4-22-2021 10:00 AM

Mandated to Move: Teacher Identified Barriers, Facilitators, and Recommendations to Implementing Daily Physical Activity

Lauren Martyn, *The University of Western Ontario*

Supervisor: Barbara Fenesi, *The University of Western Ontario*
Co-Supervisor: Deborah Chiodo, *The University of Western Ontario*
A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Education

Abstract

Ontario elementary school teachers are mandated to implement 20 minutes of physical activity into classroom instruction each day under the Ontario Daily Physical Activity policy but are experiencing barriers. Effective implementation is essential to school-aged children's daily physical activity recommendation and, ultimately, the physical, cognitive, and emotional benefits that coincide. The present study engaged 13 teachers across Ontario who teach in elementary schools through small virtual focus groups. Discussion on the facilitators, barriers, and recommendations to incorporating physical activity in the classroom was explored through the social-cognitive and social-ecological frameworks. A thematic analysis revealed teachers most frequently identified barriers related to the institution, students, and time. The most frequently identified facilitators were associated with students, intrapersonal, and institutional factors. To improve implementation, teachers recommended training, resources, and community partnerships. The data highlights multi-level factors that influence successful implementation. Implications for improving future implementation are discussed.

Keywords

Physical Activity

Teachers

Classroom

Children and Youth

Barriers

Facilitators

Recommendations

Social-Ecological Model

Social Cognitive Theory

Summary for Lay Audience

Engagement in physical activity is crucial to the healthy development of a child, with benefits in areas such as cognition, healthy weight, and mental health. International guidelines for physical activity recommend that children engage in at least 60 minutes of moderate to vigorous physical activity daily. Despite these benefits and recommendations, only seven percent of children in Canada are meeting these guidelines. The Ontario Ministry of Education recognized that children are failing to reach the recommended daily physical activity levels and, in 2005, implemented the Daily Physical Activity policy. The policy aims to ensure all elementary school children have a minimum of 20 minutes of moderate to vigorous physical activity each school day during instructional time. A recent evaluation of the implementation of the daily physical activity policy in 2016 found that only half of Ontario teachers are meeting this mandate. There is a critical need to identify why teachers are struggling to meet the daily physical activity mandate to better support implementation.

Prior studies have identified barriers and facilitators at multiple levels of influence. Identified barriers included lack of space, time and support, no accountability, priority to academic courses, student behaviours, and teacher confidence. Identified facilitators included teacher motivation and skill, resource sharing, and student benefits. These findings support the social-cognitive theory, which looks at psychological factors and the social-ecological model framework, which suggests multiple levels of influence.

The current study engaged teachers of kindergarten to grade eight across Ontario to identify the barriers, facilitators, and recommendations to improve the implementation of daily physical activity in the classroom. Thirteen teachers participated in semi-structured virtual focus groups about incorporating physical activity in the classroom. Results from the study supported

the findings of the previous literature and brought forth new unique contributions. The most frequently identified barriers were institutional, student, and time-related. The most frequently identified facilitators were student, intrapersonal, and institutional related. The most frequently identified recommendations were training, resources, and community partnerships. Noteworthy themes included changing policy trends, weather, and school-wide initiatives. Results from this study will be used to better support daily physical activity implementation in the future.

Acknowledgements

I am honoured to be writing my appreciation for all of those who have supported me in my academic journey. It truly takes a village, and I am forever grateful for all of those who have contributed to this amazing and life-affirming opportunity.

Firstly, I would like to thank my family for their sacrifices, investments, and encouragement to reach this milestone. I take great pride in being the first of my family to accomplish this level of academia, and I am forever obliged to make you all proud. Thank you to my parents Darlene, Colin, Mark and Cynthia, and my grandmother, Mildred, my aunt, Sandy, my aunt Sharon, and my uncle Christopher. I would not have this privilege without your individual contributions of unconditional support, guidance, and love. Thank you for making me the individual I am and for motivating me to chase my aspirations.

I would also like to thank all of my academic mentors for their guidance, wisdom, and opportunity. Thank you to my undergraduate supervisor, Dr. John Paul Minda, for providing the foundational research knowledge and venture that opened the opportunity for me to grasp graduate-level academic achievements. I would like to thank Dr. Jason Brown and Dr. Susan Roger for the admission into a program that has provided me with the proficiency to serve my purpose in helping make the world a better place through improved mental wellbeing, one individual at a time. Thank you, Dr. Deborah Chiodo, for your expertise on qualitative research and for taking the time to advise me throughout the research process. Most notably, thank you to my supervisor Dr. Barbara Fenesi for your active leadership in guiding me through my dissertation and providing personable support throughout my most challenging times.

Lastly, thank you to all my peers and friends who accompanied me over the last couple of years. Thank you to my colleagues in the WEBB lab and my classmates in the Counselling Psychology class of 2021; it has been inspiring to watch you all flourish academically and bringing your own unique perspective to our learning. To my friends, Amy, Nora, Jackie, Erica, Nicole, Connor, Yohann, Roscoe, Taimur, Stephon, and Sashank, thank you all for uplifting me. I have amazing people in my life. Thank you, everyone. We did this.

Table of Contents

List of Tables

List of Appendices

Mandated to Move: Teacher Identified Barriers, Facilitators, and Recommendations to Implementing Daily Physical Activity

Physical activity is crucial to child development with many physical, cognitive, and mental health benefits (World Health Organization, 2011; Yin et al., 2005; Janssen & Leblanc, 2010; Stanton et al., 2014; Scully et al., 1998). International guidelines for physical activity recommend that children engage in 60 or more minutes a day of moderate to vigorous intensity, mostly aerobic, physical activity across the week (World Health Organization, 2020). Despite these benefits and recommendations, only seven percent of children in Canada attain daily recommendations (Colley et al., 2011). Since most children are in school for the bulk of their day, the classroom is an ideal space to incorporate more physical activity breaks (Barnes et al., 2018, Bedard et al., 2019). The Ontario Ministry of Education has recognized this issue and, in 2005, implemented the Daily Physical Activity (DPA) policy. The DPA aims to ensure all elementary school children have a minimum of 20 minutes of moderate to vigorous physical activity each school day during instructional time (Ontario Ministry of Education, 2017). However, an evaluation of the implementation of DPA found only half of Ontario teachers are meeting this expectation (Allison et al., 2016). There is a critical need to identify why teachers are struggling to meet the DPA mandate to better support DPA policy implementation and students' wellbeing.

The purpose of this study was to determine the teacher-identified barriers, facilitators, and recommendations to the use of classroom-based physical activity within the Ontario elementary school context. Specifically, this thesis will use a social-cognitive and social-ecological framework to highlight the voices of teachers across the province on what they

experience firsthand with implementing the DPA policy. The literature review explores health concerns for Canadian children, sedentary behaviour, physical activity, physical activity policies, theoretical perspectives on implementing physical activity in the classroom, and presents findings on barriers and facilitators to implementing physical activity in the classroom.

Canadian Child Health Concerns

Over the last few decades, there has been an amassing concern for the health and wellbeing of Canadians due to increased rates of obesity, overweight individuals, and other health concerns. Between 1978/79 and 2004, the combined prevalence of overweight and obese among children aged two to 17 increased from 15 percent to 26 percent in Canada (Shields, 2005). Obesity and overweight individual increases were the highest among children aged 12-17 from 14 percent to 29 percent (Shields, 2005). Childhood obesity has been connected to asthma, high blood pressure, and type 2 diabetes, among other health concerns (Lang et al., 2018; Brady, 2017; Abbasi et al., 2017). If trends continue, it is projected that more than one in three Canadian adults will be obese by 2031. With these health concerns, there is a need for early intervention to rapidly transform the trajectory of Canadian health and wellbeing.

Several factors have been identified as contributors to these weight-related health concerns, including genetics, environment, nutrition, and social influences such as sedentariness and physical inactivity (National Heart Lung and Blood Institute, 2021; Centers for Disease Control and Prevention, 2020). Of these factors, sedentariness and physical inactivity are attainable issues to provide intervention and improve the health of Canadians regardless of socioeconomic status, ethnicity, or genetics. Sedentary behaviours present independent health risks, and thus warrant separate guidelines.

Sedentary Behaviour

Contemporary lifestyles have shown an increase in sedentary behaviour throughout many aspects of everyday life for children over the past two decades (Ng & Popkin, 2012). Sedentary behaviour is defined as any behaviour with an energy expenditure no greater than resting level (1- 1.5 metabolic equivalents) while in a sitting position (Tremblay et al., 2017). Common sedentary behaviours can include watching television, playing videogames, computer use, motorized transportation, and reading (Sedentary Behaviour, 2017). Recent studies suggest that individuals who engage in high amounts of sedentary behaviour can be at an increased risk for health concerns and mortality (Katzmarzyk et al., 2009; Owen et al., 2010; Tremblay et al., 2017). Increased risk for Type 2 diabetes (Proper et al. 2011), metabolic syndrome (Edwardson et al. 2012), and cancer (Lynch, 2010) have been linked to sedentary behaviours, all of which increase the chances of early mortality.

Sedentary Behaviour Outcomes

The Canadian Sedentary Guidelines for children and youth state that children need to limit their sedentary behaviour to less than two hours a day (Tremblay et al., 2011). For this age group, the guideline can most often be achieved by limiting recreation screen time and limiting sedentary transport, sitting time and time spent indoors throughout the day. Lou (2014) found on average, children and teens spend 6 to 8 hours per day watching TV, playing video games, and using computers. Tremblay and colleagues (2011) found increased screen time was associated with increased body composition, decreased fitness levels, lower self-esteem reports, lower levels of positive social behaviours, and a decreased academic achievement. Further, most children are in school for six hours a day, spending most of that time deskbound and extending their sedentary time.

Physical Activity

It is important to distinguish that sedentary behaviour is not a synonym for inactivity, which is the absence of physical activity. Physical activity can counteract the adverse outcomes of long-term sedentariness if performed frequently by ultimately decreasing the amount of time spent being sedentary. Physical activity is defined by the World Health Organization (2020) as "any bodily movement produced by skeletal muscles that require energy expenditure" (above resting level). Physical activity can include exercise, but is not limited to, and may also include bodily movements such as playing, working, active transportation such as biking, house chores, and recreational activities (World Health Organization, 2020). When performed at moderate-intensity daily, evidence suggests physical activity can improve overall health in youth (Durstine et al., 2013; Centers of Disease Control and Prevention, 2020). Moderate-intensity physical activity requires a relative amount of effort and noticeably accelerates the individual's heart rate (World Health Organization, 2011). Physical activities that are considered moderate in intensity include dancing, active involvement in games or sports, and brisk walking (World Health Organization, 2020). Global recommendations for daily physical activity in children aged 5-17 are 60 or more minutes a day at a moderate to vigorous intensity, throughout the week to reduce the risk of health concerns and to achieve advances in physiological and psychological capacities (World Health Organization, 2020).

Physical Activity for School-Aged Children

Given that children spend much of their waking hours in school, classrooms provide an ideal space for increasing physical activity while simultaneously decreasing time performing sedentary behaviours. Students benefit from the implementation of daily physical activity in the classroom for numerous reasons. Several recent systematic reviews have shown that elementary

classrooms that are physically active support greater academic achievement compared to traditional sedentary elementary classrooms (Bedard et al., 2019; Daly-Smith et al., 2018; Masini et al., 2019). Children who participate in classroom-based physical activity are also more likely to meet the WHO's recommendation of 60 minutes of daily physical activity (Goh et al., 2014). Classroom-based physical activity has also been shown to increase students' feelings of joy and motivation to learn, as well as classroom behaviour (i.e., time-on-task) and various aspects of academic achievement, with these effects occurring both acutely and over the long-term (Álvarez-Bueno et al., 2017; Bedard et al., 2019; Sneck et al., 2019; Watson et al., 2017). In general, students who are more physically active are also less likely to suffer from mental health concerns such as depression (Mutrie and Parfitt, 1998; Harvey et al., 2010; Stanton et al., 2014; Rodriguez-Ayllon et al., 2019). Physical activity behaviour is likely carried throughout a child's life into adulthood (Tremblay et al., 2011). It is evident that increasing physical activity in the classroom can support students' health, wellbeing, cognition and academics.

Canadian Physical Activity Policies

The school is an important intervention site to encourage physical activity and educate students on healthy behaviours. Increasingly, provincial governments have implemented interventions, policies, and initiatives targeting the improvement of healthy, active lifestyles for children in school settings. Presently, five of Canada's 13 provinces and territories have province-wide daily physical activity policies (British Columbia, Alberta, Saskatchewan, Manitoba and Ontario), representing 72% of Canadian children aged 5–19 years (Olstad et al., 2015). The Ontario daily physical activity policy was implemented in 2005 and targeted students in grades one to eight with the guideline of at least 20 minutes of moderate to vigorous activity during instructional hours with monitoring done by the school board. In the only evaluation

study of the implementation of the Ontario policy, Allison and colleagues (2016) found among administrators, 61.4 % reported implementation fidelity to the policy at the school level, while 50.0 % of teachers reported fidelity at the classroom level. Based on this understanding, it is critical to identify why some Ontario teachers are not meeting this mandate and ways to support future implementation.

Theoretical Underpinnings

Despite awareness of both the benefits of activity and the impairments of a sedentary lifestyle, numerous barriers may impede physical activity implementation in the classroom. To counteract the barriers to this implementation, facilitators are equally as important to identify. Several theoretical frameworks offer insight into potential barriers and facilitators at multiple levels of influence. Social-ecological and social-cognitive frameworks are frequently used in the literature of implementing physical activity in the classroom. Bronfenbrenner created the social-ecological model in 1979 to understand the dynamic interrelations among various personal and environmental factors influencing behaviour. The model includes intrapersonal, interpersonal, institutional, community, and policy level domains that interact and interdepend on each other, affecting all person-to-environment interactions (Bronfenbrenner, 1979). Since teachers have jurisdiction over their classrooms, this theory targets the barriers and facilitators they face when implementing physical activity into their class time at each ecological level.

Social cognitive theory suggests that an individual's knowledge acquisition can be directly related to observing others within the context of social interactions and experiences (Bandura, 1986). The social cognitive theory's theoretical components include modelling, outcome expectancies, self-efficacy, and identification (perceived similarity to a model) (Bandura, 1986). From this theory, barriers and facilitators to implementing physical activity

reside at each teacher's knowledge and belief level. Through developing positive outlooks on physical activity in the classroom, teachers' motivation and confidence to implement physical activity should increase. Together, these two theories suggest barriers and facilitators to implementing physical activity can be found within and between teachers, as well as among students, principals, school boards, community values and institutional policy.

Barriers to Implementing Physical Activity

Despite varying policies and initiatives implemented in differing geographical regions, similar barriers to implementing physical activity programs have been identified that align with the social-ecological model and social cognitive theory. At the institutional level, a commonly identified barrier for physical activity is a lack of provided space or space constraints (Brown and Elliott 2015; Patton 2012; Kennedy et al., 2010; Strampel et al., 2014; Alberta Education, 2008). With classroom sizes growing, research has shown teachers have concerns with implementing physical activity in the classroom safely and to the intensity requirements expected. Teachers have also reported a lack of support from their school's administration (Belansky et al., 2009; Patton, 2012). Lack of support was identified through lack of resources, funding and equipment to support the policy implementation (Strampel et al., 2014; Kennedy et al., 2010; Alberta Education, 2008). Further, Allison and colleagues (2015) found a lack of accountability from the institution through mechanisms to ensure implementation was being done correctly and consistently. Another prominent institutional barrier for teachers is the lack of time in the school day (Evenson et al., 2009; Cox et al., 2011; Kennedy et al., 2010; Rickwood, 2015). Teachers have reported that there is not enough time in the school day due to curriculum expectations, pressures for subjects such as math and literacy, and timetabling concerns (Mâsse et al., 2013; Strampel et al., 2014; Education Alberta, 2008).

