“Sometimes we get stuck in our ruts”: Exploring the Utility of a Mentorship Program for Daily Physical Activity Delivery Among Elementary School Teachers

A Thesis Presented to the

School of Kinesiology

Lakehead University

In Partial Fulfillment of the Requirements

For the Degree of Master of Science in Kinesiology

By Rebecca Kennedy

2020

Acknowledgments

First of all, I want to express my sincerest gratitude to my advisor Dr. Erin Pearson. Thank you for your unwavering support, not only during my graduate school experiences, but throughout the entirety of my journey in the School of Kinesiology. Your professionalism and insight have served as an inspiration for molding and honing-in my own research skills, that I will aptly harness in my future endeavours. I am grateful for the countless opportunities both research- and community-related that you have provided me so that I could apply my learnings outside the classroom and contribute to the community that became a second home to me. Through all the peaks and valleys of research, you pushed me to grow and believed in my potential when I didn't believe in it myself; this project came to fruition largely in part of that belief. I am fortunate to have had such a dedicated, compassionate, yet straight-shooting, and ultimately gracious supervisor that I am glad to call a mentor of mine.

I would also like to acknowledge my committee members, Dr. Erin Cameron and Dr. John Gotwals for taking the time to provide their expertise toward the evolution of this study. Your array of proficiency shone through your feedback and attention to detail, which has been invaluable to the diversity and completion of this research project. Thank you as well to Dr. Kim Simpson for contributing her time and knowledge as the external examiner of this thesis.

Thank you to the administrators and educators of the Lakehead Public School Board who generously provided their time, services, and resources for this study. Your support and encouragement of our participants to commit to the research project was truly appreciated. I would also like to recognize the three early career teachers who participated in this study. This project would not have been completed without your dedication to the research project and willingness to engage honestly and whole-heartedly in the DPA mentorship intervention.

I would also like to acknowledge my family for their persistent yet unwithering support throughout my years in post-secondary education. The strength they lent me throughout life's curveballs has provided me a resilience I am lucky to appreciate, while also reminding me that when all else fails: to sit back, know you can try again tomorrow, and just enjoy a cold one.

Speaking of cold ones, I got to give a shout out to my A-1s from Day 1: my fellow graduate school and life-long friends. We depended on each other, and we needed each other through the hard times, the real times, and the good times – we will be a 'gang' for life, you beautiful souls.

Notably, I want to thank Beyoncé for "giving me the power" ever since first-year to aid in getting me through the past near seven years of post-secondary education. Last but not least, in the words of another one of my inspirations, Snoop D-O-double G: "I want to thank me. I want to thank me for believing in me. I want to thank me for doing all this hard work. I want to thank me for never quitting. For always being a giver and trying to give more than I receive. Trying to do more right than wrong. I want to thank me for just being me at all times."

Study Summary

Background: The Daily Physical Activity (DPA) policy in Ontario states that elementary students should receive at least 20 minutes of physical activity (PA) daily during instructional time. Yet, studies show that this goal is rarely achieved. Given the pressures teachers experience regarding the coverage of academic curricula, coupled with low confidence and training for delivering DPA, innovative strategies to promote PA-related teaching skills are needed. In the context of Self-Determination Theory (SDT), the satisfaction of a teacher's Basic Psychological Needs (BPN; autonomy, competence, relatedness) has been deemed valuable for implementing and sustaining school-based PA-programs. University students studying kinesiology are inherently equipped to assist with the delivery of PA initiatives. In light of the known benefits of mentorship models applied in educational contexts, combined with the utility of interventions grounded in theory, a collaborative kinesiology student-teacher-based program could be a viable health promotion strategy to combat low (D)PA rates. To date, no studies exploring the BPN in the context of a mentorship-based DPA program exist.

Purpose: The purpose of this qualitative study was to explore the utility of a 6-week mentorship program designed to assist early career teachers with DPA delivery using Ontario Physical and Health Education Association (OPHEA) curricula. Administered by a MSc kinesiology student, this involved assessing: I) the participants' DPA engagement, practices and program-based experiences through the lens of SDT's BPN; II) the utility of the 6-week program from structural, logistical, and experiential perspectives; and III) participants' recommendations for future DPA mentorship studies.

