Autism in the classroom: overcoming barriers through movement

By

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Abstract

This study’s aim was to assess how students with autism, autism spectrum disorder and Asperger Syndrome integrated into the classroom respond to techniques to better their learning. The study assessed the overall benefits these students received when any form of movement was integrated into the classroom. Using semi-structured interviews, two practicing educators demonstrating experience in the research problem shared their insights on how autistic students respond to movement in the classroom. Through thematic analysis, four overarching themes/findings emerged. Teachers recognized the idea that autistic students positively respond to unconventional methods of teaching. Due to a lack of funding, teachers and these students run into barriers that prevent optimal learning. Regular bouts of physical activity throughout the day encourage a friendlier classroom atmosphere but require significant amounts of teacher preparedness. Lastly, the research findings demonstrated that autistic students participating in movement in the classroom benefited in cognitive functioning, behavioural improvement, increased academic results and a willingness to learn. It is important to note that although the study’s findings favour movement in the classroom to improving symptoms associated with autism, no single intervention has proven beneficial in reducing the main symptoms. Future recommends are targeted to educators to comprehend the importance of integrating movement in the classroom and for parents to engage in physical activity with their autistic children outside the classroom as it has a multitude of benefits and instills a positive habit in their children.

Key Words: Physical Activity, Cognitive Benefits, Limited Resources
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Introduction to the Research Study

Europe and North America have seen a surge in autism and autism spectrum disorder cases. This is thought to be occurring from more exposure to unhealthy environmental factors and an increase in research and understanding of the disorder. Autism and autism spectrum disorder (ASD) are brain development disorders. They are multifaceted, and have many layers to them as they vary in degrees of severity (Autism Canada Foundation, 2011). Many scientists believe autism develops early in brain development however, signs and symptoms typically present themselves when an individual is between the ages of two and three (Autism Canada Foundation, 2011). Those with autism and ASD typically display challenges in social cues, verbal and nonverbal communication skills, and behaviour (National Institute of Mental Health, 2014). Specific challenges in behaviour involve repetition and aggression (Autism Canada Foundation, 2011). ASD may also involve individuals dealing with cognitive disabilities, decreased motor coordination, attention and sleep, and issues with the digestive system (Health Canada, 2014). The typical stereotype of ASD is that those diagnosed with it excel in certain subjects such as visual arts, math, music, and math, which is true in many cases (National Institute of Mental Health, 2014).

Asperger’s Syndrome is categorized as a pervasive development disorder (PDD) (Health Canada, 2014). Individuals with this syndrome display issues in basic skill development, especially communication, imagination, and social cues skills. Individuals with Asperger’s syndrome are generally higher functioning compared to those with autism (Autism Canada Foundation, 2011). These children typically possess a normal
intelligence level along with normal linguistic development. It is frequently observed that children with Asperger’s syndrome feel uncomfortable expressing themselves, which can occasionally impact the ability to make friends. It is important to note that these children do not understand social cues therefore it is imperative to be patient and understanding while engaging in conversations.

I am a firm believer that if a problem is dealt with in its beginning stages, it uses fewer resources in the future. This idea resonates with my research because if students with autism, ASD, and Asperger’s syndrome are taught using strategies developed for cognitive, social and physical development, their ability to mainstream in society will be much more successful. I believe that incorporating some sort of physical activity into the classroom can be a strategy that leads to increased academic and behavioural results for these students.

**Purpose of the Study**

Children with autism, autism spectrum disorder and Asperger’s syndrome have difficulty in many different capacities in social situations (Autism Canada Foundation, 2011). Unfortunately, the same applies when these children are integrated into a classroom setting. Depending on the severity of the disorder, these children have a difficult time succeeding in the classroom. It is important to note that the combination of academics, behavioural skills and the overall well-being of a student come together to determine success in the classroom of a student with autism. The purpose of this study is to lend further insight into the benefits of the incorporation of physical activity into the classroom containing students with autism, autism spectrum disorder and Asperger’s syndrome. Frequent issues such as repetition and poor communication plays a large role
in the life of these individuals and the inability to detect and read social cues makes it difficult to adjust in common situations. Since there are thousands of children enrolled in Canadian schools, this impacts our teachers, education community, and society. These individuals deserve the right to succeed in the best education system possible designed and committed to meeting their varied needs. The focus and attention autism has received has allowed researchers, therapists, teaching professionals and family members to diminish the problems these children face as they grow up. Although occasionally successful, it is financially debilitating on families to permanently medicate their children and hire many therapists. A gap is also formed in the classroom as teachers do not have the training and experience therapists have when working with these children. Teachers spend the most productive hours of a day with these children. Preparing teachers to know about the disorder and its developments along with having access to tools and methods to be used while working with these children could have a large impact on themselves, these students and their families. Individuals with autism, ASD, and Asperger’s syndrome are simply ‘wired differently’ therefore, relaying information and running a calm classroom with these students should involve tactics that stray from common teaching strategies and should motivate all types of students to excel. I plan on setting out to learn from teaching professionals and understand the overall benefits students with autism, ASD, and Asperger’s syndrome gain when physical activity is incorporated into the classroom.

**Research Questions**

The primary question guiding my research is: what are the observed benefits of incorporating physical activity into the classroom as a responsive pedagogy for students with autism, ASD, and Asperger’s syndrome? Subsidiary questions include: what are the barriers confronted by autistic students in their educational experience? How do you
create opportunities for physical activity in the classroom? What challenges have you faced integrating movement into your instructional practice?

**Background of the Researcher**

Approximately twelve years ago, my family friend, Sebastian (pseudonym) was diagnosed with autism spectrum disorder. It took his family by surprise as he was the youngest of four and his other siblings did not face any developmental challenges. Since I was very close to the parents and children of this family, I spent a lot of time with this child. For years, he had a difficult time adjusting in the classroom. Sebastian was mainstreamed but continually had teachers who did not allot extra time to work around his challenges. He also dealt with immature and mean classmates who made his time in school extremely unproductive. His time in school actually worsened his behaviour and communication skills, along with deterring him from learning. For a while, it was a challenge to bring him to school and any public place because his behaviour could not be controlled. He was already not able to read social cues properly but his family also noticed a decrease in his communication skills. Four years post diagnosis, the family decided to go on a vacation and asked if my family would join them. During vacation, his mother and I noticed that he would only sit beside me at dinner and would try and communicate with me. His mother was shocked and exclaimed that he “only uses his words around immediate family”. Nathan’s mother asked him why this was the case and he simply answered that I made him feel safe and that I also understood him. Touched by these comments, I knew this experience would have a large impact on my future. Two months later, I began volunteering with speech-language pathologists as Nathan spent many hours a week working with these professionals. I spent a lot of time volunteering
with children and teenagers diagnosed with autism and ASD. I also paid Nathan a visit to have conversations and tutor him.

I volunteered in different capacities for eight years focusing on children with autism. I have a passion for helping these children increase their communication and behavioural skills. They are negatively labeled for something they are not. These children are intelligent and capable of anything. The wiring of their brains confuses people but they have the same rights to succeed as any individual— they must just go about it differently.

Nathan’s mother claims I helped him greatly over the years but in truth, he helped me. I was able to discover my passion of working with children all thanks to him. Unfortunately, the mainstream school classroom never worked out for Nathan. Brilliant in math and music, his teachers were unable to take his talent and develop it further. His principal, speech pathologist, and cognitive behavioural therapist all thought it was best if he was placed in a private school dedicated to children like Nathan. He began grade 9 this September and according to his family, is flourishing in this specialized environment. I decided to dedicate my research on helping students with autism, ASD, and Asperger’s syndrome succeed in the classroom because this subject not only touches me on a personal level, but they do not deserve to fall in between the cracks.

**Overview**

Chapter 1 includes the introduction and purpose of the study, the research questions, as well as how I came to be involved in physical activity improving the school performance and behaviour of children with a variety of PDDs. Chapter 2 contains a review of the literature and main themes found in the research. Chapter 3 provides the methodology and procedure used in this study including information about the sample
participants and data collection instruments. Chapter 4 identifies the participants in the study and describes the data as it addresses the research question. Chapter 5 includes limitations of the study, conclusions, recommendations for practice, and further reading and study. References and a list of appendixes follow at the end.
Chapter 2: LITERATURE REVIEW

In this chapter I review the literature in the areas of autism, autism spectrum disorder (ASD), and Asperger’s Syndrome. More specifically I review themes related to the importance of children with autism excelling in the school system. I start by reviewing literature in the area of the symptoms and behavioural patterns children with autism, ASD and Asperger possess. I review and consider current tools used in classroom and therapy sessions that are being utilized to decrease disruptive behaviour. Next, I review the challenges and barriers teachers face within the classroom. I also cover literature focusing on the challenges parents feel exist within the school system. From there, I review research on the benefits of physical activity and how it affects children with autism. Regular exercise provides the body with physical benefits along with improving cognitive functioning. Finally, I will discuss where research is heading in regards to studying how exercise is incorporated into an autistic child’s life to help manage symptoms. I will also consider the benefits of researching how physical activity incorporated in the classroom can benefit children with these disorders.