A core intrapersonal barrier identified by both teachers and administrators in previous research is the priority to academics (Patton 2012; Langille and Rodgers 2010; Evenson et al., 2009). Physical activity implementation is not a graded task, and with high demands for academic achievement, it often gets put aside. Teachers in several studies also identified personal belief factors such as feeling unmotivated, uncomfortable and lacking appropriate training (Allison et al., 2015; Alberta Education, 2008). In 2015, Rickwood discovered a modelling-related barrier due to a declining number of teacher mentors that were willing and prepared to lead and guide daily physical activity initiatives. Finally, McMullen and colleagues (2014) found outcome expectancy (anticipated result) barriers with teachers identifying concerns about classroom control. Teachers in this study, for example, worried about maintaining classroom composure during activities and the challenge of returning to on-task behaviour, deterring them from implementing the daily physical activity.

Facilitators to Implementing Physical Activity

Successful implementation of physical activity policies and initiatives offers insight into what facilitates physical activity in the classroom. Research across various regions has identified several key facilitators to physical activity-related programming. A prominent facilitator has been attributed to teachers' level of motivation to implement, encourage, and prepare oneself for classroom physical activity (Tjomsland, 2010). The case study by Tjomsland (2010) found teachers with individual characteristics such as positive attitudes, innovativeness, and teaching skills promote physical activity implementation. Dinkle and colleagues (2017) identified self-efficacy-related facilitators and found that teacher confidence was impactful on the implementation of physical activity. All teachers in this study implemented physical activity in the classroom, and almost all of them reported they were confident in their ability to do so.

At the interpersonal level, student benefits have been identified as a facilitator to implementing physical activity (Brown and Elliot 2015; McMullen et al., 2014; Alberta Education, 2008; Allison et al., 2015). Teachers noted that it was easier to implement DPA when students were eager to participate and enjoyed the activities (Alberta Education, 2008; McMullen et al., 2014). Further, teachers reported improved physical, cognitive, psychosocial, and mental health outcomes for students. Daily physical activity also improved student attention, focus, and academic performance enabled their implementation (Allison et al., 2015; Brown and Elliot, 2015). Additionally, teachers found it helpful to implement daily physical activity when they collaborated with their peers, such as through resource exchange (Brown and Elliot, 2015). In 2013, Mâsse and colleagues identified the institution's role in enhancing daily physical activity implementation for teachers through resources and activity spaces. In their study, the ready-made provincially available resource *Action School! BC* enriched teachers' implementation along with providing gym and outdoor spaces.

Recommendations for Implementing Physical Activity

With a cultivating understanding of what supports and hinders teachers' daily physical activity implementation, an exploration into tangible proposals to foster improvements is underway. A few studies have asked teachers and administration what they believe should be done to promote fidelity of daily physical activity implementation. In 2014, Strampel and colleagues asked teachers for potential solutions in which the main findings included activities that use minimal equipment, music and video resources, a whole-school approach and student leaders for daily physical activity. Key stakeholders involved in the original daily physical activity policy development and implementation were interviewed by Allison and colleagues (2015) on suggested action for implementation improvements. The participants proposed

integrating DPA across other curricula, building teacher capacity to take ownership of the policy through training and improve the school environment on DPA through extending the policy from kindergarten to grade 12. Lastly, a study by Tremblay and colleagues (2012) studied the promotion of physical activity in preschool settings through the perceptions of childhood educators. The study offered recommendations that could be applied to an elementary school setting, such as policies for teacher education, training, and more specific guidelines, as well as the integration of community-based resources and services.

Summary

Many school-aged children miss out on a significant contribution of their overall daily physical activity recommendation and, ultimately, the benefits that coincide. By identifying what is occurring at the individual, relational, institutional, community, and policy level that reinforces or impedes teachers' implementation, we can promote improvements to identified areas. Supporting daily physical activity in school-age children has demonstrated positive cognitive and physical health outcomes through mood improvement and increased motivation. Under the policy, teachers are responsible for the implementation of one-third of a child's daily physical activity standard. With the obligation of the school-based portion of daily physical activity, teachers' perspectives on the current supports and difficulties are crucial to understanding and identifying improved practices for daily physical activity promotion in schools.

Together, these findings suggest an important gap in the literature regarding why the fidelity of daily physical activity implementation in Ontario classrooms is moderately unsuccessful and how to improve. Presently, there is a lack of qualitative research that forefronts frontline teachers' attitudes and experiences with Ontario's daily physical activity policy. The current study offers a unique contribution through the application of both the social-ecological

and social-cognitive theory to analyze barriers, facilitators, and recommendations identified by teachers through focus groups.

Research Questions

Three research questions were created for the present study. The first research question was: What barriers do teachers experience that interferes with implementing physical activity in the classroom? The second research question was: What are the facilitators teachers experience that supports the implementation of physical activity in the classroom? Finally, the third research question was: How can teachers be better supported to implement physical activity in the classroom successfully? This study looked at the perceptions of teachers to better understand what hinders and supports their execution of physical activity in the classroom as well as what they believe could support future implementation. It was conducted using an exploratory qualitative analysis to further understand the emerging themes related to physical activity implementation. Given the exploratory nature of this study, no hypotheses were generated.

Methods

This study aimed to understand the teacher-identified factors influencing physical activity implementation in elementary school classrooms. Three research questions explored the barriers, facilitators, and recommendations to implementing physical activity in the classroom from elementary school teachers' direct perspectives. The present study was part of a larger project that involved an online survey collected between May 2020 and June 2020. A subset of participants who completed the survey voluntarily agreed to participate in the audio-recorded focus group component, which occurred in June 2020.

Participants

The participants were 13 elementary school teachers who teach kindergarten to grade eight students in Ontario, Canada. The 13 participants were a subset of the 201 participants who completed the online survey portion of a more extensive study. Eligibility criteria included current employment with a publicly funded Ontario school board and at least one full school year of experience in a substitute, long-term occasional or full-time teaching position. A convenience sampling technique was used to collect focus group participants. The 13 focus group participants comprised three males and 10 females, with three teachers identifying as supply teachers and 10 as full-time. Participant's age ranged from 24 to 55 (M = 38.25; SD = 11.65) and had 1.5 to 30 years of teaching experience (M = 11.88; SD = 9.9). Grades taught by the participants ranged from grade one to eight with an average of grade 3 (SD = 1.15). The participants represented ten different school boards across Ontario.

In recruitment, 15 teachers volunteered for the audio-recorded focus group, but thematic saturation occurred at 13, so the additional two teachers were not contacted to participate.

Reaching thematic saturation was determined by no additional new data or information related to the research questions raised within the focus groups (Lowe et al., 2018; Bernard et al., 2017; Green and Thorogood, 2004). Consultation on this decision was done throughout the data collection process. Discussion on defining and identifying saturation was done between the two central researchers before and during the process of conducting the focus groups. A reflective journal was used to note when similar responses began to appear in the focus groups and when minimal new information was presented. Both the third and second last groups had two or less new responses throughout the entire focus group. The final (eighth) focus group presented no new ideas and thus saturation was determined. Reaching saturation was discussed with the other central researcher and documented in the reflective journal. Data collection was halted at the point of saturation.

Materials

Focus Group Interview Guide

The audio-recorded focus groups used an interview guide based on previous research using semi-structured interviews (Dinkle et al., 2017). The focus group interview guide aimed to discuss barriers, facilitators and recommendations to incorporating classroom-based physical activities. In the focus groups, 13 questions were asked to participants using a social-ecological model and social-cognitive theory framework (Bronfenbrenner, 1979; Bandura, 1986). The first five questions explored the knowledge of the daily physical activity policy and its application through questions such as, "*Do you feel confident and motivated in implementing physical activity breaks into your classroom?" (Self-Efficacy, Social Cognitive Theory*). The following four questions explored the implementation of classroom-based physical activity in a broader context and its surrounding influences. An example question was, "*Do you feel that your school*

administration supports the use of physical activity breaks in the classroom? Why or why not?" (Institutional, Social-Ecological Model). Finally, the last four questions explored participants' perspectives on how implementation could be improved through questions such as, *"If we were to create training on incorporating physical activity breaks into classrooms, what do you think would be most important to include?" (Mastery Experience, Social Cognitive Theory)* The full focus group guide can be found in Appendix A.

Procedure

Eligible teachers for the larger survey study were recruited through personal and public channels. Digital poster advertisements were shared in the teacher Facebook groups "*Ontario Teachers Resource and Idea Sharing*" and "*Ontario Educators and Mental Health*" (see Appendix B). The online poster provided direct links to both the online survey and a sign-up page for the audio-recorded focus groups. Emails with an attached recruitment letter (see Appendix C) were sent to personal contacts in the field of education to convey to known teachers who may be interested in participating. The recruitment letter also offered a direct link to the online survey and a sign-up page for the focus groups. Upon completing the online survey, participants were also provided with a link to input their contact information if interested in signing up for the study's focus group portion. The link was created through Qualtrics, which is a platform that uses encryption technology and restricted access authorizations to protect all data collected. Of the 15 teachers who indicated an interest in the audio-recorded focus groups, 14 also participated in the larger survey study. The 15 teachers were contacted via the information they provided on the sign-up link to determine the participation date. Participants received an email with consent forms before their focus group date, and verbal consent was received at the start of each focus group (see Appendix D). The audio-recorded focus groups took place

virtually through Zoom. Each group was audio recorded to properly analyze responses and ensure an accurate verbatim transcript was produced for data processing and analysis.

Focus groups were conducted with one to three participants based on available time slots provided with eight groups conducted. A greater number of focus groups with smaller group sizes are more inclusive than larger groups and support equity in participation among the group members (Morgan 1996). The researcher conducted the audio-recorded focus group in a semi-structured format by asking each of the questions on the interview guide and allowing participants to answer based on their experiences and perceptions. The audio-recorded focus group was conducted in an open-ended manner and carried out in a conversation style among group participants. Each focus group lasted approximately 1.5 hours, and participants were compensated $30 for participating (via Amazon e-gift card). A total of eight focus groups were conducted. Due to some participants rescheduling, not all groups included the desired three-person group size. One of the focus groups had three participants, three of the focus groups had two participants and four groups became interviews with only one participant. All the audio-recorded data (focus groups and interviews) are referred to in the paper as focus groups for simplicity. Upon completion of the focus groups, the audio recordings were transcribed using Trint. This online automated transcription service was used to produce written verbatim transcriptions of the focus group conversations. Transcripts were checked against the recordings to ensure accuracy.

Qualitative Data Analysis

A preliminary codebook was developed between the two central researchers based upon the aforementioned theoretically derived themes. The preliminary codebook was then applied to eight focus group transcription documents. To establish reliability, the researchers met and

discussed each excerpt they applied to a theme in the first three transcripts. Any discrepancies between the two researchers were then discussed to determine the final decision, such as adding, removing or redefining codes when needed. Consultation about the final five transcripts was done on an as needed basis. Updates to the codebook were applied, and each transcript was re-reviewed with the new criteria.

A thematic analysis was used to analyze the focus group transcripts to identify both the barriers and facilitators teachers identified as affecting daily physical activity in the classroom. The thematic analysis was conducted based on six phases summarized by Maguire and Delahunt (2017) to increase trustworthiness and rigour. The first phase of the analysis aimed to familiarize oneself with the data. Familiarization occurred through the transcription process, noting down initial thoughts and ideas as well as repeatedly reading the transcripts to immerse in the data. Two complete reviews of the data set occurred in this phase. The second phase initiated the formulation of preliminary codes. All transcriptions were inputted into Dedoose (V.8.1.8), a qualitative computer software program to analyze information regarding the teacher's knowledge with the barriers, facilitators and recommendations to implementing physical activity in the classroom. A theoretical thematic analysis was used through the generation of codes relevant to the research questions. Within the generation of codes found in the research questions, meaningful groups were organized based on the project's two theoretical underpinnings: social cognitive theory and the social-ecological model. In phase three, significant or interesting patterns in the data were combined to make themes and sub-themes. Extracts from the data were then organized under matching themes. The third complete review of the data set occurred after this phase. In phase four, themes were re-reviewed and polished. Some themes were merged, separated into two new themes or removed due to a lack of extracts to support them. Any

modifications during the fourth phase prompted a re-review of all the transcripts. Completion of this phase occurred after a fourth comprehensive review of the data set. In phase five, the final refinement of developed themes was completed by defining what the essence of the theme was capturing. Names for the themes were synthesized and insinuated what the theme is about. Once all themes were suitably defined, a final review of the data set occurred. Finally, phase six reported on the analysis results in concise, coherent and interesting accounts of the predominant and distinctive themes with vivid examples can be found below.

Ethical Considerations

Ethical standards and principles were adhered to throughout the process of this research. Ethical approval to conduct the research was received through the Western University's Non-Medical Research Ethics Board (See Appendix E) with adherence to the recommended protocols. Administration of the focus groups included processes to ensure the rights and wellbeing of the participants were monitored. There are several ethical considerations for this research regarding voluntary participation, the right to withdraw, informed consent, privacy and anonymity, protection from harm, and deception of the participants.

Voluntary participation allows participants to partake in the study free from coercion. This study ensured participants were informed of their right to participate voluntarily. Informed consent occurred through the focus group consent forms, which stated that choosing to participate or not as well as leaving the study will not affect the standing of the participant as a teacher in any way. The consent forms also indicated that participants were free to withdraw their participation at any point in time during the focus group process. Choosing to withdraw was ensured to have no negative impact on the participant with the premise that participants do not need an explanation. will not be pressured to continue, and they will still be entitled to their

compensation. Consent forms were administered before the focus groups as well as discussed at the beginning of each group to ensure that participants were fully informed of the research being conducted and their rights. Overall, participants were informed to the degree that they could make an informed decision about whether they want to participate or not.

Identifying information was not made available or accessible to anyone other than myself, the principal investigator of the study. As the principal investigator, I will keep all personal information collected from participants in a secure and confidential location for seven years. A password-protected computer secured all data collected. Participants' names, locations, and school boards were removed from the transcripts to ensure identities were protected. If the study results are published, the participants' names will not be used, and only de-identified information will be made available. Every precaution to maintain the confidentiality of the data within the focus group was addressed. Participants of the focus group were reminded not to repeat what was said in the focus group to others.

Participants did not experience any physical, psychological or social harm in the research process. Precautions included training on providing a safe space for participants to voice their experiences as well as reminders to participants throughout to remain confidential and respectful. The study did not involve any deception; thus, participants did not experience any distrust during the research process.

Trustworthiness

Several measures were used to consider credibility, transferability, and dependability to ensure the trustworthiness of the research. Both investigator and theory triangulation was employed to ensure credible data (Denzin,1978; Patton,1999). Data triangulation was used in the

review of previous research findings with consideration of different time points, location of origin and research methods (Carter et al., 2014). In reviewing diverse data, past findings and methods were evaluated to determine consistency with the present study. Investigator triangulation was used throughout the current study, with focus during the data analysis process and discussion of findings to provide more insight and minimize researcher bias (Denzin,1978). Lastly, theory triangulation was used through the implementation of the social-cognitive and social-ecological model to develop research questions, interview questions, and data analysis (Carter et al., 2014). To promote transferability, the attributes of the study, such as decision-making and justification, were noted in detail through a reflective journal. The journal was kept to maintain reliability, reflexivity and transparency (Ortlipp, 2015; Shenton, 2004). Notes included emerging themes, limitations, concerns, and any other relevant information developed throughout the project. My experiences, opinions, thoughts, and feelings were made transparent throughout the research process.