Methods: Early career teachers ($\leq$ 5 years of experience) were invited to participate in this pre-experimental pilot study with a pre-post design which involved a 4-week mentorship intervention

and two-week independent graduated period (i.e., whereby the teacher was encouraged to deliver all activities independently with access to the mentor when requested). Demographic information was collected prior to the intervention and semi-structured interviews exploring study experiences were completed pre- and post-intervention. Demographic data were analyzed descriptively, and a combination of deductive and inductive content analysis were used on the transcripts. Themes and subthemes were derived from the data and categorized into two (pre-intervention) and three main parts (post-intervention). At pre-intervention, Part I involved examining the barriers and facilitators to DPA and PE engagement and practices through a basic psychological needs lens (i.e., autonomy, competence, relatedness). Part II related to perceived barriers and facilitators that could inhibit/foster participants in achieving study-related goals pertaining to the mentorship program. At post-intervention, Part I similarly involved exploring the barriers and facilitators to DPA and PE engagement and practices through a basic psychological needs lens; Part II related to the challenges and benefits experienced regarding program feasibility and logistics; and Part III included participants' recommendations for future research in this context.

Findings: Three female early career teachers with an average age of 30 and representing two elementary schools (grade 2; grades 3/4; and grades 7/8) were enrolled in and completed the study. In total, 32 main themes emerged across both time points which represented barriers and facilitators to DPA and PE engagement and practices through a BPN lens (i.e., Part I) and perceived barriers and facilitators that could inhibit/foster participants in achieving study-related goals (i.e., Part II). Future recommendations were also made following the intervention which included three common suggestions (i.e., Part III). The most notable themes as described by the participants that emerged following completion of the program focused on the importance and

value of: *Prioritizing DPA* [Autonomy; post]; *Role Modeling* [Competence; pre and post]*; Collaborating with Colleagues* [Relatedness; pre and post]; including *Variety* when doing PE and DPA [Program-related Goals; pre]; and *Enhanced DPA Toolkit* [Program-related Outcomes; post]. Future recommendations for research in this context highlighted: involving *Kinesiology Students for PE-PA related Professional Development; Kinesiology Mentor-Student Benefits* in a PA context*;* and logistical suggestions regarding program *Resources and Recruitment*.

Conclusion: Findings from these qualitative data suggest that a 6-week, DPA specific mentorship-based intervention using OPHEA curriculum appears to be an effective means for supporting the satisfaction of BPN among these early career teachers. From a mentorship perspective, participants valued the OPHEA resources, related guidance, and support provided by the kinesiology student. Heightened autonomy regarding prioritizing DPA, enhanced competence for delivery as a function of role modeling, and stronger collaborations with colleagues demonstrating enhanced relatedness were noted as beneficial outcomes. Participants also discussed several program-related components that promoted their ability to prioritize DPA upon completion including a variety of activities, curricular weaving, visual demonstrations provided by the mentor, and help with routine building. Improved student management was also noted as a valued outcome of involvement. Given the positive findings observed, and the fact that teachers can be difficult to engage in (D)PA-related interventions due to competing curricular demands, theoretically grounded teacher-kinesiology student partnerships could be a useful method for encouraging DPA engagement, especially in early career teachers. The findings of this small-scale study highlight the need for more DPA research to explore mentor-oriented programming aimed at enhancing BPN satisfaction in a classroom setting further.

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"Sometimes we get stuck in our ruts": Exploring the Utility of a Mentorship Program for Daily Physical Activity Delivery Among Elementary School Teachers

Overview

The Canadian 24-Hour Movement Guidelines recommend that children and youth aged 5-17 years achieve high levels of physical activity (PA), low levels of sedentary behaviour, and sufficient sleep each day in order to reap optimal health benefits (Canadian Society for Exercise Physiology, 2016; Ontario Ministry of Education, 2017). However, over the past three decades, the prevalence of childhood obesity has nearly tripled (Kloeppel, Hodges-Kulinna, & Cothran, 2012). In relation, rates of PA in children of all ages have declined (Kloeppel et al., 2012), with only 35% of 5-17-year olds accumulating the recommended 60 minutes of moderate to vigorous PA per day (ParticipACTION, 2018). Given the physical (e.g., type 2 diabetes, asthma, hypertension; Centers for Disease Control and Prevention, 2017; Freedman, Dietz, Srinivasan, Berenson, 2007; Institute of Medicine, 2012; May, Kuklina, & Yoon, 2012; Must, Hollander, & Economos, 2006; U.S. Department of Health and Human Services, 2010a, 2010b) and psychosocial (e.g., low self-esteem, stigma, bullying; Centers for Disease Control and Prevention, 2017; Griffiths, Parsons, & Hill, 2010; van Geel, Vedder, & Tanilon, 2014) implications of excess adiposity combined with the risks associated with sedentariness (e.g., chronic disease development, depression; World Health Organization, 2018), health promotion-based interventions targeting PA behaviour are needed in this population (Gourlan et al., 2015).

