailey shared that various strategies to teach children with learning differences was part of her Montessori training. She admitted that although this training could not cover every type of learning difference and situation, it helped in learning about some key approaches. One of the key approaches continued to be the importance of observation. Understanding what the child is trying to tell you by the way they are working, or their particularity with certain tasks.

Not all Montessori teacher trainings include training for children with learning differences. All of the participants in this study discussed the importance of continuing to develop their skills in this area. They found that having professional development courses and workshops was very beneficial. Beth shared that she went to many different state

conferences to learn as much about ASD as she could. This is how she found out about video modeling.

Millie discussed that she had attended many courses to learn how to apply Montessori with children with ASD. She felt that these trainings helped her to be able to advocate better for her students. She also found that workshops were more practical in their application than just trying things on her own. She articulated that once her staff knew how to approach a certain adaptation, this was a tool that the teacher would have with all of the children that he or she would work with for the rest of their career. Therefore, additional teacher training is not only helpful in understanding children with ASD in one particular situation, but, according to Millie, it is also an investment in human capital. All of the participants confirmed the importance of providing professional development for all staff, and sharing information learned from various trainings.

**Interdisciplinary Teams**

Working in interdisciplinary teams was something that the participants shared was important and best incorporated when done with respect and effective communication. Although some of the participants felt that they were able to successfully accommodate the needs of their students with ASD by making adjustments based on their Montessori training, many of the children received separate therapy during the school day, either in the classroom, or in a private room within the school. Alternatively, many children who were not receiving these therapies at the school were receiving them at home.

Participants shared that sometimes children could exhibit dangerous behaviour, and that it was important to have a system in place that would support all of the children

and the staff. Having an inclusive environment is great, but inclusion means providing all of the necessary supports. This is one of the benefits of having an interdisciplinary team, because some of the specialists in ASD know how to manage more serious behaviours. Having this support relieves stress from the staff and children in the classroom. However, it is important that the team is truly supportive of one another.

> Okay, the one girl that was with us not even a year…She needed a constant shadow. We did not feel that we had the support of the parents, umm the shadows, there were changes in shadows…Had we had been better able to work with the parents and the shadows, I think we would have succeeded. But we were not able to do that. There was no trust, and the shadows that they brought were not the right fit for our school. (Teresa)

Participants shared the importance of having access to good resources especially when the child with ASD needs one-to-one support in the classroom. The main supports that participants discussed were ABA, speech therapy, and occupational therapy.

**Applied behaviour analysis.** One of the therapies that participants shared was provided for many of the children with ASD was ABA therapy. Beth shared that at the beginning, when she started her Montessori school for children with ASD, her idea of ABA went against the Montessori philosophy.

> Montessori was always my base and I had this argument with myself when we started the school because my training in Montessori, [and] ABA, as we now think of it for kids with autism,

> was totally against the Montessori philosophy…ABA means so many different things. Skinner's applied behavioural analysis and what Lovaas did with it are not the same thing either. So it gets to be complex when I talk about some of these theories…but the conversation about applied behavioural analysis I began to realize that it was actually was part of her, of Maria Montessori's philosophy. Because discrete trials is definitely a part of that you know. We introduce something to the child, we see, you know, do they show an interest in this, you know, or not? A lot about Montessori is that she doesn't push it at that point. They make a mistake because you know, you did not give a perfect presentation, or they just weren't ready for it. You come back later and you represent. So I began to be able to live with some adaptations a little bit better. (Beth)

After learning about some of the benefits of ABA, Beth utilized some ABA techniques with her students, including the use of the Assessment of Basic Language and Learning Skills (Partington Behavior Analysts, 2016). Beth found that comparing the Assessment of Basic Language and Learning Skills to the Montessori curriculum, allowed her to fill in pieces essential for the child's learning.

One of the participants has an extensive ABA background. Her experience with Montessori began because she enrolled all of her children in a Montessori charter school, and later worked as an autism consultant in various Montessori schools.

> …So basically you see a lot of the Montessori materials to teach matching, to teach imitation, to teach receptive language skills, so that, just like Montessori, if they [the children] have exposure to materials before demands [ABA instructions] are necessarily placed upon it. Once they later have demands [ABA instructions] placed upon it, they are more likely to assimilate that information, because they are already familiar with those materials. You know that's what Montessori does…I know that basic ABA program[s]; the first step is to teach attending, matching and imitation…they [Montessori] teach the get ready skills. The how to learn, not the what to learn. (Cadence)

Participants shared that having a board certified behaviour analyst (BCBA) working with the school helped to provide consistency, support, and expertise for everyone involved (i.e., child, therapists, teachers, and parents).

**Speech therapy.** The participants in this study all shared that students with ASD benefitted from speech therapists, either working in the classroom, or in a separate location within the school. The separate room was often requested from the speech therapist when working on articulation skills or vocabulary, as it was a quiet environment that offered few distractions. In contrast, Millie shared that the speech therapists that they worked with, found the Montessori classroom an ideal environment to observe the children they were treating. This was mainly because Montessori schools are not teacher directed so the therapist could observe how the child would communicate or, if verbal, how the child naturally spoke.