Understanding the Problem Autistic Children Face

As described earlier, children diagnosed with autism and ASD struggle with social interaction, communication, and imagination (Autism Canada Foundation 2011). Classic autism is characterized with major deficits in speech and cognition while those on the opposite side of the spectrum typically show advanced intelligence, strong speech skills but lack in social interaction and dealing with emotions (Autism Canada Foundation, 2011). Children on this high end of the spectrum are diagnosed with Asperger’s syndrome. The primary struggle for families that have a child or children diagnosed with autism, ASD, and Asperger’s syndrome is that there is neither a fetal
detection tool nor a cure (Autism Canada Foundation, 2011). Emerging research has deduced that these disorders most likely occur from genetic and environmental factors (Autism Canada Foundation, 2011). The rising number of these disorders leaves scientists puzzled (Health Canada, 2014). Since 2008, the diagnosis rate of autism has increased by 30% and in 2014, Stats Canada reported that 1 in 150 children are affected with autism (Health Canada, 2014).

**Behavioural Difficulties**

Children with autism, ASD, and Asperger’s syndrome display behaviour patterns that can be disruptive and difficult to manage. Not being able to socially regulate emotions puts a damper on the attitude of the classroom and also effects the other students and teachers. No disorder is the same, therefore a range of behaviour and severity can be witnessed. These disorders cause restricted, repetitive patterns of behaviour such as flapping of the hands, grinding of the teeth, and rocking (Leblanc, Richardson & Burns, 2009). It is believed these actions are done for several reasons—enjoyment, anxiety-relieving, and dealing with stress and physical illness (Autism Canada Foundation, 2011). Children on the higher end of the spectrum have difficulty dealing with change in any area of their lives. They demand much structure and typically develop strict rituals, which involve those of importance to them (Colvin & Sheehan, 2012). Social interactions can become difficult for these children because they tend to place their preferences and rules on others around them. When other students, relatives, and friends interfere with these rituals, these children become extremely agitated and throw a tantrum (Colvin & Sheehan, 2012). Throwing tantrums in a school environment can be debilitating on the student as it interferes with the child’s learning. Not being able to socially regulate emotions puts a damper on the attitude of the classroom and also
effects the other students and teachers. It is found that the attempt to re-focus the attention of these children in the classroom can also lead to tantrums (Colvin & Sheehan, 2012). As a teacher, it can be difficult to stay on top of the curriculum, lead a peaceful classroom and manage tantrums. There is a definite link between distractions within the classroom and aggressive fits from children suffering from autism, ASD, and Asperger’s syndrome (Colvin & Sheehan, 2012). Since these three disorders still puzzle scientists, their behaviour cannot always be predicted and explained. All children learn best in calm and encouraging environments and these tantrums disrupt all of this. Not being able to prevent or control tantrums can lead to teacher burnout and the use of extra resources such as an Autistic Behavioural Therapist and Speech-Language Pathologist, which can be costly (Colvin & Sheehan, 2012). A study conducted by Hartley, Sikora, & McCoy (2008), indicated that autistic elementary students produced maladaptive behaviours within the classroom. Researchers mainly witnessed a combination of common autistic behaviours and were much more disruptive than their peers. These findings are in agreement with what is currently known about the disorder - the need for a strategy or tool to regulate the attention span, decrease aggression and increase social engagement is imperative to running a classroom that benefits the learning of all students (Hartley et al., 2008).

**Social Stories**

A little over a decade ago, social stories became the new tool to use amongst professionals who work with children with autism, ASD, and Asperger’s syndrome (Autism Canada Foundation, 2011). A social story “can be a written or visual guide describing various social interactions, situations, behaviours, skills or concepts” (Colvin & Sheehan, 2012, p.24). It is a very simple way for autistic students to see what is
expected of them in order to prevent or stop tantrums and continue along with routine. The creators, Carol Gray and Joy Garand created social stories after much research to accurately share information in a patient and confident manner that is properly understood by its audience who were primarily autistic children (Colvin & Sheehan, 2012).

Social stories became popular in the classroom because there is no additional training required and they are an inexpensive way to try and control tantrums. It is also extremely popular because social stories can be made into many different contexts therefore altered to the students’ specific needs. Routines, steps to achieve a task, and developing a theory of mind are all examples of what social stories could be used for (Autism Canada Foundation, 2011).

One of the first studies on social stories was conducted in 2002 to raise questions about the effectiveness of social stories. Three autistic students with strong communication skills were selected (Scattone, Wilczynski, & Rabian, 2002). The results indicated that all three participants displayed a decrease in disruptive behaviours in the classrooms when social stories were implemented (Scattone et al., 2002). Over the nine-week duration of the experiment, the disruptive behaviour did not decline on a continual momentum and at the halfway mark, inappropriate behaviour occurred more often even with the use of social stories (Scattone et al., 2002). Since the results were statistically significant, the researchers were able to conclude that in this case, the use of social stories were convenient, unobtrusive, and less labour intensive. Overall, this study demonstrated that the use of social stories can dramatically cut the amount of disruptive behaviour from autistic students. On the other hand, the researchers were unsure if social stories were a long lasting solution to help control these tantrums (Scattone et al., 2002).
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participants did not always find social stories helpful and the researchers felt that they may have started the process of desensitization.

Although the theory of social stories is understandable, scientists such as Colvin & Sheehan (2012) and Scattone et al., (2002) question its validity and feel there needs to be more conclusive research conducted. Social stories have shown to help autistic students but may actually be a band-aid effect in reducing disruptive behaviour for a short period of time (Colvin & Sheehan, 2012). Although social stories are a common tool in managing disruptive behaviour of autistic students, more research must be conducted to show its true effectiveness.

Challenges and Barriers in Schools

Autism, ASD, and Asperger’s syndrome are all prevalent within Canadian school systems. Since the prevalence rate of these disorders is rising, it is important for teacher’s to develop a thorough understanding of them. There are currently 7,000 students with ASD enrolled in Ontario schools (Health Canada, 2014). Almost every teacher will have an experience working with a student diagnosed with autism, ASD, and Asperger’s syndrome. Therefore, it is imperative that those involved in education have some understanding on the biology of brain disorders and how to support these students.

Teacher Integration Challenges

Depending on the severity, children of autism, ASD, and Asperger’s syndrome are typically mainstreamed into the regular school system (Hartley et al., 2008). A child with any of the three disorders is simply ‘wired differently’ and has different obstacles to face in order to succeed in the classroom setting. The daily routine of school can cause stress on the student, teacher and other classmates (Leblanc et al., 2009). Autism spectrum disorder is now the most common neurological disorder diagnosed in children.
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(Autism Canada Foundation, 2011). Canadian school boards have reported significant increases of autism student enrolment and teachers have needed to adapt their teaching practices to ensure their classroom is inclusive to all students (Lindsay et al., 2014). These students run the risk of being socially excluded due to their typical difficulties in social interactions and rigid behaviour. Research shows that inclusion of students with disabilities is one of the most difficult tasks teachers face (Lindsay, Proulx, Scott & Thomson, 2014). While in the classroom, teachers feel that these students continually struggle with important developmental tasks such as social interaction, verbal and non-verbal communication, creative play and sensory processing (Lindsay et al., 2014).