For transparency, it is important to reflect on how my experiences influenced the research process and interpretation of the data. My background as it relates to this research and both the education system and physical activity is diverse. Growing up, and to this day, I remain a very physically active person through organized sports and activities such as running and weight training. Physical activity was central to my identity and necessary to regulate in a classroom as I struggled with long durations of sedentariness. I was in elementary school when the physical activity policy was implemented, and I have some memories of my teachers and their implementation. I also have relatives and close friends who are teachers and have heard their perspectives on the public-school system. I acknowledge that my experiences and perspectives present an implicit risk of bias in the research process, such as conducting the focus groups and

analyzing and interpreting the data. To manage these concerns, reviewing the data several times with other individuals and in alignment with the theoretical frameworks was essential.

Results

The present study sought to answer three research questions exploring the barriers, facilitators, and recommendations to implementing physical activity in the classroom as perceived by elementary school teachers. The results are divided into three sections and organized by each research question. Each of the research questions was represented as a topic theme with 76 subthemes generated from the data analysis. For this study's purposes, the three most frequently coded themes for each research question and the three most frequently reported subthemes are reported. Some themes did not have at least three subthemes, and therefore only the available number of subthemes were reported. Themes and subthemes are presented in order of highest frequency. The frequency was defined by the number of times the theme was mentioned by participants across all of the focus groups. Further, three unique and noteworthy themes that bring forth new concepts to the literature are also reported in this paper. Quotations from the participants are provided to support the contextualization of the themes discussed. The findings and quotations reflect the predominant and unique themes from the responses of 13 participants identified as Ontario elementary school teachers. Figure 1 presents a visual summary of all the identified themes within the study.

Research Question 1: What barriers do teachers experience that interferes with implementing physical activity in the classroom?

Table 1 provides a summary of teacher identified barriers to implementing physical activity in the classroom. A total of 341 excerpts were categorized across all focus groups. The most frequently identified barriers were Institutional, Student, and Time.

Table 1 *Frequency of Teacher Identified Barriers to Implementing Daily Physical Activity*

Theme	Frequency (n)
Institutional	**92**
Lack of Space	41
No Accountability	22
School Culture	22
Priority to Courses	13
Physical Activity Devalued	9
Budget	7
Student	**82**
Intrapersonal	68
Classroom Outcome	14
Time	**51**
In-Class Time	38
Preparation	13
Intrapersonal	**48**
Personal Beliefs	24
Academic Priority	14
Diffusion of Responsibility	8
Lifestyle	2
Nervousness	16
Resistance to Change	7
Experience and Knowledge	**20**
Minimal Preservice Education	10
Occasional/New Teacher	10
Policy	**16**
Changing Policy Trends	10
Lack of Knowledge	6
Modelling	**10**
Unrealistic Models	5
Lack of Models	5
Weather	**9**
Interpersonal	**7**
Fear of Judgement	7
Community	**6**
Schedule Interference	2
Community Program Cost	4

Theme 1: Institutional Barriers (Frequency 103)

Participants described barriers at the institutional level as causing the most interference with their ability to implement the daily physical activity. Within the institution, the three

prevalent identified subthemes were Lack of Space, School Culture, and No Accountability. Below, the aforementioned subthemes are discussed.

Subtheme 1a. Lack of Space (Frequency 41). Participants described a lack of physical space within the school as affecting their daily physical activity implementation. This theme included factors such as classroom space, outdoor space, gym space, and the number of students per class. Seven of the eight focus groups discussed how the lack of space hindered their implementation of daily physical activity. Below is an example that illustrates the barriers and challenges teachers face related to lack of space.

> *When I work at one school a lot, they've got 960 kids in their elementary school. So there's like no space at all. There are 18 portables, so even to be doing stuff outside would have to be pretty quiet because there are classes all the way around.* (Participant 2, female, 24 years old, one and a half years of teaching experience)

Subtheme 1b. School Culture (Frequency 33). Participants described the omission of physical activity in their school's culture as discouraging their daily physical activity implementation. This theme included factors such as priority to courses, absence of training or resources on physical activity implementation and a culture of devaluing the worth of physical activity. Seven of the eight focus groups indicated their school's culture as deterring their implementation of daily physical activity. Below is an example that illustrates how school culture affects daily physical activity.

> *In all of the professional development that I've had at my current school, there's never been an option for anything that would be related to this [DPA]. There have been professional development offered on coaching sports, and I think that was the closest thing to anything fitness related or something you could do in the classroom*. (Participant 10, male, 44 years old, 16 years of teaching experience)

Subtheme 1c. No Accountability (Frequency 22). Participants described the lack of accountability by their institution as impacting their daily physical activity implementation. This theme included factors such as a lack of obligation, lack of discussion, and lack of enforcement of DPA by the institution. Five of the eight focus groups discussed their school's lack of accountability affecting their implementation of daily physical activity. Below is an example that illustrates the challenges related to a lack of accountability.

> *When [the DPA policy] came out, it was mandated, but nobody ever checks up on you if you're doing it. Nobody ever comes. I haven't been asked if I have things to do or if I've done DPA probably in a long time. When that kind of stuff happens, you're gonna get different levels of buy-in.* (Participant 11, female, 25 years old, two years of teaching experience)

Theme 2: Student Barriers (Frequency 82)

Participants described student barriers that get in the way of implementing daily physical activity. The subthemes for student barriers included Intrapersonal Factors and Classroom Outcomes. Below, the aforementioned subthemes are discussed.

Subtheme 2a. Intrapersonal Factors (Frequency 68). Participants described their students' individual biological or personal factors as interfering with their daily physical activity implementation. This theme included factors such as a student's physical ability, behavioural temperament, age, motivation, culture, religion, and self-confidence. All eight focus groups indicated that student intrapersonal factors hindered teachers' implementation of daily physical activity. Below is an example that illustrates the barriers and challenges teachers faced related to their students' intrapersonal factors.

> *A barrier that I found, was making sure that all of your activities, fit all of the different types of backgrounds and religions that you have in your class. I had a Jehovah's Witness and I was learning, it was my first time having a Jehovah's Witness. And I, to be honest, don't know a ton about their religion, and what they can do and can't do. So I was learning as the year went on, but there were some times where, for example, we did yoga*

> *and they're not allowed to do yoga. So that was something I didn't know.* (Participant 4, female, 28 years old, five years of teaching experience)

Subtheme 2b. Classroom Outcomes (Frequency 14). Participants described student classroom behaviour as interfering with their daily physical activity implementation. This theme included factors such as peer conflicts, group behaviour, and losing classroom control. Six of the eight focus groups indicated that their class's behaviour affected their implementation of daily physical activity. Below is an example that illustrates the barriers and challenges teachers faced related to classroom outcomes.

> *"I mean, behaviour management is one thing when they're sitting at a desk, or whether they're sitting at the carpet. But when they're all over the room and moving their body parts that could be a whole different thing."* (Participant 4, female, 28 years old, five years of teaching experience)

Theme 3: Time (Frequency 51)

Participants described barriers related to time as causing the most interference with their ability to incorporate daily physical activity in their classrooms. Within the concept of time, the prevalent identified subthemes were In-Class Time and Preparation. Below, the aforementioned subthemes are discussed.

Subtheme 3a. In-Class Time (Frequency 38). Participants described a lack of time during academic instruction as interfering with the implementation of daily physical activity. This theme included factors such as time management and busyness. All eight focus groups indicated that a lack of in-class time interfered with their ability to implement daily physical activity. Below is an example that illustrates the barriers and challenges teachers face related to a lack of in-class time.

> *Which subject is not important enough to put in that extra physical activity? Not that physical activity isn't important, but you have that balance, right. So all of a sudden, is*

> *French not as important as Social studies? Science? They only get one hundred and twenty minutes of social studies a week. It's not a lot of time. So it's very difficult.* (Participant 9, female, 47 years old, 17 years of teaching experience)

Subtheme 3b. Preparation (Frequency 13). Participants described a lack of time to plan and prepare for daily physical activity. This theme included factors such as planning and organizing activities. Seven of the eight focus groups indicated a lack of preparation time impacted their ability to implement daily physical activity. Below is an example that illustrates the barriers and challenges teachers face related to a lack of preparation time.

> *I find the most difficult part as a teacher is reinventing the wheel. If you give me something, I'm going to use it. But I don't have the time in the day right now to spend the time to do that.* (Participant 7, female, 39 years old, 15 years of teaching experience)

Theme 4: Changing Policy Trends (Frequency 10)

The following theme was chosen for its noteworthiness as a theme not previously identified in existing literature as a barrier to implementing the physical activity. Participants described the daily physical activity policy as obsolete, inhibiting their implementation of daily physical activity. This theme included factors such as the daily physical activity policy being outdated, changing policy trends, and new fads absorbing time and resources. Half of the focus groups indicated changing policy trends, such as focuses on STEM (Science, Technology, Engineering, and Mathematics) and mindfulness, hindered their implementation of daily physical activity. Below is an example that illustrates the barriers and challenges teachers faced related to changing policy trends.

> *Lots of trends. A lot. I could probably give you a pretty long list. It's just how it goes, the regimes changes and the director changes and, you know, the principals change. So it all depends really what they're interested in, what they want to push and how hard they want to push it sometimes, too.* (Participant 1, Male)

Research Question 2: What are the facilitators teachers experience that supports the implementation of physical activity in the classroom?

Table 2 provides a summary of the teacher-identified facilitators to implementing physical activity in the classroom. A total of 357 excerpts were categorized across all focus groups. The most frequently identified facilitators are Students, Intrapersonal, and Institutional.

Table 2 *Frequency of Teacher Identified Facilitators to Implementing Daily Physical Activity*

Theme	Frequency (n)
Students	**146**
Immediate Benefits	110
Long-Term Benefits	36
Intrapersonal	**87**
Personal Beliefs	28
Commitment	22
Experience	14
Life Style	13
Skills	6
Positive Mood	4
Institutional	**48**
School Culture	33
Providing Training/ Resources	18
Physical Activity Important	15
Principal	15
Modelling	**26**
Mentor	15
Advocate	11
Community	**22**
Community Access	20
Socio-Economic Status	2
Academic DPA	**19**
Weather	**9**

Theme 5: Students (Frequency 146)

Participants described facilitators associated with students as supporting their ability to implement daily physical activity. The subthemes identified were Immediate Benefits and Long-Term Benefits. Below, the aforementioned subthemes are discussed.

Subtheme 5a. Immediate Benefits (Frequency 110). Participants described observing immediate benefits in their students as enhancing teachers' implementation of daily physical

activity. This theme included factors such as improved focus, enjoyment, behaviour, and readiness to learn. All eight of the focus groups indicated the immediate benefits for their students as enriching their implementation of daily physical activity. Below is an example that illustrates the facilitators and supports teachers' experiences related to immediate student benefits that physical activity achieves.

> *And student engagement during lessons I think it will definitely help because, again, it's breaking up the day. It's kind of recharging them and their minds, and then they can definitely be more engaged in what you're doing in the classroom.* (Participant 13, female, 40 years old, two years of teaching experience)

Subtheme 5b. Long-Term Benefits (Frequency 36). Participants described the long-term benefits for their students as promoting their implementation of daily physical activity. This theme included factors such as improvements in behaviour, academics and physical health. Six of the eight focus groups indicated the long-term benefits for their students as enabling their implementation of daily physical activity. Below is an example that illustrates long-term student benefits.

> *I think that's an important life skill to learn. What do you need right now? For practice, that's one of the benefits of daily physical activity. Teaching them activity can be done in different ways. It can come in different shapes and sizes. And learning what you need and when your body feels better*. (Participant 5, female, 49 years old, 25 years of teaching experience)

Theme 6: Intrapersonal Facilitators (Frequency 87)

Participants described facilitators associated with intrapersonal factors as supporting their ability to implement daily physical activity. Within intrapersonal factors, the subthemes identified were Personal Beliefs, Commitment and Experience. Below, the aforementioned subthemes are discussed.

Subtheme 6a. Personal Beliefs (Frequency 28). Participants depicted their personal beliefs as supporting their implementation of daily physical activity. This theme included factors such as confidence, personal beliefs, and mindset about physical activity. Seven of the eight focus groups shared how their personal beliefs about physical activity bettered their daily physical activity implementation. Below is an example that illustrates the facilitators and supports teachers described related to their personal beliefs.

> *I think if the mentality is just to get it done, then I think in a sense, you've got the wrong mentality for it. Finding that way to integrate it with the right mindset to make it meaningful and effective.* (Participant 4, Female, 28 years old, 5 years of teaching)

Subtheme 6b. Commitment (Frequency 22). Participants described their personal commitment to implementing daily physical activity in the classroom. This theme included factors such as dedication or loyalty to implementation and physical activity. Seven of the eight focus groups shared their personal commitment to physical activity. Below is an example that illustrates teachers' commitment.

> *"I do whatever I think would benefit the class the most. I don't care what the minutes on my schedule say if we need to go outside and be active that's fine."* (Participant 1, Male)

Subtheme 6c. Experience (Frequency 14). Participants described their professional experience as enhancing their implementation of daily physical activity. This theme included factors such as teaching experience, physical education experience, or years of teaching. Five of the eight focus groups shared how their professional experiences enriched their implementation of daily physical activity. Below is an example that illustrates the facilitators and supports teachers described related to their experience.

> *I feel pretty confident because I am active and I do work out and my background is in Phys Ed. So I've got all that training. I feel pretty confident in how to teach it safely and how to teach it correctly so that they're doing it and not going to hurt themselves.* (Participant 8, female, 55 years old, 30 years of teaching experience)

Theme 7: Institutional Facilitators (Frequency 48)

Participants described facilitators at the institutional level as supporting their ability to implement daily physical activity. Within the institution, the three prevalent identified subthemes were School Culture and Principal. Below, the aforementioned subthemes are discussed.

Subtheme 7a. School Culture (Frequency 33). Participants described their school's culture surrounding physical activity as supporting their implementation of daily physical activity. This theme included factors such as providing training and resources as well as viewing physical activity as important. All eight of the focus groups indicated their school's culture enhanced their implementation of daily physical activity. Below is an example that illustrates the theme of school culture.

> *I remember having a card, it looked like a key chain and it was thick and you could go through it and it had DPA stuff on it. I remember getting that. When it came out, if you wanted to do it, they had something for you it seemed. As the teacher, I never felt like I didn't have enough. I do remember in staff meetings going through things you could do for DPA. So, part of the staff meeting would be 'here are so some really good ideas'. And in one staff meeting, we had to come with DPA ideas. We would go outside as the entire staff and practice DPA ideas. It was kind of a big thing right out the gate. There was a lot you could go through and a lot of you could find still.* (Participant 11, female, 25 years old, two years of teaching experience)

Subtheme 7b. Principal (Frequency 15). Participants described their school's principal as assisting with their implementation of daily physical activity. This theme included factors such as encouragement and engagement from the principal. Six of the eight focus groups indicated the principal of their school fostered their implementation of daily physical activity. Below is an example that illustrates how principals can support physical activity implementation.

> *My current principal was a competitive swimmer and my previous principal was a competitive salsa dancer. So, we've always been lucky that we've had admins that are very focused on any kind of physical activity. So, that's been really positive. We've actually been really lucky.* (Participant 9, female, 47 years old, 17 years of teaching experience)

Theme 8: Weather (Frequency 9)

The following theme was chosen for its noteworthiness as a theme not previously identified in existing literature as a facilitator to implementing physical activity. Participants described the weather outside as facilitating their implementation of daily physical activity. This theme included factors such as enabling space for outdoor activities. Five of the eight focus groups indicated that good weather outside supported their implementation of daily physical activity. Below is an example that illustrates the facilitators and supports for teachers related to the weather.