**Occupational therapy.** There are a variety of tools that Padma shared she used regularly with her students with ASD, tools that are often used in occupational therapy. Padma discussed that many of the children with ASD would do a morning obstacle course that implemented tunnels to work on various body movements, as part of their therapeutic program. In addition, she found adapting the Montessori curriculum by including scooter boards, weighted vests, and ball chairs were helpful when necessary.

Millie shared that often an OT might make subtle changes that could make a big impact to the child's learning. These differences included having the child do an activity that was usually meant for the floor on the table. One of the main goals the OT would have for the child is to learn how to cross the midline which means "moving limbs and eyes across the midsagittal plane of the body" (Weed, 2004, p.99). This skill can be worked on by changing or adjusting the sitting position when working on an activity.

## Parent Involvement

Participants were in agreement that parents were an integral part of the success of their child at school. When parents were upfront about the diagnosis it was easier for the school to work together with the parent to help their child. Teresa discussed that many parents were scared to bring the diagnosis up to the teacher, and would speak with Teresa instead. Teresa said that she wanted to be informed, however, the communication should start with the teachers. This is because the teacher is the one who is interacting with their child. Millie and Teresa shared that communication needs to be open and honest in order for the experience of the child, parent, and teacher to function at its best. Teresa also conveyed that she specifically employs staff who are empathetic, and who have an open

mind. Both Millie and Teresa discussed the importance of having an interdisciplinary team as well as other resources readily available for the parents as needed.

Participants shared that when parents were in denial, or were not in partnership with the school, that the school would get blamed, or the program would get blamed when their child did not progress. A couple of participants shared examples when parents became antagonistic despite the schools efforts to help their child. The main issue was that the parents did not acknowledge the behaviours that the staff were seeing with their child. When this disconnect happened, the school and the parents were unable to work together.

Bailey shared that some parents simply do not know that their child has ASD. They might use certain key words to describe their child such as “unique,” “outstanding,” or “a bit quirky.” She has found that when parents use these words it can be a clue for staff to assess whether or not the parents are ready to start a deeper conversation about underlying issues with their child. Bailey discussed that she understands how difficult this can be for parents, since this is their child, and it would be one of the hardest things to have to confront. Sometimes the parent simply is not able to see what the teacher is seeing. This is especially the case if it is the parents’ first or only child. Bailey shared that she often finds that after the parents have attended a social function with their child (e.g., a birthday party) they start to notice some of the comments that were mentioned about their child from the teacher.

All of the Montessori participants discussed strategies used to keep parents involved as important contributing partners in their child’s education and development.

These strategies included parent/teacher interviews, providing opportunities for the parents to come into the school to do observations, as well as initiating the discussion on having parents go to their doctor for medical advice, and providing resources for the parents. They also discussed that many parents have provided excellent resources themselves and that the schools appreciated and encouraged this kind of collaboration.

Bailey also warned that some of the parents of children with ASD would receive misinformation (e.g., online), and discussed that there is a lack of appropriate resources for families. Bailey added that parents sometimes lacked the understanding on how to discern reliable information. This is partly why Beth dedicated one of the rooms in the school to double as a therapy room and resource room. Beth shared the importance of inviting parents to trainings and other professional development relevant to their child with ASD (e.g., when therapists are training Montessori staff about various adaptations for their child).

# CHAPTER V – DISCUSSION

An interpretive description methodology was used to investigate the types of accommodations made by Montessori teachers who have had experience working with a range of children with ASD. The research question asked "How do Montessori teachers adapt Montessori methods with children diagnosed with ASD?"

Interviews with six individuals who have experience working with children with ASD in Montessori settings revealed certain adjustments to the teaching methods. Some adjustments were expected based on the literature review (e.g., integrating various therapies), while others were not anticipated at the outset of the study. The key areas of importance learned from the study is that teachers need to trust in their pedagogical Montessori training, to continue professional development in methods of working with children with ASD, to understand the benefits of having an interdisciplinary team, to promote inclusion for the benefit of all children, as well as the importance of positive parental involvement.

## Observation, Adaptation, and Individualization

Participants shared the significance of their Montessori training (i.e., Montessori's scientific pedagogy) as being a key factor in their ability to observe, adapt, and individualize the learning for children with ASD in their schools. Initially I believed that children who are on the more severe end of the autism spectrum needed their Montessori program to be blended with applied behaviour analysis (as noted in my researcher assumption in my conceptual framework, Figure 1). A couple of the participants referred to their ability to make adaptations to the Montessori method as being non-Montessorian.

However, when considering the literature from Montessori (1912/2013) the main area of importance in the training of the Montessori teacher is observing and meeting the needs of each individual child.