Fortunately, schools have been deemed an environmental setting – independent of factors such as socioeconomic status and family influences (Standage, Duda, & Ntoumanis, 2006) – that can provide children with opportunities for PA, and teach the attitudes, skills, and knowledge needed to develop lifelong healthy behaviours (Faulkner et al., 2008; Fox & Harris, 2003). Each

province has a set of specific “content standards” that identify what a student should know and be able to do as a result of participating in a physical education (PE) program (Buns, 2010; National Association for Sport and Physical Education, 2004). Given the need for increased PA amongst children (Kloeppel et al., 2012), a large body of research has begun to examine curricular trends and models of PE in elementary school systems. One such Ontario model is “Daily Physical Activity,” which aims to help children and youth achieve the recommended guidelines for PA throughout the school day (Ontario Ministry of Education, 2017).

During the onset of the DPA initiative in 2005, the Ontario Physical and Health Education Association **(**OPHEA) partnered with the Ontario Ministry of Education to develop DPA resources, including online training for teachers and administrators, e-learning modules, activities by grade division (i.e., 1-3, 4-6, and 7-8) and information for school boards and principals (Mitschke, n.d.; OPHEA, 2018). For example, the OPHEA Activity Idea Database provides over 2,500 activity plans, which can be refined based on teachers’ needs by age, time limit, location/facility/setting, and equipment (Mitschke, n.d.; OPHEA, 2018). According to the OPHEA website, 93% of schools in Ontario rely on OPHEA as a primary source for tools to teach about health and wellness (OPHEA, 2018). Research has shown that teachers’ value and utilize OPHEA resources to help them provide safe and effective PE/PA-related lessons (Kennedy & Pearson, in preparation). However, it can still be a challenge for a school board and the teachers to provide opportunities for classroom-based DPA (Allison et al., 2014; Ontario Ministry of Education, 2017). While challenges to DPA policy implementation have been examined in depth (e.g., Fuda, 2016; Kogon, 2017; Patton, 2012; Ramcharan, 2015), it remains unclear if and what strategies have been applied by schools to overcome barriers and facilitate positive change to DPA in practice (Weatherson et al., 2017). Having an understanding of

existing barriers and facilitators regionally could be essential when seeking to develop strategies to increase DPA delivery.

To date, few studies have explored teachers' DPA planning and delivery experiences (Kogon, 2017; Patton 2012; Ramcharan, 2015; Rickwood, 2015), especially in less urbanized, Northern Ontario cities like Thunder Bay. In fact, according to the 2016 Annual Report on Ontario's Publicly Funded Schools, 61% of urban/suburban elementary schools have a Health and PE teacher, compared to 30% of small town/rural schools (People for Education, 2016). Mentorship-based programs (e.g., Dowda, Sallis, McKenzie, Rosengard, & Kohl, 2005; Kelder et al., 2003) may be one avenue to address this discrepancy and can serve as a model for developing and determining the utility of PA-focused studies. Delivered by external agents, such as university researchers in elementary schools, the results may benefit the health of a large number of children (Reed et al., 2008) and teachers who have not specialized in PE (Morgan & Hansen, 2008). External PA leaders or an experienced mentor can pass on crucial PA leadership skills to teachers, especially those in the early career stage (Rickwood, 2015). Further, while some qualitative studies have been conducted to explore the perceptions of teachers in regard to DPA (e.g., Kogon, 2017; Ramcharan, 2015; Rickwood, 2015), the interview questions have lacked theoretical underpinnings – an important inclusion when considering the feasibility properties of a study (Green, 2000). Similarly, many quantitative studies have been carried out with teachers to assess the three basic psychological needs regarding teaching in general (e.g., Evelein, Korthagen, & Brekelmans, 2008; Klassen et al., 2012), but not in a DPA-context. Overall, no studies looking at DPA from a Self-Determination Theory (SDT) perspective exist. Thus, prioritizing qualitative data that is focused on DPA and grounded theoretically adds a unique contribution to the literature.