Although not academic struggles, children rely on these natural developmental markers to flourish in society as they get older. Keeping open communication with these students is often difficult because the ability to express their concerns and needs with teachers and surrounding classmates is hard for them (Leblanc et al., 2009). Maintaining a peaceful classroom environment can occasionally be a challenge because children with any form of autism do not like being surrounded by groups of people, dealing with noisy surrounding and being touched due to sensory sensitiveness (Lindsay et al., 2014). As one can imagine, those three occurrences happen on a regular basis especially in elementary classrooms. In order to prevent teacher burnout, strategies must be planned to prevent the class environment from going awry (Leblanc et al., 2009). Quick solutions are never the right decision when working with these children because their learning is most important and discovering positive ways to succeed in the classroom should be a teacher’s number one objective.
Barriers from the Parental Side

For certain families, placing their child in a private school specializing in neurologic disorders is the best option. For others, they cannot afford these schools, or feel that mainstreaming is the right thing to do, especially if their child falls higher on the spectrum. If teachers are not prepared, there can be serious implications for students. Research has found that anxiety and social isolation are common feelings students with autism, ASD, and Asperger’s syndrome feel when there is no support in the classroom (Brewin, Renwick & Schormans, 2008). A high level of anxiety then leads to repetitive and disruptive behaviour, which negatively affects the learning of these students and the others around them. Without a consistent, positive strategy put in place to help these students stay in a calm state, a circle of repetitive events is formed that is difficult to break. From a parent’s perspective, it can be frustrating to witness a child’s struggles socially and academically on a daily basis. An important goal for both parents and professionals is to maximize the quality of children’s lives. During thousands of parental interviews, Brewin et al. (2008) found many recurring themes involving their autistic children struggling in classrooms. These parents found their “children being excluded from physically active and sports-related activities” (Brewin et al., 2008, p. 245). Not providing the chance for these children to get involved in other subjects such as physical education can have implications on their health and social development. Further, parents suggested that “in addition to providing organized skills training, opportunities need to be provided so that children with all forms of autism can participate in activities that they have interest in” (Brewin et al., 2008, p. 250). Incorporating some sort of physical activity or topic of interest into the classroom can have a large impact on these students. It would provide a feeling of inclusiveness, which would directly impact the motivation
and behaviour in a positive way. A second theme that was evident post interviews was parents concurred that teaching professionals play a significant role in these students’ lives (Brewin et al., 2008). Students spend approximately 35 hours per week with teachers and other professionals therefore it is imperative that teachers learn what works for their students, especially ones with any form of autism. Parents perceived it as a barrier when teachers would not challenge themselves while working with their autistic children (Brewin et al., 2008). It is difficult to run a classroom with a group of children of mixed learning levels but parents of autistic students agree that different techniques and strategies should be put into practice in the classroom (Brewin et al., 2008).

During the 2000 academic year, students with autism, ASD and Asperger’s syndrome placed a large financial burden on the Canadian education system. The overall costs for extra special education services were estimated at $10 000 per student; including resource specialists, related services and other accommodations (White, 2014). These students deserve all the help needed however, more research must be conducted to determine if other, less inexpensive strategies can be used in the classroom to help these children succeed. In another study, parents agreed that the education system was spending too much money on resources that were providing mediocre services to their autistic children (White, 2014). Comparable to the previous study discussed, results indicated that behaviour management within the classroom was not meeting parent expectations (White, 2014). When a child, especially with autism is not in a calm state of mind, nothing will be learned making it difficult for the student, teacher and parents. Parents also voiced a concern that not enough physical activity was being provided to their children (White, 2014). Participating in any form of physical activity is good for the body and mind; these parents felt that their autistic children could expel more nervous
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energy throughout the day. Most parents do not have scientific backgrounds on
neurological disorders such as autism. However, parents for the most part know what is
best for their child and research indicates, there are some barriers within the school
system. Not every system can be perfect but the education system must adopt new ideas
on how to help these autistic students be the best they can be.

Physical Activity and Its Benefits On Autistic Children

Exercise is important for the body because it increases mobility, optimizes
physical functioning, and enhancing overall well-being (Autism Canada Foundation,
2011). It was first thought that exercise simply benefitted the physical body including
muscles, joints and bones but the benefits of it goes way beyond that. Exercise can
increase self-care, socialization, education, recreation and community life (Murphy &
Carbone, 2008). Every human can benefit from participating in regular physical activity
and research has shown this is also true for those with neurologic disorders such as
autism, ASD and Asperger’s syndrome in that physical activity can help keep the mind
calm (Autism Canada Foundation, 2011). Murphy et al., (2008) were able to conclude
that participation of some sort of physical activity amongst autistic children influenced
their psychological well being because it can help form friendships, express creativity,
develop a self-identity and create a sense of mindfulness. Regular exercise was also seen
to positively affect a sense of independence, coping abilities, competitiveness, and
teamwork. All these qualities are needed within a classroom therefore it is essential for
autistic students to be as healthy as possible prior to entering the classroom.

Scientists have made a positive correlation of regular physical activity and its
profound effects on the physical and mental health of an individual. This relationship is
particularly evident with autistic children (Oriel, Kanupka, DeLong & Noel, 2014). Sleep
disturbances are a common problem among children with autism and ASD. When any child has difficulties sleeping, their daily cognitive functioning and intellectual development are negatively affected (Oriel et al., 2014). There is also a “direct correlation between poor sleep patterns and disruptive behaviour, social interaction and the severity of other autistic symptoms” (Oriel et al., 2014, p. 2). In attempt to reduce sleep disturbances, scientists have found that there are issues with pharmacological and behavioural treatment approaches (Todd, Reid & Butler-Kisber, 2010). An alternate approach to improving sleep patterns is engaging in regular exercise. Research has shown that those who participate in regular exercise had “shorter sleep onset latency, fewer awakenings, higher concentration during the day, and lower tiredness during the day” (Oriel et al., 2014, p. 4). Oriel et al., (2014) set out to determine if aquatic exercise improved the sleep pattern of children with ASD and concluded that it had positively affected sleep latency and duration. Since the number of participants was a limitation of the study, further research should be conducted in this field to see if results can be reproduced. In another study conducted by Todd et al., (2010), their results had similar themes to those of Oriel et al., (2014). When autistic children were subjected to cycling exercise sessions, their self-reinforcement, self-monitoring and goal setting skills had improved (Todd et al., 2010). With a different mission, Todd & Reid (2006) were able to make the same conclusions as their other study along with Oriel et al., (2014). While conducting an outdoor physical activity program for elementary students with ASD, results indicated that the intervention developed a sense of excitement and participation while being performed (Todd & Reid, 2006). Not only did the fitness levels improve of all the participants, but they developed friendships with each other, something that is difficult for most children with ASD (Todd & Reid, 2006). Although these three studies
had different methods, they all had a recurring outcome that physical activity
significantly benefits children with autism, ASD and Asperger’s syndrome. It is evident
that making physical activity apart of an autistic child’s daily routine positively
influences many areas of their lives.

The Direction of Research

Research has concluded that engaging in regular physical activity is beneficial for
everyone especially those with autism, ASD and Asperger’s syndrome (Murphy &
Carbone, 2008). According to research, regular exercise strengthens a child’s
psychological well-being. A healthy mind can decrease disruptive behaviour that acts as a
learning barrier in the classroom (Murphy & Carbone, 2008). If physical activity can
produce calming effects on the mind, then it could potentially have rewarding results
when brought into the classroom (Oriel et al., 2014). Research has also shown that certain
body movements and deep breathing can encourage both hemispheres of the brain to
out to determine if physical activity can increase academic participation of elementary
students with autism, ASD and Asperger syndrome. The results matched the hypothesis
in that commencing the intervention, increased academic engagement was observed
(Nicholas et al., 2011). Another interesting result was that termination of the intervention
lead most participants to show decreased academic engagement (Nicholas et al., 2011). A
potential limitation of this study was the smaller number of participants and the use of
edible reinforcers, which may not always exist in the real world.

Autism has caught the attention of many scientists because its etiology is still
unclear. Although much research has been dedicated to improving symptoms associated
to all forms of autism, no single intervention has proven beneficial in reducing the main
symptoms (Scharoun, Reinders, Bryden & Fletcher, 2014). A theory that has just begun
being researched in schools is dance/movement therapy (DMT). Past research has
indicated a correlation between body movement and emotional development, cognitive
processing and body perception. Scharoun et al., (2014) were able to conclude that much
variability exists in their results and this field and further research must be conducted to
determine more consistent results. Similar to Nicholson et al., (2011) and Scharoun et al.,
(2014), Hartshorn, Olds, Field, Delage, Cullen & Escalona (2001) set out to determine if
movement therapy was effective in increasing attentiveness and reducing stress
behaviours. The results were in accordance with the two previous studies and found that
movement therapy increased in only some attentive behaviour but stress behaviours such
as social isolation decreased (Hartshorn et al., 2001).

A form of physical activity that has become popular amongst adults in the last
decade is yoga. It is practiced because it provides physical and psychological benefits to
the body (Tummers, 2005). Yoga’s value to children with disorders has just started being
researched and currently there are therapists who question it as evidence-based therapy
(Tummers, 2005). With its cardiovascular benefits, literature suggests its ability to
decrease aggression and anxiety in children with various psychological disorders. For this
reason, schools in the United States have started to incorporate yoga into its physical
education curricula (Tummers, 2005). It is also theorized that the practice of yoga can
increase the focus and ability to follow directions while participating in fine and gross
attempted to determine if yoga affected motor performance, classroom behaviour, and
academic performance of preschool children with and without disabilities. Those who
practiced yoga showed some improvement in academic measures however the yoga
resulted in minimal school-related benefits for children (Mische Lawson et al., 2012). This study had weaker results than the studies conducted by Scharoun et al., (2014) and Hatrshorn et al., (2001). However, they were all able to conclude that physical activity, no matter the form has some benefits on autistic students in the classroom. Physical activity “may be an effective intervention for children but current literature fails to examine the effectiveness of it as a classroom-based intervention” (Mische Lawson et al., 2012, pp.129). There is currently not enough research on the results of bringing any form of physical activity into the classroom. The benefits of physical activity on children with autism are evident however it would be critical to learn how autistic students react when participating in physical activity within the classroom.