Nehring (2014) is a Montessori teacher who has lectured and written articles advocating for inclusion of children with ASD in Montessori environments. She sums up the importance of Montessori training here:

> Viewed as a scientific and medical pedagogy, Montessori education is right for all children by virtue of its design. Montessori education has as its objective aiding the optimal development of children through encouraging the natural developmental processes and habilitating children with atypical developmental processes. (p. 53)

Scientific pedagogy is what Montessori discussed in her writings. This is the basis through which Montessori teachers can adapt lessons to children with ASD. All of the participants confirmed that they looked at children with ASD from a medical point of view, just as Montessori did with all children. This is done through observations and data collection, for example. In this way, the essence of Montessori teaching is knowing when to make appropriate changes, and finding out who to consult with when adaptations are not working.

There is, however, resistance to making accommodations and changes by some Montessori teachers. Some feel the need to follow lessons exactly the way that

Montessori taught them. Cossentino (2009) may have partially revealed why this is the case:

> There are some 2,000 discrete lessons making up the elementary curriculum, and the bulk of training consists of recording the precise sequence and procedures of those lessons as they are dictated and demonstrated by trainers. Transcribed lectures and demonstrations becomes 'albums,' which must be organized, illustrated, and submitted for approval. (p. 522)

All levels of Montessori training (toddler, Casa) follow this same format. The training is very precise, and the teacher needs to demonstrate that the lessons have been learned exactly the way in which they were taught. This may be why some of the participants felt that they were being non-Montessorian by changing the way in which the lessons were presented for some of the children.

**Background on the Montessori Curriculum**

Montessori (1912/2013) took great care on the type of didactic activities she used in the design of her curriculum, but she also said that they were only "the minimum *necessary* to a practical sense education" (p. 294). She noted that having these types of activities made education possible for children with learning differences, and created a type of automatic education (self teaching) for typically developing children (Montessori, 1912/2013, p. 294). This statement leads me to believe that Montessori teachers are expected to continuously develop didactic activities for the children if what Montessori has provided is not sufficient for the development of the child with ASD.

Two participants shared different views on Montessori's cursive handwriting education. I can see that making a decision on whether to teach cursive or print would be difficult for some Montessori teachers to discern. Looking at Montessori's writings about Seguin and her work with children with learning differences, writing is a different operation than reading.

Montessori (1912/2013) discussed that writing and reading are separate skills, and that when teaching a child to write, cursive is the natural course of writing for children. Montessori (1912/2013) shared that her original students with learning differences were able to write very well. However, it is understandable that it is also important to provide children with ASD access to print letters as some children with ASD have severe language impairments. These children will likely need a lot more work in learning the various print symbols in order to acquire the skills necessary for reading later on.

**Additional Teacher Training in ASD**

Montessori discussed the importance of teachers understanding the child they are educating. This supports what the participants shared in needing to continue with professional development training in ASD.

> In order to educate, it is essential to know who are to be educated…Taking measurements of the head, the stature, is, to be sure, not in itself the practice of pedagogy. But it does mean that we are following in the path that leads to pedagogy, because we cannot educate anyone until we know him thoroughly.
> (Montessori, 1913, p.17)

## Method Combinations

Participants shared the importance of working in interdisciplinary teams especially when it was difficult to make effective adaptations for individual children. The results of this research found that without interdisciplinary support, Montessori teachers were spending more time with the child with ASD, and less time with the other children in the classroom. This, in turn, had a negative impact on the class as a whole, as the balance of the classroom (needs of all of the students) became disproportionate, leading to a lack of support for all children. Having specialists who are knowledgeable on various treatment methods helps to maximize the potential for the child with ASD.

Nehring (2014) discussed how parents are placing more children with learning differences, including autism, in Montessori schools. Nehring (2014) also indicated the importance of having the right supports in place:

> The fall-out from unprepared inclusion can be frustration; disappointment and disillusionment on the part of the family and the school staff; and, at its worst, it can be disastrous for a school, as in the cases of injury to children or staff, loss of teachers, loss of enrollment, or even lawsuits. (p.54)

Participants also shared that having the support of trained therapists in ASD, helped them feel more comfortable to be creative with adaptations for the child with ASD that veered away from their traditional Montessori training. Participants also indicated that having an interdisciplinary team, organized within the school, helped parents who struggled with the ASD diagnosis feel more comfortable to have the help of specialists,

as well as help the school advocate for the child with ASD. Participants shared the importance of having individuals from various disciplines available for consistent group discussions, in order to successfully implement various goals for the child with ASD.

Another point of interest from the study was the similarity of some common ASD treatments to the Montessori core curriculum. Similarities were drawn between Montessori and ABA, specifically the lessons that are broken up into several steps. Although the methods in ABA and Montessori are very different, the breakdown of steps is similar. Participants also shared that speech therapists were often involved as part of interdisciplinary team of the child with ASD, and that it was easy to incorporate occupational therapy treatments within the Montessori method with the use of the Montessori materials and/or adapting different body movements when working with the lessons.

**Applied Behaviour Analysis Therapy**

The information in the literature review indicated that ABA is the most sought after treatment for children with ASD, so it is not surprising that many participants discussed that their students were either receiving this treatment at the school or at home. Participants shared that some children need a one-to-one support in the classroom. The intensive nature of ABA was discussed in the literature review as being a way that can have the best impact for children with ASD. Montessori works on many similar skills as ABA (e.g., academic, daily living skills) so having a board certified behaviour analyst (BCBA) to provide consistency, and support for all parties involved in one-to-one

support within the classroom was expressed as a good option for some children with ASD.