The low DPA (Allison et al., 2018) and childhood PA rates in general (ParticipACTION, 2018), combined with the known benefits of mentorship models in an educational context (e.g. APPLE Schools, 2018; Carlson et al., 2008; GoodLife4Kids, 2018; Kennedy et al., 2018; Perry et al., 1990), highlight the need for an innovative health promotion strategy. To date, no studies have examined how the OPHEA curricula administered via a theoretically grounded, collaborative mentorship program can be used to promote DPA delivery and participation in elementary school classrooms, especially among early career teachers.

Background

2005 Daily Physical Activity Regulation Initiative

In 2005, the Ontario Ministry of Education released a memorandum with the goal of ensuring that all elementary school students' in the province have the opportunity to be physically active during the school day (Ontario Ministry of Education, 2017). The document states that PA is essential for children and youth to grow and develop in a healthy manner, has a positive impact on their physical fitness, and helps to establish the foundation for leading healthy, productive lives (Ontario Ministry of Education, 2017). While participating in PA is known to enhance well-being and reduce the negative health consequences of sedentary behaviour (Penedo & Dahn, 2005; Salovey, Rothman, Detweiler, & Steward, 2000; World Health Organization, 2018), Ontario regulations also deem PA as an important element for enabling students' academic achievement and overall success (Ontario Ministry of Education, 2017). By providing elementary students with opportunities to be engaged in regular PA throughout the school day, it was expected that the Ontario Ministry of Education's goals of promoting well-being and achieving educational excellence for children and youth would, in turn, be fostered (Ontario Ministry of Education, 2017).

The Requirement. The memorandum states that all district school boards are required to allocate at least 20 minutes for moderate to vigorous PA each school day during instructional time (Ontario Ministry of Education, 2017). More commonly known as the *Daily Physical Activity* (DPA) Policy Initiative, the regulation emphasizes that these 20 minutes be completed in either a single block of time or in multiple, smaller blocks throughout the course of the day (Ontario Ministry of Education, 2017). Despite the known benefits of PA, data show that the DPA regulations aren't being followed as intended (Patton, 2012). For example, in an observational study conducted by Patton (2012) investigating adherence to DPA in the classroom, student participants were asked to wear an accelerometer to measure their activity levels over a span of four days. Despite the 20 minutes of DPA required, students averaged just over three minutes of moderate to vigorous PA per day (Patton, 2012). Moreover, both the teachers and students acknowledged that DPA was not implemented on non-PE days as it is mandated to be (Patton, 2012). Despite students favouring time for DPA, they indicated a lack of intensity in the activities used by their teacher (Patton, 2012). This is concerning given that in order to adequately address decreasing PA levels in Canadian children and reap health benefits, DPA needs to be administered as intended regarding time, intensity, and frequency (Patton, 2012).

Implementation of DPA. In order to enhance well-being and achievement among students, the memorandum states that it is the collective responsibility of principals and other education professionals (e.g., teachers) to ensure the implementation of DPA every day (Ontario Ministry of Education, 2017). Further, all DPA activities must be adapted to ensure that every student can participate, including those with special needs (Ontario Ministry of Education, 2017). The Ontario Ministry of Education (2017) emphasizes that DPA can be incorporated in a

variety of ways throughout the instructional day (e.g., in varying durations, across different curricular areas) to contribute to the creation of a PA-oriented culture in the school. On days in which students do receive a scheduled health and PE class, the 20 minutes (or more) of DPA can be considered part of that experience (Ontario Ministry of Education, 2017). On non-PE days, the expectation is that opportunities for accumulating at least 20 minutes of moderate to vigorous PA will be provided in the classroom or elsewhere (i.e., DPA activities; Ontario Ministry of Education, 2017).

Accountability and Professional Development. According to the Ontario Ministry of Education (2017), the responsibility for implementing regular DPA falls upon school boards and teachers. This includes the provision of related training, as well as developing and applying a process to monitor safe implementation (Ontario Ministry of Education, 2017). To date, there are no standardized guidelines, recommendations, or formal accountabilities for educators with regards to DPA implementation, monitoring, and assessment (e.g., teachers keeping record of DPA classroom integration; Allison et al., 2014; Kogon, 2017; Lloyd, 2015; Patton, 2012). Thus, it is not surprising that Weatherson and colleagues (2017) recently stressed the need to examine DPA policy implementation and utility.