> "*That's why once the weather is nice, we would be outside for the last 20 minutes of the day, every single day. Especially in June."* (Participant 9, female, 47 years old, 17 years of teaching experience)

Research Question 3: How can teachers be better supported to implement physical activity in the classroom successfully?

Table 3 provides a summary of the teacher identified recommendations for implementing physical activity in the classroom. A total of 106 excerpts were categorized across all focus groups. The most frequently identified recommendations are Training, Resources and Community Partnerships.

Table 3
Frequency of Teacher Identified Recommendations to Implementing Daily Physical Activity

Theme	Frequency (n)

Training	**46**	
Implementation Content	33	
Diverse/Realistic Activities		17
Evidence of Benefits		10
Minimal Space		5
Behavioural Management		1
Professional Development	7	
Preservice Training	6	
Resources	**37**	
Resource Bank	21	
Easy Activities	9	
More Space	7	
Community Partnerships	**10**	
Policy	**8**	
Administration Accountability	4	
Teacher Accountability	4	
School-Wide DPA	**5**	

Theme 9: Training (Frequency 46)

Participants described recommendations for training to improve their ability to implement daily physical activity. Within training, the three prevalent subthemes were Implementation Content, Professional Development, and Preservice Training. Below, the aforementioned subthemes are discussed.

Subtheme 9a. Implementation Content (Frequency 33). Participants suggested teacher training opportunities with targeted content to improve their implementation of daily physical activity. This theme included a variety of ideas, such as training on activities that are diverse, realistic and that can be done with minimal space. Further, training for behaviour management and providing research supporting the benefits of daily physical activity were suggested. All eight of the focus groups recommended training with their suggested content would improve their implementation of daily physical activity. Below is an example that illustrates the recommendations teachers indicated related to implementation training content.

> *In terms of resources, a lot of them really don't translate into what most classes look like today. I think even seeing real-life examples and seeing real-life examples of it not working out and mistakes that were made and how to do it in your class, but better, I think would be beneficial.* (Participant 2, female, 24 years old, one and half years of teaching experience)

Subtheme 9b. Professional Development (Frequency 7). Participants suggested professional development for staff to advance their implementation of daily physical activity. This theme included providing training for teachers or administration staff through professional development days or workshops. Five of the eight focus groups suggested professional development for staff to enhance their implantation of daily physical activity. Below is an example that illustrates the recommendations teachers indicated related to professional development.

> *An opportunity to try activities out yourself, like some sort of trial or throughout a professional development day where you're expected to teach your own mini-lesson and just to get teachers familiar with it or to have to observe other teachers that feel super competent and comfortable teaching DPA doing it themselves. Modelling is really helpful, especially when you're trying something that you're not totally comfortable with, but just someone that you can emulate.* (Participant 10, male, 44 years old, 16 years of teaching experience)

Subtheme 9c. Preservice Training (Frequency 6). Participants suggested training for preservice teachers to support the implementation of daily physical activity. This theme included daily physical activity training for preservice teachers in teacher education programs. Three of the eight focus groups recommended training in teacher programs to support daily physical activity implementation. Below is an example that illustrates the recommendations teachers indicated related to preservice training.

> *I think it should be teacher education programs who maybe take a little bit of the brunt of that because I didn't see any of that when I went through…In those five years, all the classes they had, we don't really have anything devoted to that except for our Phys Ed class, which was one semester. And again, it was kind of large games. You know, if you're running events at your school, things like that, which is great, but, you know, not*

really focused on any DPA kind of related stuff. (Participant 2, female, 24 years old, one and half years of teaching experience)

Theme 10: Resources (Frequency 37)

The following theme was the second most frequently identified recommendation to improving daily physical activity implementation. Participants described recommendations for resources to improve their ability to implement daily physical activity. Within the theme of resources, the three prevalent identified subthemes were Resource Bank, Easy Activities and More Space. Below, the aforementioned subthemes are discussed.

Subtheme 10a. Resource Bank (Frequency 21). Participants suggested a resource bank to support the implementation of daily physical activity. This theme included ideas of an online comprehensive and exhaustive portal of compiled activities. Six of the eight focus groups recommended a resource bank with classroom-based physical activities to assist the implementation of daily physical activity. Below is an example that illustrates the recommendations teachers indicated related to a resource bank.

"Perhaps a bank of core ideas and I know there are some that exist out there. But having a full list of indoor activities and outdoor. If there was a resource like that I'd look at it." (Participant 12, female, 27 years old, four years of teaching experience)

Subtheme 10b. Easy Activities (Frequency 9). Participants proposed the need for easy-to-implement activities to support the implementation of daily physical activity. This theme included ideas for activities that are easy and simple to learn and use. Three of the eight focus groups recommended easy activities to support the implementation of daily physical activity. Below is an example that illustrates the recommendations teachers indicated related to easy activities.

"Having easy options so it's not something that you have to think about all the time in your planning because you're always trying to plan for other things, it needs to be something that's easy and quick." (Participant 13, female, 40 years old, two years of teaching experience)

Theme 11: Community Partnerships (Frequency 10)

The following theme was the third most frequently identified recommendation to improving daily physical activity implementation. Participants suggested community partnerships to support the implementation of daily physical activity. This theme included ideas such as community partners, organizations, and role models arranging activities. Five of the eight focus groups recommended collaboration with community organizations to support the implementation of daily physical activity. Below is an example that illustrates the recommendations teachers indicated related to community partnerships.

> *There's a big push to get community members in the school, like elders and so on. But it's more so focused on passing traditional knowledge. I've never seen it incorporated in a fitness-related way. But I can definitely see the benefits of that*. (Participant 10, male, 44 years old, 16 years of teaching experience)

Theme 12: School-Wide DPA (Frequency 5)

The following theme was chosen for its noteworthiness as a recommendation to improve implementing physical activity. Participants suggested a school-wide initiative to support the implementation of daily physical activity. This theme included ideas to bring back a previously existing enterprise or create a new incentive to engage the entire school at the same time in physical activity. Four of the eight focus groups suggested a school-wide program to engage all students in daily physical activity. Below is an example that illustrates the recommendations teachers indicated related to school-wide daily physical activity.

"*Incorporating a daily school-wide [activity], like when we used to do it in the morning, I mean, it was only 5 minutes, but at least it was something and everybody was doing it."* (Participant 7, female, 39 years old, 15 years of teaching experience)

Discussion

Three research questions were examined in the present study. The first question was: What barriers do teachers experience that interferes with implementing physical activity in the

classroom? The second research question was: What are the facilitators teachers experience that supports the implementation of physical activity in the classroom? The final research question was: How can teachers be better supported to implement physical activity in the classroom successfully? This study aimed to identify teacher perceived barriers, facilitators, and recommendations to improve the implementation of daily physical activity during instructional time.

Several key themes were identified from an analysis of the data for each of the research questions. The present study's findings bring forth a greater understanding of what barriers teachers experience when implementing physical activity, what encourages their implementation and what they believe can be done to support implementation in the future. Several findings of the current study align with previous literature, and provide some new contributions. Themes regarding the first research question show teachers in the study most frequently identified barriers related to the institution, students, time, and policy. The second research question's themes revealed that teachers identified facilitators related to students, intrapersonal qualities, the institution, and weather as a facilitator. Themes associated with the final research question show that to improve implementation, teachers recommended training, resources, community partnerships, and strategies that support school-wide implementation. This study is noteworthy as it brings to the forefront teachers' direct perspectives on implementing the daily physical activity policy from both the social cognitive and social-ecological frameworks. The results of this study serve to voice teachers' understanding of why some Ontario teachers are not meeting this mandate and ways to support and improve daily physical activity implementation.

Research Question 1: What barriers do teachers experience that interferes with implementing physical activity in the classroom?

Institutional Barriers

The results indicate teachers most frequently identified barriers at the school level such as lack of space, school culture, and no accountability as interfering with their physical activity implementation. This barrier is important to consider as implementing physical activity is the teachers' responsibility, but they feel the barriers they face are often beyond their control. The Ontario daily physical activity policy places ownership on teachers, but it does not appear to have the institutional accountability necessary for successful implementation. It is possible that the policy could benefit from revisions that hold educational institutions accountable for implementation to an equal degree of its teachers. For example, the policy could mandate that principals check in on implementation success, or school boards could hold annual DPA training.

Lack of Space. Teachers voiced the lack of space as their greatest school-level barrier. Lack of space was described as too many students in one class, where desks and chairs take up space that could otherwise be used for physical activity. Teachers felt their increasing class sizes limited the space to implement physical activities that required minimal movement to be done safely and without student conflict. The policy does not require activities to be done in the classroom; thus, many teachers sought alternative creative spaces such as outdoors, hallways, and the gym. However, teachers still described further barriers with these alternatives, such as one teacher whose school had several portables outside, limiting their opportunity in outdoor space to prevent disruption to other classes. Further, teachers described their dependency on good weather to allow outdoor activity, illustrating the overlap and interplay of barriers. While gym space appears to be the most obvious alternative to crowded classrooms, many teachers

expressed the limited available gym time, citing that at some schools, students only get one gym period a week.

Without adequate space to conduct the physical activity, teachers are limited in what they can do to attain 20 minutes of physical activity daily. While some do try to find creative solutions, other barriers ultimately arise. The Ministry of Ontario created the DPA policy without considering how it can successfully be achieved given the context of a small and congested classroom environment. With every school having different classroom sizes, student populations and alternative spaces, implementing DPA may be easier for some schools and teachers than others. Perhaps, a commitment from the institution to ensure every school has adequate space for each classroom should be added to the DPA mandate. For example, one teacher in the study expressed their frustration with having empty but locked classrooms in their school and articulated how helpful having access to those spaces would be if they could be used to implement DPA. Several other studies have identified space constraints as a predominant barrier to implementing DPA, indicating this a frequently identified barrier that has yet to be resolved (Brown and Elliott 2015; Patton 2012; Kennedy et al., 2010; Strampel et al., 2014; Alberta Education, 2008). Future research could consider analyzing the feasibility of DPA in Ontario schools with consideration of school space to solidify an extensive concern expressed by teachers.

Lack of Accountability. Teachers in this study expressed a lack of accountability from the institution as hindering their implementation of physical activity. Many teachers expressed a lack of enforcement, discussion and ultimately the dissolution of DPA at their school. A few teachers in the study asked for clarification on the policy itself, citing they weren't certain of its guidelines. Participants who identified as new teachers shared they had never heard any

discussion on the topic from staff or school administration. Other more experienced teachers said it had been several years since it was last discussed in any regard. The present study's findings support Allison and colleagues (2015), who found a lack of accountability from the institution to ensure DPA was being done correctly and consistently.

As the DPA mandate aged, its importance and encouragement appears to have faded despite it being just as mandatory as it was 15 years ago. As new teachers enter the workforce, the knowledge and importance of DPA has diminished due to a lack of continuous discussion directed by the institution. It could be argued that teachers may not be taking the responsibility they should and arguably should continue to be faithful to daily physical activity implementation despite lack of accountability from the institution. However, when teachers express a lack of fundamental understanding of what DPA is and what it entails, it is evident the institution needs to ensure their staff know what is expected of them. There are numerous ways the education system could hold teachers more accountable for DPA, many of which are identified in the present study's recommendation findings. In addition to previous literature, the responses in the present study suggest that while the institution is giving teachers independence with implementation, teachers are implying that more guidance, discussion, and enforcement may be beneficial. The school administrations need to place higher importance on DPA to model this expectation for their staff. It appears that the policy implemented 15 years ago may benefit from fidelity checks or firmer enforcement by the institution. Future research could compare implementation fidelity in schools with firmer enforcement to those with more lenient enforcement to determine if implementation improves with more accountability at school and ministry levels.

School Culture. Similarly, teachers in the study identified school culture as an institutional barrier. Teachers described their school's beliefs and values as devaluing physical activity or operated in a way that emphasized core subjects. Teachers reported feeling pressured to meet standards for courses, standardized testing (i.e., EQAO) or other school values prioritized over daily physical activity. The value of prioritizing academic courses is a notable finding in previous literature (Patton 2012; Langille and Rodgers 2010; Evenson et al., 2009). Teachers also expressed a general lack of importance for daily physical activity. In many of their schools it was simply never discussed or mentioned, reaffirming findings related to a lack of accountability. While teachers did say they wanted to implement physical activity, they felt their schools did not provide any training or resources to support implementation. Several previous studies have similarly found a lack of funding and equipment as a significant barrier for teachers (Strampel et al., 2014; Kennedy et al., 2010; Alberta Education, 2008).

It appears the culture of many Ontario schools are heavily demanding of academic components that are graded. In contrast, DPA elements that are equally as important but are not graded may be overlooked and dismissed. Teachers experience polarizing demands in their highly structured schedules. Perhaps the flexibility of DPA being a part of any 20 minutes of the day is too ambiguous and easily forgotten when other expectations are significantly more concrete. A recommendation identified in the present study, in which DPA becomes a school-wide scheduled activity, may alleviate this concern. The findings related to school culture overlap with many of the opinions expressed related to a lack of accountability. It appears that since the introduction of the DPA policy in 2005, there has been a fading culture around implementing the daily physical activity. Despite the daily physical activity policy not changing, its seriousness as a mandate appears to have steadily declined.

Student Barriers

The second most prominent barrier identified by teachers in the present study was related to students' characteristics. Teachers described diverse interferences with implementation due to students' age, ability, culture, behaviour, emotions, and peer interactions. Teachers reported some of their students have physical disabilities or a cultural belief that impaired them from certain activities. There is a grave concern with such findings as the DPA policy was created to benefit students' wellbeing. If student do not enjoying participating in DPA, it is understandable that teachers may be discouraged and chose not to support daily implementation.

Intrapersonal. Teachers voiced intrapersonal factors as the most significant student-related barrier. Student intrapersonal factors included biological factors such as physical abilities, personal factors such as self-esteem, and cultural beliefs that interfered with physical activity implementation. Teachers shared that the older the class, the more difficult it was to get students to participate, citing student self-esteem, body consciousness, and peer judgement as contributing factors. Many teachers expressed a general lack of interest in participating from a few of their students, while others shared that some students had difficulties regulating their behaviours. A few teachers gave examples of individual students who had cultural beliefs that interfered with certain activities such as dancing and yoga. The majority of the existing literature around student barriers identifies classroom behaviour concerns, with limited findings identifying individual factors such as those found in the present study. Further research on student individual difference factors may be important to explore.

With diversifying classrooms, teachers are challenged with coming up with creative and inclusive activities for DPA that allow and meet the needs of each of their student's abilities, qualities, and beliefs. Many of the student-related barriers indicated that students are not

enjoying or receiving maximum benefits from DPA. Future research could examine the student identified barriers, facilitators and recommendations to support their DPA participation. There is no doubt that teachers are receiving professional development to support their understanding and accommodation to the diversity of needs. However, perhaps there is a lack of consideration on how this can be applied to DPA. As many teachers cited earlier, a lack of conversation about DPA anywhere in their school may be an important discussion to have.

Classroom Outcomes. Another student-related barrier identified was classroom outcomes. Teachers shared that DPA caused negative classroom behaviours such as chattiness, restlessness, peer conflicts and disruptive behaviours. Some teachers shared direct experience with these barriers, while others expressed concerns about it potentially deterring them from trying. Some teachers who did not frequently implement DPA shared the thought of losing classroom control, behavioural outburst and the inability to return to course work as their main deterrents. The fear of losing classroom control due to group behaviour aligns with existing literature. McMullen and colleagues (2014) found that teachers anticipated classroom control concerns, deterring them from implementing DPA. Some teachers in the study discussed learning how to control classrooms as they gained more years of experience teaching.