It was also indicated in the literature review that some professionals are not sure if intensive ABA is appropriate for children at the higher end of the ASD spectrum. This could be why the participants also shared that they were able to effectively support some of their students with ASD by using skills in observation and adaptation solely from their Montessori training.

**Speech Therapy**

The information from the literature review showed how language and communication skills are affected in children with ASD. Participants discussed that many of their students with ASD had speech therapy as part of their treatment either at school or at home. Participants also shared that providing space (e.g., a room) within the school for the speech therapist to work with the child with ASD without distractions, as well as providing opportunities for the speech therapist to observe the child's communication skills within the Montessori environment is important. Information from the literature also conveyed the importance of having speech language pathologists as an essential part of an interdisciplinary team. This sentiment was reiterated with the participants of the study.

**Occupational Therapy**

Luborsky (2014) discussed the similarities found within occupational therapy and Montessori, in terms of movement, motor control, and other skills that are involved in the Montessori method:

> The Montessori classroom provides a multitude of opportunities for development of specific skills for students. The works can be used to support the goals of OT. For example, the Pink Tower could be a tool to help a student build perceptual skills, endurance and stamina, postural control, and eye-hand coordination. (p.219)

The information in the literature review indicated that occupational therapy is the most used therapy second to speech for children with ASD. Participants shared that many of their students with ASD were either working with occupational therapists at the school or at home. In addition, participants reported that techniques used in occupational therapy to help with self regulation were helpful for children with ASD in the Montessori school setting.

### Inclusion Promotes Social Skills

From the interviews with the participants, they were able to convey that an inclusive environment helped children with ASD learn peer modeling, as well as being a contributing member of the school community. This helps the child with ASD develop confidence, and teaches typically developing children empathy and understanding of individuals with learning differences.

The participants discussed how some of the social skills lessons were inherent in the Montessori method (in particular practical life). Montessori discussed that she wanted children to be engaged in real social activities such as caring for the classroom, gardening, serving food, and cleaning (Montessori, 1912/2013). The way in which

children are free to move around and group provides important information when observing how the child with ASD socializes with their peers.

## Parent Involvement

Participants shared the importance of positive parent involvement with the school and with an interdisciplinary team. The degree to which parents are involved with their child, can be a determining factor on whether or not a Montessori school can keep working with a child with ASD. Participants shared that it was important to provide parents with many opportunities to collaborate with the school as well as the importance of providing families with appropriate resources.

Participants shared that parental involvement was particularly helpful when parents openly communicated with the school and shared their own observations of their child. Some parents were also known to have supports already in place and were instrumental in helping schools connect with various therapies and agencies. This collaboration helps the Montessori teacher support the individual child with ASD, as well as provides a community base of support for future children who come to the school with similar diagnoses. Participants shared that having the support of parents is invaluable and broadened their understanding of children with ASD.

Participants also shared that when a child needs one-on-one support in the classroom that the parents are responsible for paying for this extra person. Participants found that the more qualified the person, the better the results were for the child with ASD, as well as support for the staff and families.

Not all parents know what is available in terms of treatment and support. It is important that the school connects with local resources so that when a child with ASD is accepted into the Montessori school, the Montessori teachers and administrators can provide families with the best supports possible.

Hellbrügge, founder of the first Montessori inclusion school, said “The most important thing is not the medicine and pediatrics, nor the therapist. The most important person is the parent” (cited in Dattke, 2014, p.116).

# CHAPTER VI – CONCLUSION

## Advancement of Knowledge

Interpretive description is meant to uncover practical applications. This study has revealed some practical applications provided by Montessori teachers in working with children with ASD. Observing the child is central to Montessori teacher training. However, study participants shared that many Montessori teachers, even though they should adapt to meet the needs of all children, still feel that they cannot stray from the way in which they were taught the lessons in their training.

This study suggests that using scientific pedagogy, which underlines the Montessori method, provides the teacher with the tools necessary to make adjustments to various lessons. However, there are times when Montessori teachers do not understand why a child with ASD is behaving in a certain way and therefore cannot make the necessary adaptations. This is especially challenging for children with ASD due to the varying levels of severity, and amalgamation of similar disorders under the ASD umbrella since 2013. What works for one child may not work for another. This is where scientific and medical pedagogy need to be combined (Luborsky, 2014; Nehring, 2014). Montessori teachers need to feel comfortable to adapt methods by working in interdisciplinary teams of various therapists (e.g., behaviour, speech, and occupational therapists).

## Implication for Practice

Interpretive description studies do not claim that conclusions are certain or are "truths" as they are based on the specific context of the study (Thorne, 2008, p.206).