Given the expectations placed upon administrators and teachers to implement DPA into their classroom schedules (Ontario Ministry of Education, 2017), district-sponsored professional development aimed at improving individual skills is needed (Abdal-Haqq, 1996; Hunzicker, 2012). In fact, recent province-specific research has acknowledged that providing opportunities for teachers to deepen content knowledge and promote new health and PE-related approaches are an asset to successful DPA delivery (Dziabura, 2017).

Resources for DPA Delivery: OPHEA. Each province and territory in Canada have a curriculum document to outline the knowledge, skills, and attitudes for healthy active living that school-aged children should achieve (Kilborn, Lorusso, & Francis, 2015; Lloyd, 2015). To meet Ontario-specific guidelines for mandated DPA, coupled with a previous local pilot study recommending its use (e.g., Kennedy & Pearson, in preparation), the Ontario Physical Health Education Association (OPHEA) resources have been identified as ideal for inclusion in DPA-oriented research. The OPHEA is a not-for-profit provincial organization that produces a variety of health and PE-related tools for school boards and community organizations including lesson plans, activities, and supplements (Lloyd, 2015; OPHEA, 2018). The aim of OPHEA is to build the "knowledge, ability, and confidence of teachers, principals, school board administrators, public health and community leaders to deliver quality educational programs across all health topics" (Lloyd, 2015; OPHEA, 2018). Moreover, OPHEA exists to "support schools and communities through quality program supports, partnerships and advocacy to enable children and youth to lead healthy active lives" (Mitschke, n.d.; OPHEA, 2018). During the onset of the DPA initiative, the OPHEA partnered with the Ontario Ministry of Education to develop DPA resources, including online training for teachers and administrators, e-learning modules, activities by grade division (i.e., 1-3, 4-6, and 7-8) and information for school boards and principals (Mitschke, n.d.; OPHEA, 2018). For example, the OPHEA Activity Idea Database provides over 2,500 activity plans, which can be refined based on the teachers' needs by age, time limit, location/facility/setting, and equipment (Mitschke, n.d.; OPHEA, 2018).

According to the OPHEA website, 93% of schools in Ontario rely on OPHEA as a primary source for tools to teach about health and wellness (OPHEA, 2018). Research has shown that teachers' value and utilize OPHEA resources to help them provide safe and effective PE/PA-

related lessons (Kennedy & Pearson, in preparation). However, it can still be a challenge for a school board and the teachers to provide opportunities for classroom-based DPA (Allison et al., 2014; Ontario Ministry of Education, 2017). A cross-sectional online survey conducted in 2014 with Ontario elementary school educators found that 61.4% of administrators and 50% of teachers reported DPA implementation fidelity (Allison et al., 2016) suggesting that approximately half of the educators were not meeting the ministry's mandate. While barriers to DPA policy implementation have been examined in depth (e.g., Fuda, 2016; Kogon, 2017; Patton, 2012; Ramcharan, 2015), it remains unclear if and what strategies have been applied by schools to overcome barriers and facilitate positive change to DPA in practice (Weatherson et al., 2017). Having an understanding of existing barriers and facilitators is essential when seeking to develop strategies to increase DPA delivery.

DPA Participation Barriers. The purpose of DPA is to help students acquire healthy living skills that contribute to a healthier classroom and lead to a more active lifestyle (Jung & Taeho, 2016; Ramcharan, 2015). Previous research has revealed that DPA has great potential to instill such positive change in children's everyday lives, especially when conducted at the elementary level (Jung & Taeho, 2016). However, DPA has been viewed as a burden and may not be seen as a priority for some classroom teachers (Ramcharan, 2015). In a recent study conducted by Allison and colleagues (2018), several classroom/teacher predictors for DPA-specific implementation were identified including scheduling DPA in timetables; lack of space; and lack of time. Similarly, a qualitative study exploring the perspectives of elementary school educators in the greater Toronto area identified barriers to teaching DPA including a lack of time, equipment, space, and the inability to create health-related goals that are valued as much as numeracy and literacy ones (Ramcharan, 2015). For example, one participant noted that in her

school environment, teachers were either not aware of or could not access resources like OPHEA (Ramcharan, 2015). The participant stated that, “sometimes, just seeking out those resources you need a push to do it. You need to know where to get them and how. A lot of teachers don’t know about OPHEA, and if they did, they probably would have a better DPA program” (Ramcharan, 2015, p. 43). Recommendations for addressing these barriers included offering professional development opportunities for teachers to enhance understanding regarding the importance of DPA in the classroom (Ramcharan, 2015).