**Conclusion**

In this literature review I looked at research on the typical behavioural patterns of children with autism, ASD and Asperger’s syndrome along with the benefits of tools such as social stories therapists and parents use for these children. I also reviewed literature focusing on the challenges teachers faced in school in attempt to make an inclusive classroom and the barriers parents felt existed in the school system preventing their children from excelling. This review elucidates the extent that attention has been paid to how physical activity benefits children with neurological disorders such as autism. Regular exercise helps these children develop a sense of well-being while also providing the brain with a calming effect. It also raises questions about duration of time and which symptoms are positively influenced by physical activity. It would be beneficial to examine how children with autism, ASD and Asperger’s syndrome benefit from constantly engaging in physical activity within the classroom. There is not enough research conducted in this area and the autistic population is increasing in schools all over
the world. This can be done by examining teachers who work with autistic students and implement physical activity in their classroom. It is evident that alternate strategies must be used to help autistic students succeed within and outside of the classroom.

Chapter 3: METHODOLOGY

Introduction

This research study, *Autism in the Classroom: The Benefits of Physical Activity* focuses on current literature in the field, and two interviews with teachers whom have experience teaching autistic children. In this chapter, I describe the research methodology. I began by reviewing the general procedures, approach and data collection instruments prior to elaborating more on participant sampling and recruiting. I then go on to explain data analysis procedures along with any ethical considerations that arose during the study. I identify a range of methodological limitations but also speak to the strengths of the methodology as the form of research possesses strengths and weaknesses during data collection and analysis. Finally, I conclude the chapter with a brief summary of key methodological decisions and my rationale for these decisions given the research purpose and questions.

Research Approach and Procedures

This research will be conducted using a qualitative research approach involving a literature review examining existing research on the subject as well as semi-structured interviews. This study utilizes a “qualitative approach to inquiry, the collection of data in a natural setting sensitive to the people and places under study, and data analysis that is both inductive and deductive and establishes patterns or themes” (Creswell, 2012; p. 140). The value of this type of research methodology is the ability to receive detailed and
unstructured answers from the participant. Gathering data using a qualitative approach can allow for the articulation of in-depth, detailed information from the participants about their own experiences, perspectives, and beliefs.

Goals of this type of research methodology include accessing the authentic voices of participants, and practicing reflexivity on the part of the researcher. Qualitative research differs from quantitative research based on numerous characteristics. This branch of research is conducted in a natural setting, relies on the researcher to gather pertinent information, involves inductive and deductive and focuses on the ideas, experiences, and subjective views of the participants (Creswell, 2012). The outcomes of this research are not produced through relationships of cause and effect, but shed light on this specific topic. The researcher interprets the findings to identify themes, rather than produce objective results. This type of research methodology is suitable for my research. My research question seeks to investigate the experiences and perspectives of teachers who utilize physical activity into their autistic education practices.

**Instruments of Data Collection**

The primary instrument for data collection used in this study is a semi-structured interview protocol. Semi-structured interviews provide opportunity to hear participants lived experiences (Creswell, 2007). The semi-structured format allows for the interviewer to design and plan an interview that attends to the research focusing questions while leaving room for participants to elaborate and direct attention to areas previously unforeseen by the interviewer (Cohen & Crabtree, 2006). Semi-structured interviews are an asset when conducting qualitative research. Questions are prepared prior to speaking with participants in order for the researcher to properly record the responses of the participants (Drever, 1997). This interview method also allows informants to express
their thoughts freely whilst providing the researcher with reliable, and comparable qualitative data.

Semi-structured interviews rely on language as a means of primary data (Cohen & Crabtree, 2006). A participants desire to partake in an interview helps the researcher gain insight and in depth explanations of the information being sought out (Creswell, 2007). This type of interview method is an appropriate choice for the given research purpose because each participant has different professional experiences that I can engage and learn from. This then provides me with the opportunity to generate rich themes embedded in the data to help me respond to the benefits of using physical activity when teaching autistic students.

**Participants**

Here I review the sampling criteria I established for participant recruitment and I review avenues for teacher recruitment. I have also included a section for participant introductions.

*Sampling Criteria*

- Participants must have a minimum of three years teaching experience

Teachers participating in this study must have taught for a minimum of three years because I am interested in learning from participants teaching experience (i.e. to be able to draw on a minimum of three years teaching experience). The beginning of teaching are commonly spent establishing familiarity and comfort with curriculum expectations and classroom management routines more so than diversifying instructional strategies, and for this reason it is important to me that I interview teachers who have at least begun to transition to this latter stage whereby they have begun to reflect on their practice.
• Those being interviewed should be a Primary/Junior or Junior/Intermediate teacher

It is necessary that participants must have taught any level between Kindergarten through Grade 10 in the last three years. This is a criterion of my research because I am a Junior/Intermediate teaching candidate and the purpose of this research is to learn how to create opportunities for physical activity with students aged 4-15 so it is appropriate to interview teachers whom have had experience working with this age group.

• Participants must have demonstrated commitment, leadership and/or expertise in supporting students with ASD.

The purpose of this research investigates responsive pedagogy for students with autism, ASD and Asperger syndrome. It is essential that the teachers selected for interviewing must have had experience working with children with any of these disorders. Expertise in this area may be demonstrated through teaching, leading professional development, graduate studies in this area, leadership role in the school in this area, and prior volunteer experiences in this area. Participating teachers who have demonstrated interest in this area will be able to reflect on their teaching practice and provide insight on the research topic. Having expertise in autistic education will provide the researcher with viable information that can help answer the research question.

• Teachers who purposefully incorporate physical activity into their classroom as a responsive pedagogy for students with autism, ASD, and/or Asperger syndrome. Teachers who believe physical activity positively impacts the learning of students will be selected as participants of this study. The purpose of this research is to determine the effects physical activity has on autistic students, therefore teachers who have visible incorporation of physical movement within their classroom can provide the researcher
with pertinent information. Teachers who not only believe in the value of physical activity but who also create opportunities for this in their teaching practice would be an asset to my research. Physical activity may take any form as long as it takes place within the classroom during school hours.

**Sampling Procedures/Recruitment**

To recruit participants, I must go through the process of sampling, which involves selecting sources from a larger pool of data sources (Given, 2008). The population to sample from has been defined from the sampling criteria listed above. Due to the existing sampling criteria, I must rely on a nonprobability sample in order to choose the participants of the study. In order to select a nonprobability sample, convenience, snowball and quota all exist in order to select participants (Morse, 2004). Convenience sampling is selecting the sample by including participants who are readily available and who meet the study criteria and will be used in this study (Morse, 2004). I relied on convenience sampling as I am immersed in a community of teacher colleagues, mentor teachers and educators with vast and experienced backgrounds. I reached out to Special Education program directors, parents with autistic students and therapists who directed me to educators with the criteria I was looking for. I relied on my existing contacts and networks to recruit participants and provided my information to principals rather than asking them to provide me with the contact information of suitable teachers (Given, 2008).

**Participant Biographies**

Pamela: Pamela is an Ontario Certified Teacher who has been teaching full time for six years. Pamela has taught Grades 1 & 2 and has been teaching Junior and Senior Kindergarten for the past three years. Pamela has students with varying degrees of autism
integrated into her classroom in every year that she has taught. After realizing the benefits of incorporating movement into lesson plans during practicum placements, Pamela made a conscious effort to include many forms of movement for students to participate in within her classroom.

Julia is an Ontario Certified teacher who has been teaching in the private sector for 25 years. Having autistic students integrated into her classrooms for ten years, Julia discovered her passion for working with autistic students. For the past 15 years, Julia has been an educator at a private school with a focus on autistic education. Every classroom is equipped with exercise materials that are used while learning curricular content.

Data Collection and Analysis

After selecting participants using convenience sampling, interviews were conducted. Each interview was be 45-60 minutes in duration and all participants were assigned pseudonyms to protect confidentiality. Once the interviews were conducted, the data was transcribed and coding of the transcripts took place. Each transcript was coded using the research questions as an interpretive tool. Coding the transcripts is an imperative process as it allows the researcher to group the viable data into categories (Creswell, 2012). The categories act as tool for identifying themes. Themes can then be read against the current literature that exists on the topic of research. I coded the data searching for common themes and divergences as relevant to the research questions. Along with analyzing the data provided during interviews, I also looked at any null data and other information that the participating teachers did not speak to (Creswell, 2012).