Keeping this context in mind, the implication from the research is for the Montessori profession to continue to look at the child from a scientific point of view. Montessori teachers need to feel that they have permission to adjust lessons as needed for the child with ASD, and that they do not have to be limited by the materials and teaching styles solely taught in Montessori teacher trainings. In addition, Montessori teachers and administrators should focus on accessing services for children with ASD in school specific communities. Montessori teachers and administrators should connect with other ASD professionals to create an interdisciplinary approach when teaching a child, especially when traditional methods of Montessori teaching are not working. By working in interdisciplinary teams Montessori teachers have the ability to learn how other approaches and therapies can be beneficial to a child with ASD. Also, including therapists who are unfamiliar with Montessori will help them gain knowledge of the sensorial qualities, and breakdown of skills, that are inherent to the Montessori curriculum.

## Limitations and Future Research

This study has provided new insights and practical application on how Montessori teachers can teach children with ASD in a Montessori school setting. Inevitably, there are limitations to the research design. This includes a single data source, small sample size, recruitment, bias, transferability, and skills of a novice researcher.

This study was limited to a single data source (i.e., interviews) as well as a small purposive sample size of six participants who were recruited by the researcher for their specific experience with Montessori and autism. Other data sources, as well as a larger

sample size, could have generated other thematic patterns. Also, due to the specific experiences of the small sample size, there is the possibility that transferability may be limited when applying practical knowledge from this study to other Montessori environments. This is because the information that was available at the time of the study is only based on the context of the perspectives from which the research was conducted (i.e., interviews) (Thorne, 2008). Recall bias could have affected the participants when they were recalling various teaching techniques and adaptations they used with various children with ASD over the years. The participants were comfortable with making adaptations to the Montessori curriculum and method, it was also noted in this study that this is not the case for all Montessori teachers. This limitation could impact the ability for Montessori teachers who do not agree with making adaptations, to follow some of the practical applications revealed in this study.

This study was also conducted by a novice researcher which can lead to increased bias as well as inexperience when writing up the findings for the research. Having an extensive background in Montessori and autism has benefitted the research in terms of researcher "clinical hunches," however, inexperience with research can lead to an increased risk of researcher bias (Thorne et al., 2004, p.17).

Due to the above limitations, it is necessary for future research to uncover other information from what has been learned from this study (Thorne, 2008). This study has provided insight into how Montessori teachers adapt Montessori methods for children with ASD. It has also provided insights into some of the challenges and areas of strength for working with children in an inclusive Montessori setting. Future research could be directed toward demographic studies that ascertain how many children with ASD are

attending Montessori schools in Canada or the United States. This could include comparative studies on the progress of children with ASD in Montessori and non-Montessori schools. In addition, future research could also include the perspective of parents of children with ASD attending Montessori schools. The hope is that this study will bring focus on the topic, and spark curiosity for more research to be done in this area (Thorne, 2008).

## Concluding Thoughts

The rate of ASD continues to increase, and currently there are no single therapies that can treat all of the symptoms. The Montessori method has its foundation in special education, and was based on the famous work of Itard and Seguin who worked extensively with children with learning differences. The Montessori method uses didactic activities that work on various sensorial qualities that are useful for all children, regardless of diagnosis. This provides a supportive forum for inclusion. Children with ASD can work on various skills (perception, attending) while engaging in peer modeling, and other social skills in the classroom. The participants in this study shared the significance of being a keen observer, the importance of having additional training, and working well with other therapists in order to provide the best possible outcomes for children with ASD in their schools. The parent is one of the most important persons, and has a direct influence on whether or not a school can be successful with their child. Parents need to feel that the school is using all available resources as well as providing an atmosphere of empathy and openness. Although, some strategies were provided in this study, ASD is a spectrum disorder, and every child will need their own individualized observation and assessments to be successful.

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# Appendix A

Semi-Structured Interview Questions for Montessori Teachers

Questions for the Montessori teachers will be structured as follows:

- What is your Montessori credential?
- Do you have any other related credentials?
- How long have you been a Montessori teacher?
- What is your current role?
- How many children with autism have you worked with?
- How have you adapted Montessori methods to educate children diagnosed with autism?
- Have the children had other therapies or interventions while in the Montessori program that you know of?
- If the child has other interventions, are they implemented within the Montessori program? Why or why not?
- Please share any other information that you feel would help Montessori teachers when working with a child with autism in their schools.

Semi-structured interview questions for the two autism experts who use Montessori techniques to support staff and families.

Questions for the two parent supports to will be structured as follows:

- How many Montessori teachers have you supported in your work and in what way have you provided support?
- How many families have you supported in Montessori environments and can you describe what this support entails?
- What are the challenges that families and/or Montessori teachers express when working with children with autism?
- What aspects of the Montessori method have you found from your work, are helpful for children with autism?
- Please share any other information that you feel would help Montessori teachers when working with a child with autism in their schools.