It appears teachers are feeling unsupported, unprepared and untrained to manage a dynamic classroom during DPA breaks. While teachers have significant experience managing classroom behaviours, the added element of physical activity appears to discourage them. For newer teachers, classroom behaviours are already daunting, developing the confidence to implement DPA, and balance behaviours appear to take time and expertise. More training to support teachers could be offered on how to balance DPA implementation with managing

classroom behaviours. Specifically, incorporating such training during preservice education may be beneficial.

Time

Lack of time was another prominent barrier identified by teachers in the present study. Teachers expressed the need for more time to prepare effective DPA activities and a lack of time to fit the activities in during the school day. Considering the other barriers identified, it is understandable teachers have trouble finding adequate time to plan and conduct DPA activities that meet the needs of their students and the expectations of their school administration. Further, teachers must find the time to incorporate an unstructured, unassessed activity.

Preparation. One of the time-related barriers was preparation time for teachers to plan DPA activities. Some teachers identified the challenge of planning activities that all their students can and would participate in. Considering previously identified barriers related to students, sufficient time to plan engaging, inclusive, and manageable activities may require significant time that is simply unavailable. Further, many teachers highlighted the challenge of continuous engagement with their students, citing that many begin to disengage when activities are recycled. Teachers are then puzzled with either accepting declining participation or finding time for new activities that meet all their students' needs. Similar findings have been reported by Education Alberta (2008) where teachers reported there is not enough time in the school day to prepare a DPA activity. In the present study, some teachers expressed feeling like they need time outside of school hours to prepare appropriately. Teachers have preparation time to support their daily planning, but perhaps this time is not adequate to support the curriculum and DPA scheduling. Perhaps, providing DPA planning time is another way the institution can provide more support and accountability to foster DPA implementation. Future research analyzing how

allocated preparation time is used by teachers who identify as successful and unsuccessful DPA implementers may provide useful strategies to overcome the lack of preparedness.

In-Class Time. With concern for lack of time, teachers also identified the lack of in-class time to conduct DPA. Much of the teachers' feedback reaffirms the barrier of school culture discussed earlier in which pressures of academic courses take precedence for allotted school day time while balancing the demands of their school expectations. Teachers expressed feeling stretched to teach the academic content necessary each day, that the added demand to find 20 minutes and implement DPA felt unachievable. Some teachers shared that unexpectedly, some lesson plans took longer than anticipated, and therefore DPA was the often-elected task of the day that was sacrificed. It appears that of all the demands in a teacher's day, DPA may be the least valued or important. Lack of time is one of the most commonly identified barriers in the literature. Previous studies have found teachers feel there is not enough time in the school day to implement DPA due to curriculum expectations, pressures for subjects such as math and literacy, and timetabling concerns (Mâsse et al., 2013; Strampel et al., 2014; Education Alberta, 2008). With similarities to school culture concerns, time concerns may also be alleviated with the implementation of school-wide DPA. A school-wide physical activity initiative would eliminate a teacher's preparation time while simultaneously promoting a more DPA-inclusive school culture.

Changing Policy Trends

A noteworthy barrier that emerged in the present study was changing policy trends. Many teachers described DPA as a fad and not taken as seriously after its initial push when it was first introduced. A teacher shared that their schools had a "new push," such as focusing on mindfulness meditation over DPA. Teachers shared there used to be activity resources provided

to each teacher, while newer teachers in the study reported not seeing nor hearing anything about DPA. Teachers also shared that if they did have meetings or were offered professional development days that incorporated DPA that it had been years since it was last discussed or offered.

The collective enthusiasm for DPA appears to be short-lived without reinvigoration. Arguably, this notion can be affirmed with the decline in resources, training, and discussion provided by the institution and between teachers when comparing the policy's early introduction to the present day. Teachers appear to misunderstand that DPA is still mandatory despite new policy trends emerging. Perhaps, reintegration or a "new" push for DPA is needed across school boards in Ontario to reinvigorate and improve implementation. However, a sustainable plan is also needed to preserve DPA implementation and momentum. To our knowledge, changing policy trends is a newly identified barrier not previously mentioned in the literature. As the DPA policy ages, the theme of changing policy trends may continue to emerge and support the present study's findings.

Importantly, the themes related to barriers to implementing daily physical activity supported both the social cognitive and social-ecological theory. The themes identified in the present study predominately aligned with the social-ecological model. Themes that identified barriers displayed dynamic interrelations among various personal and environmental factors influencing teachers' behaviour with implementing DPA. Elements of the social-ecological model can be found in two of the most frequently identified barriers; *Institutional* and *Student.* The institutional and organizational barriers suggested that the school administration's rules, regulations, and practices interfere with DPA implementation. The student barriers suggest both intrapersonal student factors such as behaviours, attitudes and personality, and interpersonal

student factors such as interactions between students and their teacher created barriers to DPA implementation. Although not as distinct, the social cognitive theory was also identified in more underlying components of the identified barriers. For example, a teacher expressed expectancies and expectations with student behaviours that interfered with implementation. Teachers also implied some concerns with self-efficacy in their belief to execute DPA because of the identified factors. Overall, the present study's barriers are both interconnected and interrelated with each other and with the theoretical frameworks.

Research Question 2: What are the facilitators teachers experience that supports the implementation of physical activity in the classroom?

Student Facilitators

Teachers most frequently identified student-related facilitators as supporting their implementation of daily physical activity. Both immediate benefits such as improved focus and behaviour and long-term benefits such as academic and physical health improvements were identified. To improve school-aged children's wellbeing, it is promising to hear the benefits for students observed by teachers through daily physical activity. Teachers reported that seeing their students enjoy and benefit from the activities motivated them to implement DPA.

Immediate Benefits. Teachers identified that observing immediate benefits in their students facilitated their implementation of DPA. Remarkably, immediate benefits were the most frequently identified theme in the entire study. Teachers reported seeing their students improved focus, attention, energy, excitement, and engagement enhanced their implementation. Further, teachers seem to be aware of and observe students' positive outcomes, such as improvements to their mood and classwork engagement. It appears teachers' core incentive to implement DPA is

the positive impact on students, which aligns perfectly with the daily physical activity policy's objective.

The daily physical activity policy was created to benefit student wellbeing and may be conducive in this achievement. Across literature that identifies facilitators to DPA, student enjoyment and benefit is the most recurrent theme. Teachers indicated that it was easier to implement DPA when students were eager and enjoyed the activities (Alberta Education, 2008; McMullen et al., 2014). When positive student outcomes were observable by teachers, they are motivated to continue implementing the daily physical activity policy (Brown and Elliot, 2015). Notably, Brown and Elliot (2015) also found the reverse is true; in that teachers become de-motived to implement DPA when they observe negative outcomes in their students. Such findings align with the student barriers identified in the present study, where negative student behaviours discouraged teachers from implementing DPA. Increasing positive and reducing adverse outcomes for students appears to be imperative to the successful implementation of DPA.

Long-Term Benefits. Teachers also identified long-term benefits for students as enhancing their implementation. Teachers in the present study shared that knowing their students would be inspired to be healthier mentally and physically and see improvements to academics, facilitated their DPA implementation. Importantly, teachers embrace the pivotal role of instilling healthy habits as a foundation for lifelong physical activity in their students. Some of the teachers in the study also shared that using physical activity helped some of their kinesthetic learners and tried to incorporate their lessons (academic DPA) into their activities to reinforce concepts. Teachers sharing how DPA positively impacts their students' academics is important as one of the earlier mentioned barriers indicated that academics were often prioritized over DPA.

By demonstrating that both DPA and academic success can be achieved, a school culture barrier that devalues DPA can be dismantled.

Student-related facilitators for implementing DPA in the classrooms have been well supported in the literature. Teachers in studies by Allison and colleagues (2015) as well as Brown and Elliot (2015) also found improved student attention, focus and academic performance enabled their implementation. Interestingly, student characteristics were identified as both a facilitator and barrier to implementing physical activity in the present study. However, teachers reported more benefits related to students than difficulties. Students are a fundamental component of the purpose for DPA, and future research exploring their perspectives on what they like and dislike about DPA may be necessary to improving implementation. Further, more research that demonstrates the educational benefits of DPA may positively influence schools with an academic priory to incorporate more DPA in their classrooms.

Intrapersonal Facilitators

The second most frequent facilitator identified by teachers were interpersonal factors such as personal beliefs, commitment, and experience. The implementation of DPA was enriched by teachers who held personal beliefs of a positive mindset around DPA and confidence in implementing DPA. It appears the individual influence on behaviour propelled teachers to overcome the many barriers they experience to implement DPA successfully. As the lone individual responsible for implementing DPA, it is essential that teachers possess the attitudes, beliefs and knowledge to implement daily physical activity.

Personal Beliefs. Teachers in the present study articulated their positive personal beliefs surrounding the importance of daily physical activity impacted their implementation. Personal

beliefs were described as believing in the importance of daily physical activity and limiting time sitting. Further, teachers described their beliefs in themselves, citing their confidence in implementing activities successfully. Teachers who believe in the value of the physical activity and are motivated to instill those same values into their students are crucial for successful implementation. Many of the present study teachers also expressed self-assurance and trust in their ability to implement DPA effectively. Dinkle and colleagues (2017) found teacher confidence was impactful on the implementation of physical activity appears many teachers hold appropriate beliefs about themselves and their abilities to implement DPA. It is essential to identify ways to sustain teacher's values and beliefs that support DPA and find ways to instill such values in teachers who do not already possess such traits.

Commitment. Dedication and loyalty to the implementation of DPA was also a facilitator identified by teachers. Teachers in the present study shared various ways they dedicate themselves to successful DPA implementation and sustain their commitment. Some teachers shared they participate with their students to exemplify the importance of DPA and properly schedule it into their daily routine to allow students to hold them accountable and stay consistent. Similar intrapersonal traits have been identified as facilitators to DPA implementation in the literature, such as Tjomsland (2010), who found teacher motivation to implement, encourage and prepare for DPA supported implementation. Some teachers discussed their commitment to implementing DPA despite the lack of support from their institution or peers, such as one teacher who shared they buy their own equipment to enhance their students' experience with DPA. Importantly, successful implementation is proven to be within teachers' capability if they are personally motivated and committed. While factors such as school culture may negatively pull

teachers away from prioritizing DPA, it appears that if teachers remain personally passionate about DPA, implementation can still be successful.

Experience. Another intrapersonal related facilitator recognized by teachers was their past experiences with DPA and implementing it into their classrooms. Many teachers in the study identified as having some background knowledge in physical education, coaching sports, and training they received to enhance their implementation. Further, many teachers describe the process of many years of teaching as supporting the knowledge and skills to implement DPA. It appears having experience with physical activity in some form supported the teacher's ability to implement DPA. Providing such experiences to teachers who do not have a physical-activity-related skill set may benefit future implementation success.

Interestingly, teacher-related intrapersonal factors were a top identified facilitator but not a top barrier. Perhaps teachers do not recognize the pivotal role they play in implementing DPA and are experiencing an external locus of control or implicit bias. Future research asking a population outside of teachers such as principals or students may invite a less biased perspective on their obstruction to implementing DPA or reaffirm the teachers' perspectives in the present study.

Institutional Facilitators

Institutional factors were another facilitator identified by teachers in the present study. Teachers highlighted the importance of a supportive principal and a school culture that emphasizes physical activity to enrich their implementation. Notably, the institution was identified as both a top barrier and facilitator in which similar themes such as school culture and

administration responsibility were identified. The school environment in which teachers are situated appears to play a dominant role in their success or breakdown of DPA implementation.

Principal. Teachers shared their personal experiences with principals who validated the importance of physical activity at their school. One teacher shared that her principal was a competitive swimmer and thus prioritized physical activity at a school level. Here the principal's intrapersonal factors such as their lifestyle, personal beliefs, experience, commitment and skills related to physical activity facilitated a positive school-wide culture. Interestingly, all the teachers in the present study indicated their principals were supportive of their DPA implementation; however, there were some qualitative differences to that support. For example, some teachers shared their principals showed support by simple acknowledgments during classroom visits, while others had principals that went above and beyond by inspiring everyone to get active. One teacher shared their principal took students each month and would teach them an entire fitness routine to present to their class for DPA. Another teacher shared their principal went out of their way to facilitate success by motivating all the teachers to get in shape with a "fitness kick." Additionally, one teacher shared they were lucky to have two principals prioritizing DPA, citing their admin was once a competitive swimmer, another a competitive salsa dancer.

Previous literature has not identified the importance of principal’s support in DPA implementation. As the school leaders, principals play an essential role in facilitating a school culture that emphasizes or ultimately de-emphasizes DPA. From the findings of the present study, principals play a pivotal role in facilitating DPA implementation. Perhaps, the institution needs to place more responsibility on principals to ensure they are effective and active in supporting DPA implementation. Sharing responsibility with teachers may improve the

institutional barrier mentioned earlier in which teachers indicated a lack of accountability as hindering their implementation.

School Culture. Teachers identified a school culture that offers DPA training and resources, as well as viewing physical activity as important was pertinent to their implementation. Teachers shared that their school providing DPA initiatives, training, resources and equipment enhanced their implementation. One teacher shared their professional development day training on DPA was helpful, while another shared the provided key chain resource with a list of DPA activities that aided their execution. School culture was recognized both as a barrier and facilitator in this study, illustrating that a school community that actively encourages and promotes DPA is central to implementation fidelity. Existing studies have not directly identified school culture as a facilitator. However, previous work had identified that implementation improved when teachers collaborated with their peers, such as through resource exchanging (Brown and Elliot, 2015). Collaboration between teachers regarding DPA aligns with relations and behaviours necessary for a DPA-positive school culture.

Weather

A noteworthy facilitator found in the present study was the weather. Teachers emphasized the importance of good weather (sunshine and warm temperatures) to enable DPA implementation. Despite the intention of DPA being implemented in the classroom, many teachers have found success in implementing it in a larger outdoor space. However, the weather was also identified as a barrier in the present study in which bad weather (snow, rain and cold temperatures) hindered DPA implementation. It is important to consider the geographical region of Ontario and how different school locations may be affected by weather, and therefore, impacting the opportunity for outdoor DPA. For example, southern Ontario teachers would have

more school days with warm temperatures than northern Ontario teachers. Relying on good weather every day to implement DPA is unrealistic when Ontario has snow and rain for 4-6 months of the school year. While the weather may facilitate DPA some days to appreciate infrequent sunshine and warmth, it does not support daily implementation. Good weather has not been previously identified as a facilitator for DPA, perhaps due to the varying geographical locations of such studies where the weather isn't a prominent determinant.

The facilitators identified for implementing daily physical activity supported both the social-ecological model and social cognitive theory. Identified themes in the present student most frequently aligned with the social-ecological model. Two of the three top facilitators were also the top barriers (*Institutional* and *Student),* accentuating the social-ecological model's presence throughout the present study. Again, themes that identified facilitators displayed dynamic interrelations among various personal and environmental factors influencing teachers' behaviour with implementing DPA. The student facilitators suggest intrapersonal student factors such as positive behaviours and beliefs identified by teachers improve their DPA implementation. The institutional and organizational facilitators suggest the school's practices, such as providing resources supported by DPA implementation.

Further, both intrapersonal and interpersonal factors related to school administration enhanced DPA implementation. Teachers in the present study described both their interactions with their principals and their personality as supporting DPA implementation. Although not as distinct, the social cognitive theory was also identified in more underlying components of the identified facilitators. For example, a teacher expressed their self-efficacy in that they can confidently execute DPA. Further, teachers expressed their capability to implement DPA through knowledge and skill. Within their interactions with their principal, teachers experienced

observational learning that inspired them to model implementing DPA. Overall, the present study's facilitators are both interconnected and interrelated with each other, the barriers and the theoretical frameworks.