In a similar vein, while technology has been identified as a useful tool for PA implementation (e.g., Carlson et al., 2008; Kennedy, Pearson, & Simpson, 2018; Kogon, 2017), teachers often find accessing such resources a challenge (Kogon, 2017; Ramcharan, 2015). One educator from the Toronto area noted that many teachers are not provided with the online resources or text for DPA that they are for other subjects (Kogon, 2017). Because it is the responsibility of school boards to provide DPA-related training and tools (Ontario Ministry of Education, 2017), only those who have purchased OPHEA content have access (OPHEA, 2018). Therefore, if the board opts out or cannot afford resources, it may fall on the teacher to independently acquire DPA tools that support the Ontario Health and PE curriculum (Lloyd, 2015; OPHEA, 2018).

Beyond the more systematic barriers, individual challenges such as a teacher’s confidence to deliver PA-related lessons can impact the provision of DPA negatively (e.g., competing academic curricular demands, previous unsuccessful PA experiences; Kogan, 2017; Morgan & Hansen, 2008; Patton, 2012). Many teachers may feel unmotivated to teach PA or not understand the value of PA for their students compared to more academic subjects (Kogon, 2017). Moreover, a teacher’s confidence to instruct PE specifically can also be influenced by

his/her own related childhood experiences (Morgan & Hansen, 2008), physical competence to engage in PE (Carney & Chedzoy, 1998), and personal PA behaviours (Simpson, Tucker, & van Zandvoort, 2011). Specific to DPA, research has shown that personal beliefs, identity, values, and professional practice can influence teachers' ability to implement related activities (Ramcharan, 2015).

In order to better understand the barriers that administrators and teachers believed influenced their ability to include DPA in their schedules, an exploratory study was conducted in 10 North Bay, Ontario schools (Rickwood, 2015). The absence of mentors for students and teachers, along with less time available during the school day to integrate "leisure" activities were identified as key reasons school-based DPA was excluded (Rickwood, 2015). Based on the quantity and variety of curricular subjects' that generalist teachers must teach, it may be the case that PA-specific leaders/mentors are needed in order to assist in providing quality PA experiences for students (Kelder et al., 2003).

When considering the barriers that classroom teachers face regarding the integration of DPA throughout the school day, educators must understand the conditions that lead to difficulties in meeting policy requirements (Lee & Solomon, 2007). In essence, enhanced understanding of the systematic and individual barriers schools and teachers experience when seeking to deliver effective (D)PA is important, especially when considering how facilitators might be used to overcome them effectively (Lounsbery, McKenzie, Trost, & Smith, 2011).

DPA Participation Facilitators. To address barriers associated with DPA implementation, researchers have investigated strategies that can assist educators in PA-related lessons (Morgan & Hansen, 2008; Olstad, Campbell, Raine, & Nykiforuk, 2015). From a technological standpoint, electronic resources that provide activity banks, music, and

instructional DVDs have been identified as useful due to their ease of implementation (Strampel, Martin, Johnson, Iancu, & Goguen-Carpenter, 2014). For example, a recent qualitative study conducted in the Toronto area explored strategies associated with successful school-wide DPA participation among teachers, and outcomes they observed regarding students' mental and physical health, and academic achievement (Kogon, 2017). Findings revealed a number of helpful strategies including technological programs (e.g., exercise CD and music) and activities provided by the Ontario Ministry of Education (e.g., OPHEA resources and tools). These resources were identified as motivational and required minimal equipment and space which eased implementation in the classroom (Kogon, 2017).