## Appendix B

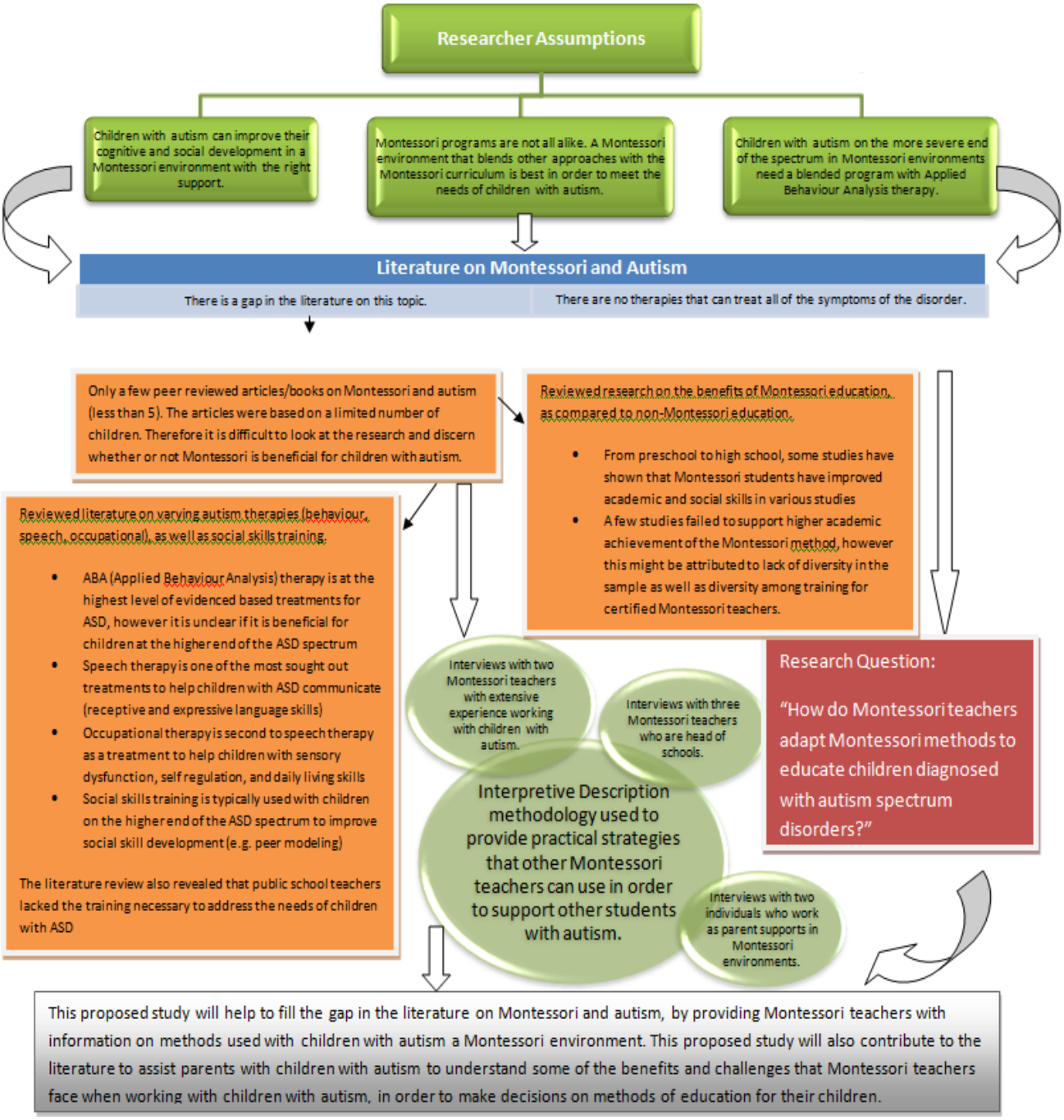


*Figure 1.* This Conceptual Framework outlines my assumptions within the research study.