Ethical Review Procedures

All participants were assigned a pseudonym and were notified for their right to withdraw their participation at any point in the research. The participants’ identities
remained confidential and any identifying markers related to their schools or their students were excluded. There were no known risks or benefits to participation in the study. In order to minimize risk, participants had the opportunity to review the transcripts and edit or remove any statements prior to data analysis. All data will be stored on a password-protected laptop and will be destroyed after five years. Participants were also asked to sign a consent letter (Appendix A) giving their consent to be interviewed and to be audio recorded. This consent letter provided an overview of the research question, purpose of the study, ethical implications and stated the researchers expectations of the participants.

Given this research topic, it is possible that questions may trigger an emotional response from a participant with a potential of vulnerability during the interview. I minimized any risk by informing the participant of my research topic but did not provide the interview questions ahead of time. In addition to this, the consent letter stated participants had the right to refrain from answering any question that they do not feel comfortable with as well as choosing to withdraw from participation.

**Limitations**

*Limitations*

The purpose of qualitative research is to gain a reflexive insight on a specific area of research (Creswell, 2012). With that being said, there are limitations found with this form of research methodology. A qualitative study is not as accepted as quantitative research to some within the scientific community. This is due to the fact that qualitative research implies a generalization of information rather than a cause and effect relationship (Anderson, 2010). This study focuses on two participants; therefore the information obtained cannot be generalized to a larger population.
The research may be influenced by the personal biases of the researcher (Creswell, 2012). I attempted to minimize this bias by comprising questions that every participant can relate to. The sheer volume of data to analyze along with uncovering themes within the data can be difficult and time consuming (Anderson, 2010). In addition, the presence of the researcher during interviews could affect the responses of the participants. The manner in which this study was designed can also be seen as a limitation. It was approved that researchers may only interview two to three subjects, which is considered to be a small sample size. This was also a potential limitation because the researcher is limited to a single research method (Anderson, 2010). This study was also only approved to gather educators as participants and the only method of data collection was via interviews. These characteristics were seen as limitations to the study because they limit what the researcher can learn about the research topic (Creswell, 2012).

**Strengths**

As mentioned above, the information gathered in this study could not be generalized to a larger population. A strength of this research methodology was that the findings had the potential to be transferable to another setting, such as the general or special education classroom in this case (Anderson, 2010). The interviews were an asset to this research. The issues could be examined in depth, specific questions the researcher had were not restricted and the semi-structured interview allowed the researcher to have a better understanding of participant ideologies in real time (Anderson, 2010). The interviews were a way to validate teacher-voice and experience and were an opportunity for them to make meaning from their own lived experiences and allow them to reflect on their own practices and to articulate how they conceptualize specific topics. The purpose
of qualitative research was to gain insight on a specific research topic that was based on human experience (Anderson, 2010).

**Conclusion**

*Autism in the classroom: overcoming barriers through movement* is a qualitative study that examined how teachers created opportunities for physical activity with students on the autism spectrum, and what they observed as outcomes from this work. The study involved two semi-structured interviews that were 45-60 minutes in duration and featured two to three teachers recruited through convenience sampling. These educators possessed four specific criteria in order to be considered a participant. The participants were given a consent letter informing them of all ethical considerations. To avoid any risks, the participants were provided with pseudonyms, had access to their responses and the researcher kept the interviews locked on a password-protected laptop for five years. The information obtained during interviews were then coded and analyzed to uncover themes and pertinent information regarding the research topic. This qualitative study had limitations such as a small and specific sample size and information that could not be generalized to a larger population. On the other hand, the in-depth interviews gave the researcher a perspective on human experiences and insight on the research topic.

Next, in Chapter 4, I report the research findings.
Chapter 4: FINDINGS

4.0 Introduction

In this chapter, I report and discuss the findings of two semi-structured interviews conducted with professional educators. The participants were recruited based on four specific sampling criteria and given the pseudonyms Julia and Pamela. The participants have been teaching full time of a minimum of five years and have experience teaching primary, junior and intermediate grade levels with autistic students integrated into their classrooms. The interviews were conducted in person and the participants discussed their philosophy of education, the challenges and barriers present when teaching autistic students integrated into classrooms, and the observable benefits these students receive when physical activity is incorporated into the classroom. The interviews also provided me, the researcher with practical and instructional strategies that participants reported to be effective when working with autistic students. Four overarching themes emerged in my analysis of participant interviews. These included: 1) Teachers recognition that autistic students deserve the opportunity to learn using a variety of techniques; 2) Educators run into challenges and barriers when autistic students are integrated into the classroom; 3) The need for incorporating movement in the classroom; and 4) Teachers recognize the benefits physical activity has on autistic students.

This chapter discusses each overarching theme along with those that have subsequent subthemes. These themes will be compared across participants and will also be compared to its relatedness or lack of significance compared to the literature review. Lastly, the significance the theme has in relation to the research question will be discussed followed by a concluding statement of the insights the researcher gained through analyzing the collected data.
4.1 Teacher recognition that autistic students deserve the opportunity to learn using a variety of techniques

Teaching a full size classroom can be a difficult feat on its own and when autistic students are integrated into the classroom, learning can become a challenge. As mentioned in Chapter 2, the brains of autistic children are simply wired differently; therefore they are anything but conventional learners. When questioning Julia and Pamela, they both eluded to the fact that it is extremely rewarding working with autistic students but requires much effort and planning to achieve student growth and success. Julia felt that her autistic students “have so many special needs for adequate learning and it is so important that these students are properly integrated into the classroom and planned for accordingly.” According to Stats Canada, the diagnoses of autism have surged by 30% with more teachers will have autistic students integrated into their classrooms. The same idea was also highlighted in the second interview conducted with the participant Pamela. Pamela stated that her two autistic students are,

On the more severe side of the spectrum. If those two students are not stimulated all day everyday, forget about learning curricular content.
Not only will they lose focus immediately without enough stimulation, but it affects the overall vibe and learning of the other students in the classroom.

Depending on the severity, children with autism, ASD and Asperger syndrome display negative behavioural traits that are difficult for relatives and educators to regulate, especially in the classroom environment. According to Autism Canada, autistic students have difficulty regulating their emotions and positive behaviour during times of anxiety and stress and the goal is to provide these students with stimulating and stress-free
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environments. Both participants stated that it is challenging to meet curricular expectations, create a warm learning environment and manage tantrums produced by these students. Julia mentioned it being a Constant struggle to meet the academic and behavioural expectations of the school and parents. These students are being integrated into my classroom therefore I need to use alternate techniques that can trigger their confidence and learning. The classroom flow then changes due to the array of learners in the classroom.

The general opinions provided by both Julia and Pamela during the interviews were in line with what the literature is suggesting- autistic students require significant attention in the classroom. These findings are in agreement with what is currently known about the disorder- the need for a strategy or tool to regulate the attention span, decrease aggression and increase social engagement is imperative to running a classroom that benefits the learning of all students (Hartley et al., 2008). It is difficult to adhere to specific needs of any student, especially integrated autistic students. As the participants mentioned, in order for these students to excel in an integrated classroom, a teacher must dedicate enough time to plan for their success as they are just as deserving to conceptualize curricular content.

4.2 Autistic students integrated into the classroom face challenges and barriers

Literature and educators presently working both agree that children diagnosed with autism, ASD and Asperger syndrome integrated into classrooms face challenges and barriers on a daily basis. With autism diagnosis on the rise, almost every teacher will have an experience with an autistic student (Health Canada, 2014). Through thematic analysis, two sub-themes emerged from the idea of the ongoing challenges these students
and teachers face. Both participants eluded to the fact that there is a lack of funding that limits resources and professional supports these students and educators receive.

4.2.1 The lack of funding limits resources autistic students receive

It is reported that one of the biggest challenges educators face when working with autistic students integrated into the classroom is maintaining a peaceful environment with no cues to trigger tantrums (Leblanc et al., 2009). One of the greatest used tools amongst classroom teachers is social stories. They are used by behavioural and speech therapists to share information with an autistic child and have them understand what is being communicated in a confident manner (Colvin & Sheehan, 2012). Teachers have adopted the use of social stories because they are inexpensive to create, do not require additional training and are often effective amongst autistic students.

At the end of Julia’s interview, she asked to make one more comment regarding funding. As a teacher,

I need more funding to support my students. Our funding with regards to resources to support students and teachers is minimal and there always needs to be more. It’s a constant struggle with educators however unfortunately not something we have control over.

During Pamela’s interview, social stories were mentioned as an occasional effective tool but were not successful enough for student growth and learning. It was also stated “my classroom barely has any resources that are targeted for my autistic students- everything is too expensive so I use my social stories and do the best I can.” This coincides with current literature, as most schools are not provided with enough funding for all classrooms to have access to the technology that is useful and therapeutic to autistic
students. The responsibility falls on classroom teachers to be patient and innovative when modifying lessons and tasks for these students (Hartley et al., 2008).