Research Question 3: How can teachers be better supported to implement physical activity in the classroom successfully?

Training

Teachers most frequently suggested training to improve and support their implementation of daily physical activity. Several topics and elements for training were proposed by teachers, including implementation content, preservice training, and professional development training. With limited research, distinguishing solutions for the concerns with DPA fidelity, having teachers who can identify possible resolutions brings tangible implications to the field of research and directly to the educational system.

Implementation Content. Teachers' requested training content embodies specific barriers identified in the present study, such as a need for diverse and realistic activities to implement. With awareness of the barriers they face, teachers asked for activities that supported their classroom's diversity and needs, such as age-appropriate and culturally-sensitive activities. To accommodate students' multiplicity, teachers who were struggling to accommodate their class wanted training to embrace their diverse classrooms. Many teachers shared their student's attributes as barriers to implementing DPA, and therefore, the need for activities that can be used despite differing abilities. Teachers also emphasized the need for training on how to implement DPA with minimal space. The lack of space was a significant challenge that teachers would like to overcome through training on activities that can be done in small spaces safely. Likewise,

some teachers suggested training on balancing student's temperaments and classroom behaviours with conducting DPA. Barriers related to students and classroom control were prominent in the present study, and teachers suggested opportunities to master this task.

Lastly, teachers suggested providing research and evidence on the benefits of implementing DPA within their proposed training. The barriers related to the physical activity being devalued at the personal and school culture level could be swayed if teachers have a better understanding of how DPA will benefit their students and ultimately themselves. There are marginal findings for training-related recommendations to improve DPA implementation in the classroom. However, Tremblay and colleagues (2012) found preschool childhood educators had recommended training to improve physical activity implementation after they experienced similar school teachers' barriers. The literature for recommendations to improve DPA is limited, and potential solutions found in the present study, such as training for diverse classrooms, minimal space and classroom behaviours, and evidence of benefits, have not previously been identified. Creating a teacher training program that addresses the topics identified would be an excellent advancement towards improving DPA implementation. Such a program could be assessed to determine if improvements to DPA occur as well as teacher intrapersonal factors such as experience, confidence and knowledge.

Resources

The second most common recommendation by teachers was resources to support implementation. Teachers in the present study requested resources that the educational system could provide, such as more spaces to foster implementation, easy-to-implement activities and a resources bank to enhance DPA execution. Space has been a reoccurring theme in literature and the present study. Regarding the earlier identified barrier of lack of space, teachers suggested

creating a designated DPA space, such as an unused classroom. Of course, not every existing school may be able to meet this request, but it brings attention to the notion that teachers are expected to follow an obligation to implement but with a lack of mandated space. Supporting earlier themes of teachers feeling the pressure of polarizing demands and a lack of time, their request for easy activities is understandable. Teachers requested having their schools provide easy activities to cut down on preparation time and in-class time. Teachers defined "easy" as simple to understand, easy to teach the class, and minimal preparation to implement.

Many teachers described an outstanding need for a comprehensive list or collection of complied activities in an easy-to-access format such as a website or an app. While the activity criteria they want might already exist, the time to find such activities is limited for teachers. Having one designated resource to go to could ease their preparation time stress. Of the existing literature on recommendations, resources were identified by Strampel and colleagues 2014 in which teachers asked for more music and video resources. However, limited research investigates recommendations to improve DPA implementation; thus, the findings in the present study provide foundational implications. Future research that develops a DPA activities app or website for teachers and then assessing its impact on DPA implementation is a recommended next step.

Community Partnerships

Partnerships with community organizations were a frequent recommendation made by teachers in the present study. Support from the community to help teachers implement DPA through volunteer, elders, sports organizations and community activity initiatives were suggested. With the sole responsibility of implementing DPA, mutually beneficial partnership initiatives could be a great way to ease teachers' demands. For example, sports organizations that

run a DPA on their sport may benefit from an increase in sign up by students. One teacher suggested having high school students who need volunteer hours come and organize a class' DPA to benefit the teachers, older students as well as bring new excitement to the class in having a new instructor for DPA. The consideration of community partnerships is a newly identified recommendation not previously found in school-based DPA literature. However, Tremblay and colleague's (2012) study with preschool educators did suggest integrating community–based resources and services. Integration of community may enhance social norms around the importance of daily physical activity as well as provide teachers with opportunities for observational learning and modelling DPA positive behaviours.

A noteworthy recommendation by teachers for improving DPA success was to initiate or reinstate school-wide DPA engagement. Some teachers reported their school once had some form of school-wide implementation, such as an activity over the morning announcements in which the whole school participated altogether. These teachers found it helpful for time management as DPA was always at a scheduled time and fostered a positive DPA school culture. Reasons as to why the school-wide DPA was removed from some schools remains unclear. Further, teachers who did not have experience with a school-wide DPA activity endorsed this initiative, citing it would help alleviate their stress with meeting academic demands by having one less responsibility. Previous literature has similarly found teachers requesting a school-wide DPA initiative to reinvigorate the mandate found by Tremblay and colleagues (2012), who has teachers request a whole-school approach to DPA. Reintroducing a school-wide DPA initiative may alleviate several previously identified barriers such as school culture and lack of time. Future studies could examine select schools that test out school-wide DPA implementation to determine if school-wide DPA is an effective solution to improve DPA implementation.

Within the recommendations to improve daily physical activity implementations, elements of both the social cognitive theory and social-ecological model were supported. Teachers' recommendations in the present study would enhance their social support and connection among different levels of their social environment. With consideration of the social-ecological model, teachers recommended training to further support their student's intrapersonal traits as well as improve the interpersonal interactions among students. Teachers also recommended partnerships with community organizations to facilitate positive social norms around daily physical activity to support implementation. Further, teachers suggested a school-wide DPA program for organizational support. The social cognitive theory was mainly recognized in teachers' requests for training. With training to support their implementation, teachers should have greater self-efficacy and capability through observational learning and modelling opportunities. Ultimately, teachers made such recommendations with the belief that it would translate into behaviour changes around implementing DPA. Elements of both the social cognitive theory and social-ecological model were found throughout the study's findings, with the most distinct findings around social-ecological model levels such as intrapersonal, interpersonal, institutional and community. Components of the social cognitive theory that were most frequently identified included self-efficacy, behavioural capability, expectations and observational learning.

Limitations

There are several limitations to consider with the results of the present study. First, our small sample size of 13 participants is not representative of the 160,000 teachers in Ontario public schools (Ontario Teachers' Federation, 2021). A representative number of teachers did not have the opportunity to participate in the study and provide their perspectives. However, a small

sample size was purposeful to provide new and resonant information (Patton, 1999). Further, the most widely used principle for determining sample size and its sufficiency in qualitative research, saturation, was used to ensure a suitable sample. Saturation was identified after 13 participants when no new data, themes or codes emerged in the focus group (Fusch et al., 2015).

The recruitment method used for the present study contains considerable limitations. A convenience sampling technique was used to recruit participants. Due to the COVID-19 pandemic, previous connections to school boards were not accessible, as research applications were on pause for health and safety. Therefore, all recruitment was done through channels of personal knowledge or connection. Participants were reached through Facebook posts in known teacher-related groups and personal advertisements as part of a more extensive study. Emails were also sent to personal contacts in the field of education to pass on to known teachers who may be interested in participating. The convenience sampling technique used for the present study limits confidence in the potential sampling pool as being representative of Ontario teachers. Although 10 different school boards were represented in the present study, their locations were predominately in southern Ontario. Additionally, with over 70 school boards in Ontario (Ontario Ministry of Education, 2021), the small sample size of our 13-participant study is not representative of all experiences. Limits to the generalizability of findings beyond the participating teachers and school boards should be acknowledged.

Teachers who were reached through recruitment had the voluntary choice to participate. There may be some bias related to their willingness to volunteer in the study, especially those who felt particularly passionate about incorporating physical activity into the classroom. On the contrary, potential participants may have been deterred from participating and voicing their opinions due to the lack of anonymity with focus groups. However, participants' scope of views

and participation in daily physical activity implementation suggests it is unlikely that such bias imperiled the findings.

It is important to consider the limitations in the discrepancies of having both focus groups and interviews to collect the same data. Unfortunately, due to requests to reschedule or absences by some participants, a few of the focus groups only had two people, while some unintentionally become one on one interviews. Regardless of group size, participants were asked the same 13 questions in the same order. Therefore, some participants had more time to provide answers to the open-ended questions and a greater opportunity to elaborate on thoughts and ideas. Alternatively, smaller or single person groups has less or no opportunity to collaborate and engage in open dialog about alternative perspectives provided by other participants.

Another limitation to consider is the use of virtual focus groups via the platform, Zoom. Completing the focus groups virtually extended the scope of participants the study could reach and limited participation to those with internet and computer access. The focus groups were conducted during the lockdown for the COVID-19 pandemic creating a digital surge with many teachers and their families scrambling to adapt to the demand of working from home (De' et al., 2020). The pandemic and the mandatory quarantine occurring while completing the focus groups may have had their own underlying impact on the participants, such as increased isolation, financial stress and mental health concerns (Serafini et al., 2020; Lee, 2020). Emerging research exploring "Zoom fatigue" or the tiredness, worry and burnout associated with overusing virtual platforms for communication should be considered (Lee, 2020). Structurally, live audio results in millisecond delays in responses that negatively affect our interpersonal perceptions (Lee, 2020; Roberts and Francis, 2013). Finally, a few focus groups ran into technical issues and connection

disruptions that may have interfered with the discussion. Participation, morale, and insights may have been influenced in the present study in trivial ways.

As the lead researcher for the analysis and interviewer for the focus groups, it is important to acknowledge my own biases in the present study's outcomes. As a personally active individual, I have a passion for improving children's activity levels. Further, I have several close personal relationships with teachers and frequently hear their perspectives on education-related topics. To reduce any potential researcher bias I brought to the study, I frequently debriefed with my supervisors and colleagues about the study and the data. Consultation on the data and forming themes was done several times throughout the study process. Confirmation bias was reduced through exploratory research questions to support an impartial analysis. General questions were asked first in the focus groups before moving onto those more specific to reduce question-order bias in subsequent responses.

Future Directions

Implications for the present study's findings include application to educational practice and future research to increase the breadth of knowledge in this field. This study provides thorough and practical suggestions that can directly improve daily physical activity in school settings. Teachers in the study recommended training to enlighten them on the proven benefits of physical activity in the classroom and classroom behaviour management to enhance implementation. Training on activities that can be done in large classrooms with minimal space and accommodating their students' diversity may also enrich successful implementation. Teachers also requested resources for a collection of activities that are easy to implement, compiled in the form of a resource bank. Lastly, considering the return of a previous initiative in

some schools to implement a school-wide daily physical activity may also be helpful. Initiatives to commence these recommendations are encouraged to begin promptly.

Future research can further explore numerous elements presented in this study. Firstly, examining a more representative sample of all Ontario school boards highlights the barriers, facilitators, and recommendations to implementing daily physical activity, particularly Northern Ontario, where our sample scarcely reached. Potentially, different factors may be identified for different parts of Ontario. Further, two other Canadian provinces, Alberta and British Columbia have a mandated daily physical activity policy (Ontario Physical and Health Education Association, 2014). Research comparing the identified barriers, facilitators and recommendations to improve implementation could provide additional insight on similarities and differences across Canadian schools. Teachers in our study insinuated a disconnect in implementation at the administration level. A similar study with principals as participants could provide a more holistic perspective on the barriers, facilitators and recommendations at the school level. Teachers in our study also illustrated concerns with student conduct. Research that identifies what activities, when and how students best enjoy daily physical activity may support future implementation. Finally, the creation of a teacher training program based on our findings and a study to review the program's success can initiate the practical implications of our foundational contributions.

Conclusion

To our knowledge, this is the first study to examine teacher-identified barriers, facilitators and recommendations to implementing daily physical activity through both a social-ecological and social cognitive framework. Further, this study brings voice to teachers within the Ontario elementary school context to contribute to this field's body of knowledge. The findings fortify existing barriers, facilitators and recommendations to implementing daily physical activity in the

classroom as well as introduce newly identified barriers, facilitators and recommendations. Overall several of the most frequently identified barriers, facilitators, and recommendations have been previously found in the literature, while some new factors emerged in the present study. Considering the two theoretical frameworks, the most frequently identified barriers, facilitators, and recommendations primarily supported the social-ecological theory. Undertones of the social cognitive theory were identified in the facilitators and recommendations results. A few of the identified factors were not associated with either theory, such as weather and time. Discussing with teachers the barriers and the facilitators and their recommendations to improve the implementation of DPA provided valuable insight into what works, what doesn't and what they think could improve the fidelity of the DPA mandate.

References

Abbasi, A., Juszczyk, D., van Jaarsveld, C., & Gulliford, M. C. (2017). Body Mass Index and Incident Type 1 and Type 2 Diabetes in Children and Young Adults: A Retrospective Cohort Study. Journal of the Endocrine Society, 1(5), 524–537. https://doi.org/10.1210/js.2017-00044

Abdullah, A., Peeters, A., de Courten, M., & Stoelwinder, J. (2010). The magnitude of association between overweight and obesity and the risk of diabetes: a meta-analysis of prospective cohort studies. Diabetes research and clinical practice, 89(3), 309–319. https://doi.org/10.1016/j.diabres.2010.04.012

Alberta Education. (2008) Daily Physical Activity Survey Report. Retrieved from https://education. alberta.ca/media/160221/dpasurveyreport.pdf (2008).

Allison, K. R., Nour Schoueri-Mychasiw, Robertson, J., Hobin, E., Dwyer, J. J., & Manson, H. (2015). Development and implementation of the Daily Physical Activity policy in Ontario, Canada: A retrospective analysis. PHEnex Journal = Revue PhénEPS, 6(3)

Allison, K. R., Vu-Nguyen, K., Ng, B., Schoueri-Mychasiw, N., Dwyer, J. J. M., Manson, H., … Robertson, J. (2016). Evaluation of Daily Physical Activity (DPA) policy implementation in Ontario: surveys of elementary school administrators and teachers. BMC Public Health, 16(1). doi: 10.1186/s12889-016-3423-0

Álvarez-Bueno, C., Pesce, C., Cavero-Redondo, I., Sánchez-López, M., Garrido-Miguel, M., & Martínez-Vizcaíno, V. (2017). Academic achievement and physical activity: A meta-analysis. Pediatrics, 140(6), e20171498.

Aune, D., Greenwood, D. C., Chan, D. S., Vieira, R., Vieira, A. R., Navarro Rosenblatt, D. A., Cade, J. E., Burley, V. J., & Norat, T. (2012). Body mass index, abdominal fatness and pancreatic cancer risk: a systematic review and non-linear dose-response meta-analysis of prospective studies. Annals of oncology : official journal of the European Society for Medical Oncology, 23(4), 843–852. https://doi.org/10.1093/annonc/mdr398

Aune, D., Navarro Rosenblatt, D. A., Chan, D. S., Abar, L., Vingeliene, S., Vieira, A. R., Greenwood, D. C., & Norat, T. (2015). Anthropometric factors and ovarian cancer risk: a systematic review and nonlinear dose-response meta-analysis of prospective studies. International journal of cancer, 136(8), 1888–1898. https://doi.org/10.1002/ijc.29207

Aune, D., Norat, T., & Vatten, L. J. (2015). Body mass index, abdominal fatness and the risk of gallbladder disease. European journal of epidemiology, 30(9), 1009–1019. https://doi.org/10.1007/s10654-015-0081-y

Bandura, A. (1986). Social foundations of thought and action: a social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Barnes, J. D., Cameron, C., Carson, V., Chaput, J. P., Colley, R. C., Faulkner, G. E., ... & Tucker, P. (2018). Results from Canada's 2018 report card on physical activity for children and youth. Journal of Physical Activity and Health, 15(s2), S328-S330.