Frequency of Coded Themes

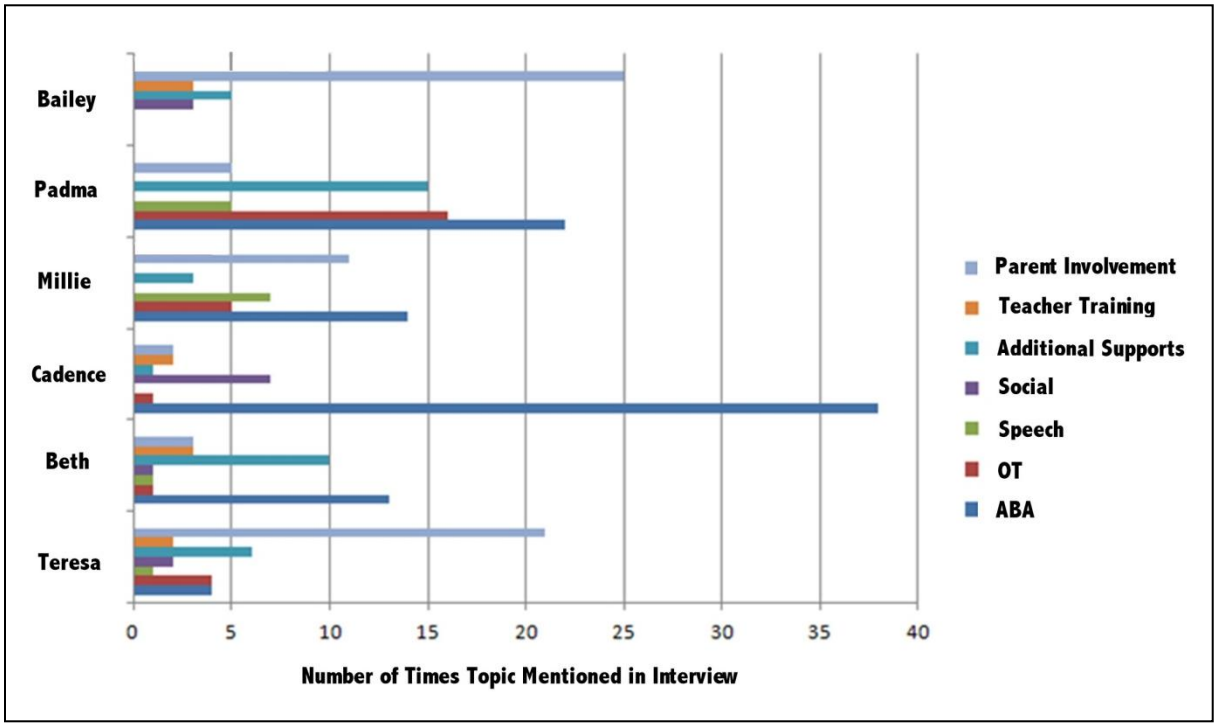


*Figure 2.* This chart identifies the frequency of coded themes using NVivo 11 software. Note that frequency does not necessarily indicate importance in ID.

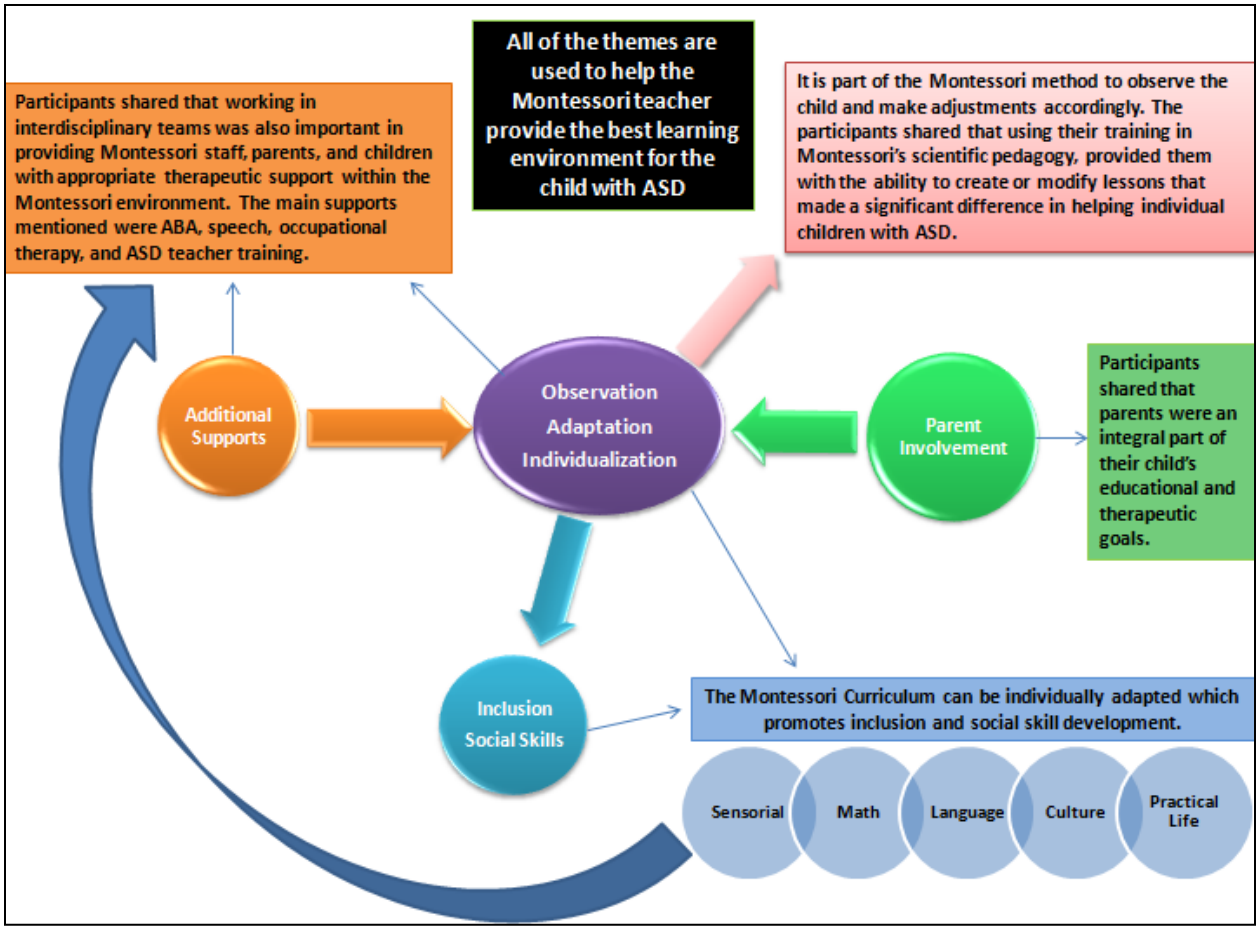


*Figure 3.* This concept map illustrates themes that emerged from the participant interviews as they relate to the child with ASD.