4.2.2 Teachers require extra support from other professionals to better student learning

The daily schedule of a classroom involving many transitions such as rotary can cause stress on autistic students leading to negative behaviour and disruptions. Pamela stated that she faces challenges everyday in the classroom, as it is very difficult to include necessary tools her autistic and non-autistic students need within one lesson. Julia also expressed the same frustrations as she felt that,

Some of my most significant issues include that of educational support.

As a classroom teacher, it is sometimes difficult when students are low functioning and require one-on-one support. Quite often as educators are not given the resources to provide this one-on-one support. When this occurs, it’s important that I ensure my planning is able to first and foremost support these students effectively, as well as program and support the other students in my class.

Julia’s insights are valid and directly correlate to the research out there. Lindsay et al. (2014) state that it is required for teachers to begin modifying their philosophies and practices to provide their students with an inclusive environment but both participants found the inclusion of students with disabilities such as autism is one of the most difficult tasks teachers face. The teaching profession places many expectations on the educator. They are responsible for classroom management, meeting curricular expectations, developing creative and hands-on lessons and creating a positive environment for students. This is especially challenging when
students with exceptionalities such as autism are integrated into the classroom with no additional professional support.

Pamela stated her desire for an Educational Assistant present in the classroom but “there is not enough funding so I am all alone with no help and I struggle.” In addition to Pamela’s statement, Julian had similar views. She noted,

Always needing more professional support. If a student needs to relieve anxiety outside the classroom, this is difficult on both the student and myself. If I had more support, my challenges would definitely be there, but would be very minimal.

Many sources indicate that teachers must create inclusive classrooms for the autistic students yet fail to mention how challenging it is without additional professional support. School boards are presented with limited funding therefore budgetary restrictions do not allow for hiring professional support for classroom teachers.

In seeming contrast to the research literature, it is interesting to note that neither participant reported any challenges or barriers from the parental side. The current literature seems to suggest that these parents felt that the teachers were exclusive towards autistic students during classroom activities (Brewin et al., 2008). It was reported that some parents felt that their child’s classroom teachers were not challenging themselves enough, which had an effect on the child’s disruptive behaviour (Brewin et al., 2008). On the contrary, Julia shared that the parents of every autistic student she taught were supportive and encouraging, opposing the literature on parental barriers. The data may not coincide with the literature for a multitude of reasons- the family’s socioeconomic status, severity of autism and empathy toward the teaching profession to list a few.
4.3 The need for incorporating movement in the classroom

Curricular content has never been the primary issue autistic students deal with when integrated into a classroom; their psychological well-being, sensory sensitivities and disruptive behaviour negatively affect self-growth and learning (Murphy & Carbone, 2008). The research in autistic education has recently surged due to the increase in diagnoses of autism, ASD and Asperger syndrome. Studies reveal that consistently engaging in physical activity is especially beneficial for these children as it strengthens psychological well-being (Oriel et al., 2014). Analysis of the data concluded that two sub-themes emerged in relation to the importance of physical activity incorporation. Both participants expressed that physical activity in the classroom created a more positive classroom environment although it requires more teacher preparedness research and lesson planning to creatively integrate it.

4.3.1 Teachers recognize a friendlier classroom atmosphere when physical activity is incorporated into the daily routine

Research has shown that regular physical activity can have calming effects on those with autism, ASD and Asperger syndrome. This knowledge can be applied to the idea that calming effects will lead to a decrease in disruptive behaviour and tantrums in the classroom. This will have an overall relaxed effect on the classroom atmosphere amongst all students improving the learning for all. In Pamela’s classroom, she noticed,

When I made a conscious effort to incorporate small bursts of physical activity all day in my classroom, it had positive effects by the end of the week. All my students, especially those that are autistic really responded to the movement included in the lessons.
I noticed transitioning into lessons were easier and students were more encouraging to one another.

It was also reported by Julia that parents of autistic students noticed improved nightly sleeping patterns when physical activity became part of classroom routine.

These statements and observations made by the participants strongly connect to the research currently published. Oriel et al. (2014) and Todd et al. (2006) were both able to determine regular physical activity has stronger benefits on the sleep patterns on autistic children in many different studies. Poor sleep patterns are directly correlated to disruptive behaviour in the classroom and the severity of all autistic symptoms. When these children are not stimulated during the day, it has repercussions on their nighttime activities and sleeping patterns (Oriel et al., 2014). Sleeping patterns and the disruptive behaviour of autistic students fall into a continuous cycle. The insights of both participants further solidify the research that indicates a calmer and friendlier classroom atmosphere when physical activity and sleeping patterns are under control. Noticeable improvements with the classroom atmosphere were visible when integrating movement in lessons for only a short duration of time.

4.3.2 Educators require more preparedness to include movement in the classroom

The two participants recruited for this study were highly passionate about their careers as educators but also creating the most inclusive learning opportunities for their autistic students. With 20 and six years of special education experience respectively, Pamela and Julia both agree that incorporating movement in the classroom is important but require an increase in teacher planning and preparedness to meet curricular expectations and include differentiated instruction whilst involving physical activity in
lessons. During Pamela’s interview, it was mentioned that she “is always researching new ways to implement movement into her lessons significantly increasing lesson planning time.” Julia provided insight into a unit plan that took place in her kindergarten classroom. In Julia’s opinion,

The need for movement has always been integrated into my student programming. For instance, I try and use cross-curricular referencing in my lessons so I will mimic what they are doing in Phys Ed at a given point. I will also include a quick movement break around the school where students are completing physical challenges. It just requires a lot planning and sometimes pressure on me to make sure the movement I use is useful and effective.

This sub-theme surprisingly did not reflect with the literature review mainly due to the fact that research is limited on this subject. There is an abundance of research available on the benefits of physical activity in the classroom however the amount of teacher planning and preparedness is limited. Including physical activity into lessons does not require additional funding but involves much effort and initiative on the educators. The recognition of teacher preparedness to include movement must come from within the teacher if one strives to better the learning of autistic students.

4.4 The overall benefits physical activity has on autistic students

This overarching theme is in direct correspondence to the research question of this study. When educators incorporate physical activity into their classrooms, what are the benefits witnessed on autistic students? Current literature suggests regular movement in the classroom provides children with autism, ASD and Asperger syndrome with a multitude of benefits. Through thematic analysis, two sub-themes were created: 1) The
observable improvements on focus and academic results; and 2) The progress of social development and behaviour.

4.4.1 The observable improvement on focus, willingness to learn and academic results

Exercise increases mobility, optimizes physical functioning, and enhances overall well being (Autism Canada Foundation, 2011). Research has also indicated that humans benefit from participating in regular physical activity and is especially true for those diagnosed with autism, ASD and Asperger syndrome in that physical activity can help keep the mind calm (Murphy & Carbone, 2008). This information was especially prevalent during Julia’s interview. Julia said,

My students in general feel happier, more energetic and ready to learn when they are moving and it’s a natural response. Using physical activity in my lessons stimulates the autistic students to a greater degree. In my experience, all of my students with ASD have been able to focus better once movement has been involved. They have also been able to make connections between songs, actions and literacy and math concepts. Academic development has always strengthened and evidently gross and fine motor skills.

These observations are consistent with previously conducted research on the benefits autistic students receive when movement is implemented into their academic program. Todd et al. (2010) were able to conclude that spurts of cycling improved self-motivation and goal setting skills of these students. In a similar study, Todd & Reid, (2006) created an outdoor physical education program where there was an increase of willingness to learn and academic participation.
It is interesting to note that Pamela incorporates cycling into her math lessons. There is a ‘cycling classroom’ where it is reserved for her math lessons. Pamela has every student cycle during a five minute mental math warm up along with the lesson for new content. Pamela began this strategy in 2014 and says she “sees a direct correlation with increased math grades of my autistic students when the cycling program was implemented.” Two teachers with many years of experience in autistic education both agree with the current research that physical exercise improves academic results and increased focus.

4.4.2 Social and behavioural progress

In addition to increased academic results and self motivation due to the addition of physical activity within the classroom, both participants reported observing an improvement in social development and a decrease in disruptive behaviour. Murphy et al. (2008) were able to determine a relationship between movement in the classroom and increased creativity, self-identity and sense of mindfulness with autistic students. Pamela recalled the continuous physical activity having an impact on the psychological well beings of her students, especially those that are autistic. She expressed that her Autistic students were slowly beginning to express themselves during times of movement and began interacting with the other students which eventually led to increased acceptance by their peers. This significantly increased their self-efficacy and created a positive environment in the classroom.