Bedard, C., St. John, L., Bremer, E., Graham, J. D., & Cairney, J. (2019). A systematic review and meta-analysis on the effects of physically active classrooms on educational and enjoyment outcomes in school-age children. PLoS ONE 14(6), e0218633.

Belansky, E. S., Cutforth, N., Delong, E., Ross, C., Scarbro, S., Gilbert, L., Beatty, B., & Marshall, J. A. (2009). Early impact of the federally mandated Local Wellness Policy on physical activity in rural, low-income elementary schools in Colorado. Journal of public health policy, 30 Suppl 1, S141–S160. https://doi.org/10.1057/jphp.2008.50

Benefits of Physical Activity. (2020, February 25). Retrieved from https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm

Bernard, H. R., Wutich, A., & Ryan, G. W. (2017). *Analyzing qualitative data: systematic approaches*. SAGE.

Biddle, S. J. H., Gorely, T., & Stensel, D. J. (2004). Health-enhancing physical activity and sedentary behaviour in children and adolescents. *Journal of Sports Sciences*, *22*(8), 679–701. https://doi.org/10.1080/02640410410001712412

Brady T. M. (2017). Obesity-Related Hypertension in Children. Frontiers in pediatrics, 5, 197. https://doi.org/10.3389/fped.2017.00197

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3, 77–101. doi:10.1191/ 1478088706qp063oa

Bronfenbrenner, U. (1979). The ecology of human development: experiments by nature and design. Cambridge - Mass. & London: Harvard University Press.

Brown, K. M., & Elliott, S. J. (2015). It's not as Easy as just Saying 20 Minutes a Day': Exploring Teacher and Principal Experiences Implementing a Provincial Physical Activity Policy. Universal Journal of Public Health, 3(2), 71–83. https://doi.org/10.13189/ujph.2015.030204

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. (2014). The use of triangulation in qualitative research. Oncology Nursing Forum, 41(5), 545–547. https://doi.org/10.1188/14.ONF.545-547

Centers for Disease Control and Prevention. (2020). Adult Obesity Causes & Consequences. Overweight & Obesity. https://www.cdc.gov/obesity/adult/causes.html.

Clarke, J. (April 17). *Physical activity and screen time among Canadian children and youth, 2016 and 2017*. Health Fact Sheets. https://www150.statcan.gc.ca/n1/pub/82-625-x/2019001/article/00003-eng.htm.

Colley RC, Garriguet D, Janssen I et al., Physical activity of Canadian children and youth: Accelerometer results from the 2007 to 2009 Canadian Health Measures Survey. Health Reports 2011; 22(1):15-23.

Cox, L., Berends, V., Sallis, J. F., St John, J. M., McNeil, B., Gonzalez, M., & Agron, P. (2011). Engaging school governance leaders to influence physical activity policies. Journal of physical activity & health, 8 Suppl 1, S40–S48. https://doi.org/10.1123/jpah.8.s1.s40

Daily Physical Activity in Ontario. (2019, March 11). Retrieved from https://www.publichealthontario.ca/en/health-topics/health-promotion/physical-activity/dpa.

Daly-Smith, A. J., Zwolinsky, S., Mckenna, J., Tomporowski, P. D., Defeyter, M. A., & Manley, A. (2018). Systematic review of acute physically active learning and classroom movement breaks on children's physical activity, cognition, academic performance and classroom behaviour: understanding critical design features. BMJ Open Sport & Exercise Medicine, 4(1). doi: 10.1136/bmjsem-2018-000341

Denzin, N.K. (1978). Sociological methods: A sourcebook. New York, NY: McGraw-Hill.

De', R., Pandey, N., & Pal, A. (2020). Impact of digital surge during covid-19 pandemic: A viewpoint on research and practice. International Journal of Information Management, 55, 102171. https://doi.org/10.1016/j.ijinfomgt.2020.102171

Dinkel, D. M., Lee, J.-M., and Schaffer, C. (2016). Examining the Knowledge and Capacity of Elementary Teachers to Implement Classroom Physical Activity Breaks. International Electronic Journal of Elementary Education, 9(1), 182-196.

Dinkel, D., Schaffer, C., Snyder, K., & Lee, J. M. (2017). They just need to move: Teachers' perception of classroom physical activity breaks. Teaching and Teacher Education, 63, 186–195. doi: 10.1016/j.tate.2016.12.020

Durstine, J. L., Gordon, B., Wang, Z., & Luo, X. (2013). Chronic disease and the link to physical activity. Journal of Sport and Health Science, 2(1), 3–11. doi: 10.1016/j.jshs.2012.07.009

Edwardson CL, Gorely T, Davies MJ, Gray LJ, Khunti K, et al. (2012) Association of Sedentary Behaviour with Metabolic Syndrome: A Meta-Analysis. PLOS ONE 7(4): e34916. https://doi.org/10.1371/journal.pone.0034916

Evenson, K. R., Ballard, K., Lee, G., & Ammerman, A. (2009). Implementation of a school-based state policy to increase physical activity*. The Journal of school health, 79(5), 231–246. https://doi.org/10.1111/j.1746-1561.2009.00403.x

Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. The qualitative report, 20(9), 1408.

Goh, T. L., Hannon, J., Webster, C. A., Podlog, L. W., Brusseau, T., & Newton, M. (2014). Effects of a classroom-based physical activity program on children's physical activity levels. Journal of Teaching in Physical Education, 33(4), 558-572.

Harvey , S., Hotopf, M., Overland, S., & Mykletun, A. (2010). Physical activity and common mental disorders. The British Journal of Psychiatry, 197, 357–364. doi: 0.1192/bjp.bp.109.075176

Hivner, E. A., Hoke, A. M., Francis, E. B., Lehman, E. B., Hwang, G. W., & Kraschnewski, J. L. (2019). Training teachers to implement physical activity: Applying social cognitive theory. Health Education Journal, 78(4), 464–475. doi: 10.1177/0017896918820558

Hung, T., Tsai, C., Chen, F., Wang, C., & Chang, Y. (2013). The immediate and sustained effects of acute exercise on the planning aspect of executive function. Psychology of Sport & Exercise, 14(5), 728–736. https://doi.org/10.1016/j.psychsport.2013.05.004

Janssen, I., & Leblanc, A. G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. International Journal of Behavioral Nutrition and Physical Activity, 7(1). doi: 10.1186/1479-5868-7-40

Kennedy, C., Cantell, M., & Dewey, D. (2010). Has the Alberta daily physical activity initiative been successfully implemented in Calgary schools? Paediatrics & Child Health, 15(7), e19–e24. https://doi.org/10.1093/pch/15.7.e19

Kibbe, D. L., Hackett, J., Hurley, M., McFarland, A., Schubert, K. G., Schultz, A., and Harris, S. 2011. Ten Years of TAKE 10!®: Integrating physical activity with academic concepts in elementary school classrooms. Preventive Medicine, 52, S43-S50.

Lang, J. E., Bunnell, H. T., Hossain, M. J., Wysocki, T., Lima, J. J., Finkel, T. H., … Forrest, C. B. (2018). Being Overweight or Obese and the Development of Asthma. Pediatrics, 142(6). https://doi.org/10.1542/peds.2018-2119

Langille, J.-L. D., & Rodgers, W. M. (2010). Exploring the Influence of a Social-Ecological Model on School-Based Physical Activity. Health Education & Behavior, 37(6), 879–894. doi: 10.1177/1090198110367877

Lee, J. (2020). A Neuropsychological Exploration of Zoom Fatigue. Psychiatric Times. https://www.psychiatrictimes.com/view/psychological-exploration-zoom-fatigue.

Letter to the Editor: Standardized use of the terms "sedentary" and "sedentary behaviours." (2013). Mental Health and Physical Activity, 6(1), 55–56. doi: 10.1016/j.mhpa.2012.06.001

Lou, D. (2014). *Sedentary Behaviors and Youth: Current Trends and the Impact on Health*. *Research Briefs and Synthesis* . Active Living Research. https://www.researchgate.net/publication/295010878_Sedentary_Behaviors_and_Youth_Current_Trends_and_the_Impact_on_Health.

Lowe, A., Norris, A., Farris, A., & Babbage, D. (2018). Quantifying Thematic Saturation in Qualitative Data Analysis. Field Methods, 30(3), 191–207. https://doi.org/10.1177/1525822X17749386

Lynch, B. M. (2010). Sedentary Behavior and Cancer: A Systematic Review of the Literature and Proposed Biological Mechanisms. Cancer Epidemiology Biomarkers & Prevention, 19(11), 2691–2709. doi: 10.1158/1055-9965.epi-10-0815

Malden, S., & Doi, L. (2019). The Daily Mile: teachers' perspectives of the barriers and facilitators to the delivery of a school-based physical activity intervention. BMJ Open, 9(3). https://doi.org/10.1136/bmjopen-2018-027169

Masini, A., Marini, S., Gori, D., Leoni, E., Rochira, A., & Dallolio, L. (2019). Evaluation of school-based interventions of active breaks in primary schools: A systematic review and meta-analysis. Journal of Science and Medicine in Sport, 23(4), 377-384

Mâsse, L., Naiman, D., & Naylor, P. (2013). From policy to practice: implementation of physical activity and food policies inschools. The International Journal of Behavioral Nutrition and Physical Activity, 10(1). https://doi.org/10.1186/1479-5868-10-71

Mavilidi, M. F., Drew, R., Morgan, P. J., Lubans, D. R., Schmidt, M., & Riley, N. (2019). Effects of different types of classroom physical activity breaks on children's on-task behaviour, academic achievement and cognition. Acta Paediatrica, 109(1), 158–165. doi: 10.1111/apa.14892

Mcmullen, J., Kulinna, P., & Cothran, D. (2014). Chapter 5 Physical Activity Opportunities During the School Day: Classroom Teachers' Perceptions of Using Activity Breaks in the Classroom. Journal of Teaching in Physical Education, 33(4), 511–527. doi: 10.1123/jtpe.2014-0062

Morgan, D. L. 1996. Focus groups as qualitative research. Sage publications.

National Heart Lung and Blood Institute. (2021). Overweight and Obesity. National Heart Lung and Blood Institute. https://www.nhlbi.nih.gov/health-topics/overweight-and-obesity.

Ng, S. W., & Popkin, B. M. (2012). Time use and physical activity: a shift away from movement across the globe. Obesity reviews : an official journal of the International Association for the Study of Obesity, 13(8), 659–680. https://doi.org/10.1111/j.1467-789X.2011.00982.x

Olstad, D. L., Campbell, E. J., Raine, K. D., & Nykiforuk, C. I. J. (2015). A multiple case history and systematic review of adoption, diffusion, implementation and impact of provincial

daily physical activity policies in Canadian schools. BMC Public Health, 15(1). https://doi.org/10.1186/s12889-015-1669-6

Ontario Ministry of Education. (2021). School board and school authority contact information. Ontario Ministry of Education . http://www.edu.gov.on.ca/eng/sbinfo/boardlist.html.

Ontario Ministry of Education. (2017). Daily Physical Activity in Elementary Schools, Grades 1-8 (No.138). Ottawa, ON: Queen's Printer for Ontario

Ontario Physical and Health Education Association. (2014). Provincial Policies. PlaySport. https://www.playsport.net/why-physical-activity/provincial-policies.

Ontario Teachers' Federation. (2021). *Who We Are*. Ontario Teachers Federation. https://www.otffeo.on.ca/en/about-otf/.

Ortlipp, M. (2015). Keeping and Using Reflective Journals in the Qualitative Research Process. Qualitative Report. https://doi.org/10.46743/2160-3715/2008.1579

Patton, I. T. (2012). *School-based physical activity in children: an evaluation of the Daily Physical Activity program in Ontario elementary schools* (dissertation). School of Graduate and Postdoctoral Studies, University of Western Ontario, London, ON.

Patton, M.Q. (1999). Enhancing the quality and credibility of qualitative analysis. Health Sciences Research, 34, 1189-1208.

Pearson, N., Braithwaite, R. E., Biddle, S. J. H., Sluijs, E. M. F. V., & Atkin, A. J. (2014). Associations between sedentary behaviour and physical activity in children and adolescents: a meta-analysis. Obesity Reviews, 15(8), 666–675. doi: 10.1111/or.12188

Physical Activity. (2017, May 23). Retrieved from https://www.who.int/dietphysicalactivity/pa/en/

Pontifex, M. B., Mcgowan, A. L., Chandler, M. C., Gwizdala, K. L., Parks, A. C., Fenn, K., & Kamijo, K. (2019). A primer on investigating the after-effects of acute bouts of physical activity on cognition. Psychology of Sport and Exercise, 40, 1–22. doi: 10.1016/j.psychsport.2018.08.015

Proper, K. I., Singh, A. S., Mechelen, W. V., & Chinapaw, M. J. (2011). Sedentary Behaviors and Health Outcomes Among Adults. American Journal of Preventive Medicine, 40(2), 174–182. doi: 10.1016/j.amepre.2010.10.015

Prospective Studies Collaboration. (2009). Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies. The Lancet, 373(9669), 1083–1096. https://doi.org/10.1016/s0140-6736(09)60318-4

Public Health Agency of Canada. (2012). Obesity in Canada Snapshot. https://www.canada.ca/en/public-health/services/reports-publications/obesity-canada-snapshot.html.

Public Health Agency of Canada. (2011). Prevalence Among Adults. Obesity in Canada: Prevalence among adults. https://www.canada.ca/en/public-health/services/health-promotion/healthy-living/obesity-canada/adults.html.

Rickwood G. (2015) The status of daily physical activity in northern Ontario's elementary public schools. J Educ Train Stud.;3:136–49.

Roberts, F., & Francis, A. L. (2013). Identifying a temporal threshold of tolerance for silent gaps after requests. The Journal of the Acoustical Society of America, 133(6), EL471–EL477. https://doi.org/10.1121/1.4802900

Roberts, K. C., Shields, M., de Groh, M., Aziz, A., & Gilbert, J. A. (2012). Overweight and obesity in children and adolescents: results from the 2009 to 2011 Canadian Health Measures Survey. Health reports, 23(3), 37–41.

Rodriguez-Ayllon, M., Cadenas-Sanchez, C., Estévez-López, F., Muñoz, N. E., Mora-Gonzalez, J., Migueles, J. H., ... & Catena, A. (2019). Role of physical activity and sedentary behavior in the mental health of preschoolers, children and adolescents: a systematic review and meta-analysis. Sports medicine, 1-28.

Scully, D., Kremer, J., Meade, M. M., Graham, R., & Dudgeon, K. (1998). Physical exercise and psychological well being: a critical review. British Journal of Sports Medicine, 32(2), 111–120. doi: 10.1136/bjsm.32.2.111

Serafini, G., Parmigiani, B., Amerio, A., Aguglia, A., Sher, L., & Amore, M. (2020). The psychological impact of covid-19 on the mental health in the general population. QJM: An International Journal of Medicine, 113(8), 531–537. https://doi.org/10.1093/qjmed/hcaa201

Shenton, A. (2004). Strategies for ensuring trustworthiness in qualitative research projects. Education for Information, 22(2), 63–75. https://doi.org/10.3233/EFI-2004-22201

Shields, M. (2005). Measured Obesity: Overweight Canadian Children and Adolescents. Health Statistics Division, Statistics Canada.