## Appendix C

## INFORMED CONSENT

**Title of Project**: Montessori and Autism: An Interpretive Description Study

**Research Institution**: Athabasca University

**Principal Investigator:**

K. Michelle Lane-Barmapov e. montessoriautism@yahoo.com t. 416.435.2460

**Co-Supervisors:**

Dr. Simon Nuttgens e. simonn@athabascau.ca t. 866.916.9653

Dr. Caroline Park e. clpark@athabascau.ca t. 866-500-2928

1) **Purpose of the Study:** There is a lack of research in the field of Montessori and autism. The purpose of this study is to provide practical knowledge that other Montessori teachers can use in their work teaching children with autism. It is anticipated that this research will reveal the supports and challenges that are involved when teaching a student with autism within this environment.

2) **Procedures to be followed:** You will be asked to participate in an audio-recorded interview lasting from 1 to 1.5 hours. You will be asked a series of questions about your experience working with children with autism in a Montessori environment. You may pass on any question that makes you feel uncomfortable. At any time you may notify the researcher that you would like to stop the interview and your participation in the study. If you choose to withdraw prior to the data analysis stage, all of the information you have provided will be destroyed. There is no penalty for discontinuing.

3) **Discomforts and Risks:** There are no risks in participating in this research beyond those experienced in everyday life**.**

4) **Benefits:** The benefits to participating in this research project are that your contribution will help other Montessori teachers learn how the Montessori method can be adapted to the autism population.

5) **Statement of Confidentiality:** Your participation in this research is confidential. The data will be stored and secured in the home office of Michelle Lane-Barmapov. Paper data will be kept in a locked drawer safe; digital audio recordings will be kept on password-protected

computers. All data will be destroyed five years following the completion of the research. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.

6) **Results of the Study:** Results of the study will be posted online at the Athabasca University Library's Digital Thesis and Project Room. Future options of having the results of the study published in a book, peer-reviewed journals, and presented at national conferences will help provide resources for Montessori teachers who need practical knowledge and insights on how Montessori teachers work with children with autism. A copy of the results will be provided to participants upon request.

**7) Payment for participation:** There is no payment for participation.

_____ _____

Participant Signature Date

_____ _____

Principle Investigator Signature Date

This study has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this study, please contact the Office of Research Ethics at 780-675-6718 or by e-mail to rebsec@athabascau.ca

A copy of this consent will be given to you. Please keep it for your reference.

# Appendix D

## ETHICS APPROVAL LETTER

Athabasca University
RESEARCH CENTRE

March 22, 2016

Ms. Kelly (Michelle) Barmapov
Faculty of Health Disciplines
Athabasca University

File No: 22147

Expiry Date: March 21, 2017

Dear Kelly (Michelle) Barmapov,

The Faculty of Health Disciplines Departmental Ethics Review Committee, acting under authority of the Athabasca University Research Ethics Board to provide an expedited process of review for minimal risk student researcher projects, has reviewed you project, 'Montessori and Autism: An Interpretive Description Study'.

Your application has been **Approved on ethical grounds** and this memorandum constitutes a ***Certification of Ethics Approval***. You may begin the proposed research.

AUREB approval, dated March 22, 2016, is valid for one year less a day.

As you progress with the research, all requests for changes or modifications, ethics approval renewals and serious adverse event reports must be reported to the Athabasca University Research Ethics Board via the Research Portal.

To continue your proposed research beyond March 21, 2017, you must apply for renewal by completing and submitting an Ethics Renewal Request form. Failure to apply for **annual renewal** before the expiry date of the current certification of ethics approval may result in the discontinuation of the ethics approval and formal closure of the REB ethics file. Reactivation of the project will normally require a new Application for Ethical Approval and internal and external funding administrators in the Office of Research Services will be advised that ethical approval has expired and the REB file closed.

**When your research is concluded**, you must submit a Project Completion (Final) Report to close out REB approval monitoring efforts. Failure to submit the required final report may mean that a future application for ethical approval will not be reviewed by the Research Ethics Board until such time as the outstanding reporting has been submitted.

At any time, you can login to the Research Portal to monitor the workflow status of your application.

If you encounter any issues when working in the Research Portal, please contact the system administrator at research_portal@athabascau.ca.

If you have any questions about the REB review & approval process, please contact the AUREB Office at (780) 675-6718 or rebsec@athabascau.ca.

Sincerely,

Sherri Melrose
Chair, Faculty of Health Disciplines Departmental Ethics Review Committee
Athabasca University Research Ethics Board