Pamela’s observation is consistent with Todd & Reid (2006) who concluded that continuous movement in and out of the classroom improved fitness levels and the ability
to form friendships, something that is challenging for children with autism, ASD and Asperger syndrome.

Consistent with Pamela’s observations, Julia highlighted long term positive outcomes of incorporating movement in her classroom. Julia stated,

After making physical activity a routine in our classroom schedule, I noticed a sense of independence building—where I was once helping my autistic students zip their jackets up, they wanted to attempt new things independently. They were also learning how to cope with transitions throughout the day without having tantrums and began enjoying working with their peers during group activities. It is very special to witness.

This is a significant observation as it directly relates to the research involving emotional and behavioural development when autistic children become invested in physical activity. According to Todd & Reid (2006), regular physical movement positively affected the sense of independence, coping abilities, competitiveness, and teamwork. All these qualities are necessary for student success and physical activity can be used as a tool in the classroom.

4.5 Conclusion

The interview data sheds insights on the perceived benefits autistic students receive when physical activity is incorporated into the classroom. The participants frame their observations and understandings in reference to textbook symptoms and tantrum-like behaviour autistic children possess. Through thematic analysis, four overarching themes emerged, with respective sub-themes. The data obtained by participants reflected with current research in this field of study. This study deduced that educators working
with autistic students integrated into the classroom are very passionate about the overall success and growth of their students.

There was agreement amongst both participants of the recognition that autistic students learn differently therefore, deserve unconventional methods to teach curricular content. A failure to stimulate the minds of autistic students can lead to disruptive behaviour in the classroom. Thematic analysis also determined that when integrated into a classroom, autistic students and their teachers face numerous barriers and challenges for success. This is due to the lack of funding granted to classroom teachers for academic resources and additional professional support that would greatly benefit autistic students. A third finding evident from the data collected is the need for movement incorporation within the classroom. Both literature and participant experiences reflect that regular bouts of physical activity throughout the day encourage a more positive classroom atmosphere but require significant amounts of teacher preparedness. The final theme explored the many benefits physical activity has on autistic students when used in the classroom. Current research suggests children with autism, ASD and Asperger syndrome greatly benefit from participating in a regular exercise regime. Studies have shown an improvement in cognitive functioning, emotional and behavioural development and regulated sleeping patterns when exercise is introduced into classrooms. Based on experience, both participants observed similar instances and noticed an increase in academic results, focus and willingness to learn in the classroom. Disruptive behaviour noticeably decreased and these students began the process of fostering positive relations with their peers. Current literature and participant observations indicate the benefits autistic students receive when movement is integrated into the classroom. Considering
Chapter 5: DISCUSSION

5.0 Introduction

The present study was designed to learn more about the benefits physical activity has on autistic students when implemented in the classroom setting. The findings serve to support the extant literature pertaining to the overall benefits movement has on autistic children and to specifically tell us more about why teachers should incorporate it into their classrooms. These findings were obtained through semi-structured interviews conducted with two professionals working as educators. The participants had taught for a minimum of three years and continually work with students diagnosed with autism, Asperger syndrome and/or ASD. Through thematic analysis, the research findings indicate that incorporating movement into the classroom benefits autistic students in many different ways.

This chapter summary provides a detailed overview of the research findings. I will then delve into the implications of the research including broad and specific implications. The chapter will conclude with recommendations of how my informative and progressive research can aid professionals in the education system. This will be discussed along with ideas for future research in this field.

5.1 Overview of Key Findings

Following interviews with two educators, a rigorous analysis revealed four important themes each with their own sub-themes. The main themes are: 1) teacher recognition that autistic students deserve the opportunity to learn using a variety of
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techniques; 2) autistic students integrated into the classroom face challenges and barriers; 3) the need for incorporating movement in the classroom; and 4) the overall benefits physical activity has on autistic students.

The first theme, *teacher recognition that autistic students deserve the opportunity to learn using a variety of techniques*, served to remind us that although autistic students require significant attention in the classroom, they are just as deserving to learn curricular content compared to any other student. Literature has shown that children with any form of autism are anything but conventional learners as their brains are simply wired differently therefore, it is understandable that they require creative methods of learning concepts. Both participants felt that to create a successful and harmonious learning environment, teachers need to think outside the box when teaching autistic students. Their thoughts are congruent with current literature suggesting that strategies are needed to increase attention spans and regulate social and emotional behaviour to benefit the learning of all students, especially those that are autistic.

The second theme, *autistic students integrated into the classroom face challenges and barriers*, revolves around the idea that successfully teaching autistic students integrated into the classroom requires support in several ways. Hartley et al., (2008) found that most publicly funded schools are not provided with enough funding and resources that are useful and therapeutic to autistic students integrated into the classroom. Without any hesitation, both participants had much to say about this issue. They are not given the resources or access to sufficient technology in order to expand the horizons of their teaching methods, and feel that these autistic students are suffering from this. The subsequent sub-theme explores how classroom teachers require extra support from other professionals to better student learning. It is challenging to create an inclusive and
equitable classroom environment with one classroom teacher and both participants noted their strong desires to work with an educational assistant. Having two professionals in the classroom can allow for extra attention to be given to working with autistic students and developing strategies to making the classroom a stress-free environment.

The third theme, *the need for incorporating movement in the classroom*, served as a reminder of the benefits of physical activity has all students, especially autistic children. Both literature and participants reported a decrease in disruptive behaviour and tantrums when movement was implemented in the classroom. The calming effects exercise has on autistic students encouraged a calm, happy and motivating classroom environment. The participants agreed there were no downfalls to using movement as a strategy to teach autistic students but felt that it requires much more planning and preparedness to do so. Literature suggests that autistic students integrated into the classroom can be challenging for them, fellow classmates and the educators, however consistently including movement in the classroom routine is beneficial for all students.

*The overall benefits physical activity has on autistic students* was the final theme that emerged from thematic analysis. Current literature suggests regular movement in the classroom provides children with autism, ASD and Asperger syndrome with a multitude of benefits. The observable improvement on focus, desire to learn and academic results along with social and behavioural progress were two sub-themes that surfaced from analyzing the data. Exercise increases mobility, optimizes physical functioning, and enhances overall well being (Autism Canada Foundation, 2011). Research also indicates regular physical activity is especially beneficial for those diagnosed with all forms of autism and it aids in keeping the mind calm (Murphy et al., 2008). The participants’ experiences with movement in the classroom were in direct correlation to the above
statement. They found that their autistic students began to participate in class activities, were happier, started developing friendships with their peers, threw fewer tantrums and began excelling in curricular coursework.

5.2 Implications

The literature review, semi-structured interviews and thematic analysis provide information and insight regarding the importance that movement has on autistic students in classroom settings. The next section of this chapter will discuss the implications of this study.

5.2.1 Broad Implications

The present study has important implications for educational reform. In broad strokes, this study should serve as a reminder to policymakers, curriculum planners and school boards to educate and train teachers to incorporate movement into their practice when working with autistic students. Consistent with the conclusions of Autism Canada Foundation (2011) and research in the area (Murphy et al., 2008), the present study finds that movement in the classroom promotes academic success and an improvement in behaviour. The study also provides novel insight into the issue of a lack of resources and professional support teachers are granted to create inclusive and harmonious classrooms and policymakers should take heed.

5.2.2 Narrow Implications

The present study also has specific implications for present and future teachers working with autistic children in any capacity, which have significant meaning to my practice. The literature and research findings conclude that any form of physical activity inside the classroom is linked to increased self-reinforcement, self-monitoring and goal setting skills (Todd et al., 2010). All of these skills are important for any student,
especially autistic children to possess in order to succeed in and out of the classroom setting. The direct correlations between classroom exercise and all around success of autistic children reinforce the idea that as a future educator, I need to always improve my practice to create opportunities for movement. The success of my students indicates the passion and success of my philosophy of education, which is to foster a strong sense of self-efficacy to promote lifelong learners. This study’s findings encouraged me to reflect on my own teaching practices and how I can focus on incorporating movement in my own classroom. In previous practicum experiences, I have created lesson plans that involve moving around the classroom with student collaboration. In the future, my goal as an educator is to learn about student extracurricular passions and incorporate them as movement into lessons as a form of differentiated instruction.