Singh, A. S., Mulder, C., Twisk, J. W., van Mechelen, W., & Chinapaw, M. J. (2008). Tracking of childhood overweight into adulthood: a systematic review of the literature. Obesity reviews : an official journal of the International Association for the Study of Obesity, 9(5), 474–488. https://doi.org/10.1111/j.1467-789X.2008.00475.x

Sneck, S., Viholainen, H., Syväoja, H., Kankaapää, A., Hakonen, H., Poikkeus, A. M., & Tammelin, T. (2019). Effects of school-based physical activity on mathematics

performance in children: A systematic review. International Journal of Behavioral Nutrition and Physical Activity, 16(1), 109.

Stanton, R., Happell, B., & Reaburn, P. (2014). The mental health benefits of regular physical activity, and its role in preventing future depressive illness. Nursing: Research and Reviews, 45–53. doi: 10.2147/nrr.s41956

Strampel, C. M., Martin, L., Johnson, M. J., Iancu, H., Babineau, C., & Carpenter, J. G. (2014). Teacher Perceived Barriers and Potential Solutions to Implementing Daily Physical Activity in Elementary Schools. Physical & Health Education Journal, 80(1), 14-22.

Tjomsland, H. E. (2010). Sustaining comprehensive physical activity practice in elementary school: a case study applying mixed methods. *Teachers and Teaching*, *16*(1), 73–95. https://doi.org/10.1080/13540600903475678

Tremblay, M., Aubert , S., Barnes, J., Saunders, T., Carson, V., Latimer-Cheung, A., … Chinapaw, M. (2017). What is Sedentary Behaviour? Retrieved from https://www.sedentarybehaviour.org/what-is-sedentary-behaviour/

Tremblay, L., Boudreau-Larivière, C., & Cimon-Lambert, K. (2012). Promoting physical activity in preschoolers: A review of the guidelines, barriers, and facilitators for implementation of policies and practices. Canadian Psychology/Psychologie Canadienne, 53(4), 280-290. http://dx.doi.org.proxy1.lib.uwo.ca/10.1037/a0030210

Tremblay, M. S., LeBlanc, A. G., Kho, M. E., Saunders, T. J., Larouche, R., Colley, R. C., … Gorber, S. (2011). Systematic review of sedentary behaviour and health indicators in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity*, *8*(1), 98. https://doi.org/10.1186/1479-5868-8-98

Tremblay, M. S., LeBlanc, A. G., Janssen, I., Kho, M. E., Hicks, A., Murumets, K., … Duggan, M. (2011). Canadian Sedentary Behaviour Guidelines for Children and Youth. *Applied Physiology, Nutrition, and Metabolism*, *36*(1), 59–64. https://doi.org/10.1139/h11-012

Tremblay, M. S., Warburton, D. E., Janssen, I., Paterson, D. H., Latimer, A. E., Rhodes, R. E., Kho, M. E., Hicks, A., Leblanc, A. G., Zehr, L., Murumets, K., & Duggan, M. (2011). New Canadian physical activity guidelines. *Applied Physiology, Nutrition, and Metabolism*, 36(1), 36–58. https://doi.org/10.1139/H11-009

Twells, L. K., Janssen, I., & Kuk, J. L. (2020). Epidemiology of Adult Obesity. Canadian Adult Obesity Clinical Practice Guidelines. https://obesitycanada.ca/guidelines/.

Watson, A., Timperio, A., Brown, H., Best, K., & Hesketh, K. D. (2017). Effect of classroom-based physical activity interventions on academic and physical activity outcomes: a systematic review and meta-analysis. International Journal of Behavioral Nutrition and Physical Activity, 14(1). doi: 10.1186/s12966-017-0569-9

Weatherson, K., Gainforth, H., & Jung, M. (2017). A theoretical analysis of the barriers and facilitators to the implementation of school-based physical activity policies in Canada: a mixed methods scoping review. Implementation Science : IS, 12(1), 41–41. https://doi.org/10.1186/s13012-017-0570-3

What is Moderate-intensity and Vigorous-intensity Physical Activity? (2014, October). Retrieved from https://www.who.int/dietphysicalactivity/physical_activity_intensity/en/

Wolin, K. Y., Carson, K., & Colditz, G. A. (2010). Obesity and cancer. The oncologist, 15(6), 556–565. https://doi.org/10.1634/theoncologist.2009-0285

World Health Organization. (2010). Global recommendations on physical activity for health. Geneva: World Health Organization

World Health Organization. (2011). Global recommendations on physical activity for health. Geneva: World Health Organization

World Health Organization. (2020). Guidelines on physical activity and sedentary behaviour. Geneva: World Health Organization

Yin, Z., Davis, C. L., Moore, J. B., & Treiber, F. A. (2005). Physical activity buffers the effects of chronic stress on adiposity in youth. Annals of Behavioral Medicine, 29(1), 29–36. doi: 10.1207/s15324796abm2901_5

Appendices

Appendix A

Focus Group Questions

GENERAL QUESTIONS:

1. Please describe how you first learned about **the daily physical activity policy:**

2. Have you ever received any training on incorporating **the daily physical activity policy** into your classroom? If so, what kind and where? (Workshops, PD)

3. What do you think are the greatest **benefits and barriers** of incorporating physical activity into the classroom:

4. Do you feel **confident** and **motivated** in implementing physical activity breaks into your classroom? Why?

5. In your opinion, how do physical activity breaks affect the following items: (**list all)**
   a) Student behaviour:
   b) Student engagement during lessons:
   c) Test scores:
   d) Amount of time for academic instruction:

6. How do your students respond to taking physical activity breaks? **Similar or different for each student?**

7. Do you feel that your school administration supports the use of **the daily physical activity policy** in the classroom? Why or why not?

8. In comparison to other schools or districts, how do you feel your school compares when considering implementing **the daily physical activity policy**?

9. Physical activity breaks can be **general,** such as running on the spot, or include an **academic component** such as answer the math problem with jumping jacks.

   a) Describe the pros and cons to each.
   b) Describe which you prefer and why?

Supportive: How the education community would better support you

10. What else would you like to learn about physical activity breaks?

11. Could community organizations support the use of physical activity in your classroom? If so, how?

12. If you were to create a policy for incorporating physical activity breaks, what would it be?
13. If we were to create training on incorporating physical activity breaks into classrooms, what do you think would be most important to include?

Appendix B

Recruitment Poster

Appendix C

Recruitment Letter

Hello Ontario Elementary School Teachers,

Firstly, I wanted to take the time to thank you for all your hard work during these troubling times and thank you for taking the time out of your busy day to consider participating in my study: *Teacher Identified Barriers to Classroom-Based Physical Activity.*

My name is Lauren Martyn, and I am a Master's of Counselling Psychology candidate in the Faculty of Education at Western University. We are conducting a study looking to better understand teachers' experiences with physical activity in the classroom. Although the Daily Physical Activity (DPA) policy has been in effect since 2005, there are many challenges and barriers that teachers face when it comes to implementing DPA in their classrooms. We hope to use an online survey and virtual focus groups to gather information about teacher experiences. Eligible participants may participate in either or both parts of the study. To be eligible to participate, you must be an elementary school teacher for an Ontario school board working with grades K-8.

Our online survey takes 10-15 minutes to complete, and participants will be compensated $10 for their time.

You can fill out the online survey here:
http://bit.ly/teacheronlinesurvey

Our online virtual focus groups will be 1 hour, and participants will be compensated $30 for their time.

You can sign up for the online virtual focus group here:
http://bit.ly/focusgroupteacher

Thank you in advance, and I appreciate you taking the time to voice your opinion and experience with implementing physical activity in the classroom through the study. Please feel free to pass on our study to anyone you know who may be eligible and interested. If you have any questions, feel free to contact me at

Appendix D

Focus Group Consent Form

Western

LETTER OF INFORMATION AND CONSENT

Teachers' views on classroom-based physical activity: barriers and recommendations

Principal Investigator
Dr. Barbara Fenesi, PhD, Psychology
Western University

We are pleased to invite you to participate in this focus group looking at the prevalence of physical activity in elementary school classrooms. You are being invited to participate because you have self-identified from a previous survey that you would like to participate.

Background/Purpose
The purpose of this study is to discuss in detail your views of physical activity in the classroom, the barriers/challenges that you face, and areas of support that could help facilitate more physical activity in your classroom.

How long will you be in this study?
The focus group will last 1hr.

What are the study procedures?
We will discuss in groups of 2-3 teachers your experiences with physical activity in the classroom. Each participant will have equal time to contribute their ideas and thoughts. You may refrain from answering any questions that you are uncomfortable with. The focus group will be audio recorded so that researchers can fully capture and transcribe your ideas afterwards for analysis.

What are the risks and harms of participating in this study?
There are no known or anticipated risks or discomforts associated with participating in this study.

What are the benefits?
The possible benefits to you and the larger school community are that we will get a better understanding of whether and how physical activity exists within the classroom, teachers' opinions on whether physical activity is helpful/detrimental in the classroom, and whether there are barriers that need to be addressed. This information will hopefully contribute to the better design of classroom-based physical activity.

Can participants choose to leave the study?
If you do not wish to continue participating in the focus group at any time, you may leave at your discretion, and your data will not be used.
How will participants' information be kept confidential?
The data you provide will be secured by a password protected computer at all times. Only the primary investigator will have access to this computer. However, representatives of Western University's Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research. If the results of this study are published, only de-identified information will be made available.

Focus group participants will be deidentified using a unique ID code assigned by the principal investigator. All identifiable information, such as your name and contact information will be linked to your data only by a unique ID code which will be assigned to you after the study by the research team. The master list linking your study ID and your identifiable information will only be available to the researchers.

The researcher will keep all personal information about you in a secure and confidential location for 7 years. A list linking your study number with your name and contact information will be kept by the researcher in a secure place, separate from your study file. If the results of the study are published, your name will not be used. The data will be stored on a secure server at Western University and will be retained for a minimum of 7 years. Your data may be retained indefinitely and could be used for future research purposes (e.g., to answer a new research question). By consenting to participate in this study, you are agreeing your data can be used beyond the purposes of this present study by either the current or other researchers.

Please be advised that although the researchers will take every precaution to maintain confidentiality of the data, the nature of focus groups prevents the researchers from guaranteeing confidentiality. The researchers would like to remind participants to respect the privacy of your participants and not repeat what is said in the focus group to others.

Are participants compensated to be in this study?
You will be compensated $30 for participating in the focus group. You will receive compensation in the form of an Amazon e-gift card upon your exit.

What are the Rights of Participants?
Your participation in this study is voluntary. You may decide not to be in this study. Even if you consent to participate, you have the right to not answer individual questions or to withdraw from the study at any time. If you choose not to participate or to leave the study at any time, it will have no effect on your standing as a teacher in any way. You do not waive any legal right by consenting to this study. We will give you any new information that may affect your decision to stay in the study. You will be compensated the full amount ($30).

Whom do participants contact for questions?
If you have questions about this research study, please contact Dr. Barbara Fenesi at ___. If you have any questions about your rights as a research participant or the conduct of this study, you

may contact The Office of Human Research Ethics This office oversees the ethical conduct of research studies and is not part of the study team. Everything that you discuss will be kept confidential.

This letter is yours to keep for future reference.

Teachers' views on classroom-based physical activity: barriers and recommendations
Letter of Information- Consent Form

Dr. Barbara Fenesi;

Your consent is required to be audio recorded for the focus group. If you do not consent to being audio recorded, you are not eligible to participate in the focus group. The audio recording will be used by the researchers so they can fully capture and transcribe your ideas afterwards for analysis.

Your consent is required to use any quotes from the focus group. If you consent to these terms, your quotes may appear in future dissertations or publications. If you do not consent to having your quotes used, you are not eligible to participate in the focus group. All your quotes will be fully anonymous, and your name will never be tied to any of them.

By attending the focus group via Zoom, you are indicating you consent to participating, being audio recorded and quoted. If you have any questions or concerns about the study or if you no longer wish to participate, please contact Lauren Martyn at ___. prior to the scheduled focus group time. You may still withdraw from the study at any time during the focus group.

Appendix E

Ethics Approval

Western Research

Date: 12 December 2019

To: Dr Barbara Fenesi

Project ID: 114406

Study Title: Teachers' views on classroom-based physical activity: barriers and recommendations

Short Title: Qualitative Teacher Study

Application Type: NMREB Initial Application

Review Type: Delegated

Full Board Reporting Date: 10/Jan/2020

Date Approval Issued: 12/Dec/2019 19:55

REB Approval Expiry Date: 12/Dec/2020

Dear Dr Barbara Fenesi

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Focus Group Consent_5	Written Consent/Assent	12/Dec/2019	5
Focus Group Email Script	Recruitment Materials	06/Nov/2019	1
Focus group questions	Focus Group(s) Guide	16/Sep/2019	1
Focus Group Sign up Survey	Online Survey	06/Nov/2019	1
Focus Group Telephone Script	Recruitment Materials	22/Nov/2019	1
Survey Consent 4	Implied Consent/Assent	29/Nov/2019	4
Survey Email Script	Recruitment Materials	06/Nov/2019	2
Survey Link for Compensation 2	Online Survey	22/Nov/2019	2
Teacher Survey 2	Online Survey	22/Nov/2019	3

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Lauren Martyn

University of Western Ontario
Faculty of Education

EDUCATION

2019-2021 **M.A. (Candidate), Counselling Psychology**
University of Western Ontario

2014-2019 **B. A. Psychology, Minor in Women Studies**
University of Western Ontario

HONOURS AND AWARDS

2020-2021	Graduate Student Assistantship Scholarship
2019-2020	Graduate Student Assistantship Scholarship
2019	University of Western Ontario Deans Honour List
2018	Ministry of Citizenship and Immigration Ontario Youth Volunteer Service Award
2017	University of Western Ontario Deans Honour List
2014	University of Western Ontario Scholarship of Excellence

CONFERENCE PRESENTATIONS

Martyn L., Ogdrodnik, M & Fenesi, B. (2021, May). *Mandated to Move: Teacher Identified Barriers, Facilitators, and Recommendations to Implementing Daily Physical Activity*. Presentation at the Children's Health Symposium in Health Sciences, Western University, London, ON, Canada.

Martyn L., Ogdrodnik, M & Fenesi, B. (2021, March). *Mandated to Move: Teacher Identified Barriers, Facilitators, and Recommendations to Implementing Daily Physical Activity.* Presentation at the Robert MacMillan Symposium in Education, Western University, London, ON, Canada.

Martyn L., Ogdrodnik, M & Fenesi, B. (2020, March). *Mandated to Move: Teacher Identified Barriers, Facilitators, and Recommendations to Implementing Daily Physical Activity.*. Poster presented at the Robert MacMillan Symposium in Education, Western University, London, ON, Canada.

Martyn L., Nielsen A., Minda J.P.(2019, June).*Using Mindfulness Meditation to Improve the Emotional Wellbeing of Graduate Students***.** Canadian Society for Brain, Behaviour and Cognitive Science (CSBBCS), Waterloo, ON, Canada.

SELECTED PROFESSIONAL & VOLUNTEER EXPERIENCE

2020-Present **Focused Family Therapy Intern**
Vanier Children's Mental Wellness
Short Term, Brief and Single-Session therapy

2020-Present **Dialectal Behavioural Therapy Group Facilitator**
Canadian Mental Health Association London Middlesex
Life Worth Living 20-Week Program

2020-Present **Crisis Responder**
Kids Help Phone Crisis Text Line

2018-2019 **Supportive Listening Line Volunteer**
Canadian Mental Health Association London Middlesex

2018-2019 **In-School Mentor**
Big Brothers Big Sisters London

2015-2019 **Peer Support Mentor and Tutor**
Children's Aid Society of London Middlesex

PROFESSIONAL ASSOCIATIONS

2020- Present **Student Member – Social Justice and Private Practice Chapters**
Canadian Counselling and Psychotherapy Association