This study serves as an idea to continue and extend this research question and findings. Although the main research questions were answered and analyzed into themes and sub-themes there were some gaps during this study. Current literature has suggested parental barriers to educating autistic students in integrated classrooms yet thematic analysis of the data did not indicate this idea as participants did not identify this as a concern. Research has also shown that certain body movements and deep breathing can encourage both hemispheres of the brain to work in collaboration (Nicholson, Kehle & Van Heest, 2011). There are currently questions that remain to be unanswered in the field of autistic education as the population of autistic children entering schools is only growing globally. Autism has caught the attention of many scientists because its etiology is still unclear and as a researcher I would like to extend my research internationally to determine how culture shapes the kinds of support autistic students receive in the classroom in terms of supporting physical activity.
5.3 Recommendations

The implications of the present study point specifically to several recommendations for school boards, teachers and parents. Studies reveal that consistently engaging in physical activity in and out of the classroom is especially beneficial for autistic children as it strengthens psychological well being (Oriel et al., 2014). Based on the previous literature and findings of this study, the first recommendation is directed to the school boards. As the enrolment of autistic students increases annually at a global scale, it would be beneficial to educate present and future teachers on how to implement movement into the classroom. It would also be of interest to school boards to consider hiring additional educational assistants in classes with multiple autism cases. Integrating physical activity into classroom routine is an inexpensive and successful strategy that is helpful for all students, especially autistic students while creating an inclusive and enjoyable learning atmosphere.

The two participants of the present study have been educators working with autistic children for different periods of time. Although they have different experiences working in education, they both agree how beneficial it is for autistic students to participate in physical activity throughout the day. Observable differences have come to light in the students’ social and emotional development along with their willingness to learn and academic success. My second recommendation is for all teachers to implement movement in their classrooms, as all students will benefit. There are many resources available to educators on how to incorporate movement in the classroom. Teachers can collaborate with physical education teachers, utilize the Autism Canada Foundation website and familiarize themselves with current literature on the topic.
Research suggests the positive impact physical activity has on autistic children in the classroom. If this is the case, then it is just as critical outside the classroom. The final recommendation is directed at parents of autistic children. They help integrate movement into their child’s routine outside the classroom to encourage success in life. Research has shown that those who participate in regular exercise had “shorter sleep onset latency, fewer awakenings, higher concentration during the day, and lower tiredness during the day” (Oriel et al., 2014, p. 4). If parents are able to regulate their child’s sleep pattern, they will have more academic and behavioural success.

5.4 Areas for further research

Inasmuch as the present study has served to expand upon the extant literature, it has also brightened the need for further study. In future research endeavours, it is recommended that a greater emphasis be placed upon dance/movement therapy (DMT). Hartshorn et al., (2001) indicated that movement therapy increased in only some attentive behaviour but social isolation decreased. School boards have started to place emphasis on implementing dance throughout the curriculum; therefore it is of importance to further research on specific benefits of all forms of movement in the classroom due to its therapeutic benefits that autistic students can potentially benefit from.

Furthermore, school boards around the world have been paying close attention to mental health and mindfulness. Yoga should be further studied to ensure that it is properly used to provide a sense of mindfulness to autistic students. Literature from Mische Lawson et al., (2012) and Tummers (2005) suggest yoga improves the psychological, behavioural, motor and academic performance of autistic students in the classroom. These promising studies relay the message that yoga and mindfulness need to be further studied to further the research in autistic education.
5.5 Conclusion

Although much research has been dedicated to improving symptoms associated with all forms of autism, no single intervention has proven beneficial in reducing the main symptoms. Thematic analysis demonstrated that the research findings were in congruence with the current literature on movement and its physical and mental benefits to autistic children in the classroom. Although physical activity has many positive effects on autistic students, the barriers educators face remain: lack of funding and resources, and inadequate professional support in the classroom.

The present study has implications on the education system, and myself as a teacher and researcher. These implications have the power to encourage educational reform. The school boards can benefit from this present study by acknowledging the benefits movement in the classroom has on autistic students. This study also had implications on myself as a researcher as the research question can be examined at an international level to determine where and how educators use movement as a tool on teaching autistic students. Moving forward with this present study, recommendations are made to those affected by the results such as school boards, teachers and parents. There is a critical need for educators to acknowledge the importance of integrating movement in the classroom and for parents to engage in physical activity with their autistic children outside the classroom as it has a multitude of benefits and instills a positive habit in their children.
REFERENCES


Overcoming barriers through movement-autism


Overcoming barriers through movement-autism


APPENDICES

Appendix A: Letter of Consent for Interview

Date: ___________

Dear ____________,

I am a graduate student at OISE, University of Toronto, and am currently enrolled as a Master of Teaching candidate. For the purpose of investigating an educational topic as a major assignment of this program, I am studying how teachers create opportunities for physical education with students on the autism spectrum, and what outcomes they observe from this approach. I think that your knowledge and experience will provide insights into this topic.

My course instructor who is providing support for the process this year is Dr. Rodney Handelsman. The purpose of this requirement is to allow us to become familiar with a variety of ways to do research. My data collection consists of a 45-60 minute interview that will be audio-recorded. I would be grateful if you would allow me to interview you at a place and time convenient to you.

The contents of this interview will be used for my assignment, which will include a final paper, as well as informal presentations to my classmates and/or potentially at a conference or publication. I will not use your name or anything else that might identify you in my written work, oral presentations, or publications. This information remains confidential. The only people who will have access to my assignment work will be my research supervisor and my course instructor. You are free to change your mind at any time, and to withdraw even after you have consented to participate. You may decline to answer any specific questions. I will destroy the audio recording after the paper has been presented and/or published which may take up to five years after the data has been collected. There are no known risks or benefits to you for assisting in the project, and I will share with you a copy of my notes to ensure accuracy.

Please sign the attached form, if you agree to be interviewed. The second copy is for your records. Thank you very much for your help.

Sincerely,

Alexandra Markou

(416) 523-8433, alexandra.markou@mail.utoronto.ca

Instructor’s Name: Rodney Handelsman
Overcoming barriers through movement-autism

Email: Rodney.handelsman@utoronto.ca

Course instructors Name: Dr. Angela MacDonald-Vemic
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Consent Form

I acknowledge that the topic of this interview has been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand that I can withdraw at any time without penalty.

I have read the letter provided to me by Alexandra Markou and agree to participate in an interview for the purposes described. I agree to having the interview audio-recorded.

Signature: ________________________________________

Name (printed): ___________________________________

Date: ______________________
Appendix B: Interview Questions
Thank you for agreeing to participate in this study. This research aims to learn how teachers create opportunities for physical education with students on the autism spectrum, and what outcomes they observe from this approach. This interview will take approximately 45-60 minutes and I will ask you questions regarding your background, practices and challenges. I want to remind you that you may choose to not respond to any question. Do you have any questions before we begin?

Background Information

• To begin, can you tell me a bit about your teaching experience? What grade/s and subjects do you currently teach, and which have you previously taught?

• How many years have you worked as a teacher? How many years have you been teaching at your current school?

• Can you tell me more about any other roles, if any, in addition to general classroom teacher, you have occupied in schools over the span of your teaching career? (Spec ed teacher, resource teacher, advisor to student clubs, etc.)

• Typically, who are the students that you teach (e.g. student demographics, learning styles)?

• You are here today because you have experience working specifically with students on the Autism spectrum. Can you tell me more about how you became interested in working with these students?

• What experiences have you had that have prepared you for this work (e.g. educational, professional)?

• How long have you working in this area, specifically?

Beliefs

• In your experience, what are some of the most significant barriers and obstacles confronted by students on the Autism spectrum in their educational experience?

• Generally, how do you think schools and the education system do at responding to these barriers?

• What do you believe are these students’ most significant needs in terms of their education and experience of schooling?

• As you know, I am interested in how teachers create opportunities for physical activity with students on the Autism spectrum. Can you tell me more about why you believe physical activity can be enacted as responsive pedagogy for students on
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the Autism spectrum? In your experience, what have you observed about how students respond to opportunities for physical activity? What are the benefits of this work?

Practices

- In your teaching practice, how do you work to meet the needs, barriers, and challenges that you identified?
  - What are some of the key instructional approaches that you enact and why?
- Where in the curriculum do you create these opportunities (subject areas, grades)?
- What resources are available to support you in this work? (e.g. equipment, tools, space, media/videos, music)
- Can you tell me more about how you create opportunities for physical activity specifically?
  - Can you give me an example of a lesson that you designed and taught that includes physical activity as responsive pedagogy for students on the Autism spectrum?
  - What were your learning goals?
  - What opportunities for learning did you create?
  - How did your students respond? What indicators of learning did you observe?

Challenges, Supports, and Next Steps

- What challenges have you faced integrating physical activity into your instructional practice? (keep open-ended at first and then if necessary probe re: students, parents, admin). What challenges have you faced concerning your work with students on the Autism spectrum specifically? How do you respond to these challenges? How might the education system further support you to meet these challenges?

- What feedback have you received from those outside of the classroom regarding your specific practice? How have parents and/or colleagues and admin responded to your approach?

- Would you like to add anything about the factors and resources support you in this work?

- What advice would you give to a teacher just beginning their practice who is committed to supporting students on the Autism spectrum?

- What recommendations do you have for the education system more broadly in terms of how the system can better support students on the Autism spectrum?