Beyond the beneficial use of OPHEA resources and tools (Carlson et al., 2008; Kennedy et al., 2018; Kogon, 2017), ongoing communication between educators and PA delivery agents (e.g., researchers) has also been noted as an important facilitator for fostering the teacher's experience with PE (Kennedy et al., 2018). For example, to enhance communication in an intervention designed to combat low levels of children's PA and physical fitness (McKenzie, Sallis, & Rosengard, 2009), facilitator-teacher communication outside of the classroom maintained via telephone or email was deemed helpful (Dowda et al., 2005). Role models who demonstrate healthy behaviours have also been shown to influence how school staff and students perceive PA (Rickwood, 2015; Stratton & Mullen, 2005; Varpalotai & Thomas, 2007, 2009). Similarly, the use of delivery models where teachers can up-skill or be assisted by specialists/outside agencies that partner with teachers on how to integrate (D)PA with other subjects while fostering their confidence to do so have proven effective (Morgan & Hansen, 2008). For example, a teacher from Kogon's (2017) study explained that the school's PE teacher created a DPA program for teachers to follow and implement each day. Through the use of

calendars and verbal communication, this type of support helped the teachers to successfully and effectively implement meaningful DPA activities (Kogon, 2017). In light of the known challenges to DPA delivery, it is imperative that facilitators be explored further in order to alleviate the ongoing barriers that teachers experience and enable them to accommodate DPA in their weekly schedule (Morgan & Hansen, 2008). Garnering a thorough understanding of (D)PA- and PE-related research conducted in schools is an important part of this process.

Optimizing PE Participation: School-based Research

According to Faucette, Nugent, Sallis, and McKenzie (2002), significant barriers to teaching PE (e.g., low confidence, limited training) can be overcome through extensive, well-supported professional development programs (Morgan & Hansen, 2008). To understand the relationships between teacher's confidence to teach PE, personal PA practices, and formal PE training, Simpson and colleagues (2011) explored the feasibility of schools using external programs geared toward optimizing youth PA and fitness in the London, Ontario area. An online survey was administered to elementary teachers, and a strong relationship between increased confidence to teach PE and related educational training was observed. Overall, the results highlighted the importance of encouraging PA implementation amongst generalist elementary school teachers and emphasized the need for regular PE-related training (Simpson et al., 2011).

From an intervention standpoint, the 'CATCH' (Luepker et al., 1996; Perry et al., 1990) and 'SPARK' (Sallis et al., 1997) programs are referred to often in the field of PE; both were external school health programs that aimed to train teachers to implement PE curricula. The Coordinated Approach to Child Health (CATCH) Program (Perry et al., 1990) was the largest randomized controlled field trial of school-based health promotion in the United States from 1991 to 1994 that involved training grade 3-5 teachers in methods to increase available class

time devoted to moderate-to-vigorous PA (Kelder et al., 2003; Luepker et al., 1996; Perry et al., 1990). Program resources pertaining to health behaviours (e.g., eating habits, physical activity) were provided and teachers received on-site monthly consultations with CATCH staff to help implement the program (Luepker et al., 1996; Perry et al., 1990). Ultimately, results from CATCH's pilot trial revealed improved diet and PA patterns amongst the children (Elder et al., 1994; Kelder et al., 2003; Luepker et al., 1996; Perry et al., 1990). Similarly, a two-year PE-program entitled Sports, Play, and Active Recreation for Kids (SPARK; Sallis et al., 1997) provided an active PE curriculum, staff development, and on-site support from a certified PE specialist for seven schools in the United States (Sallis et al., 1997). Follow-up data showed that teachers who participated in SPARK maintained high quality and quantity of PE classes that was sustained for four years after the program's initial implementation (Dowda et al., 2005). Moreover, SPARK also had positive effects on teacher instruction of PE as a result of the specialist's presence (Dowda et al., 2005). In fact, the researchers determined that the PE specialists produced the best outcomes in comparison to trained teachers who implemented content and their untrained colleagues (McKenzie, Sallis, Kolody, & Faucette, 1997). In essence, SPARK provided support for employing specialists to aid in delivering PE-curricula to classroom teachers and demonstrated the need for extensive professional development to enhance the quality of PE-education for students (McKenzie et al., 1997).

Overall, findings from the CATCH (Luepker et al., 1996; Perry et al., 1990) and SPARK programs (Sallis et al., 1997) emphasize the value of providing in-service training for teachers to assist in the implementation of PE curricula and enhance PA quality for students. Due largely to the positive outcomes that have been associated with their use among teachers and students (e.g., professional development for teaching skills; Weare & Nind, 2011), such school-based programs

have been deemed well-established and effective treatments for improving health and academic outcomes such as grades and attendance (Communities In Schools, n.d.; Paulus, Ohmann, & Popow, 2016). In light of these benefits and potential for transferability within elementary schools, efforts to diffuse elements of these seminal programs in a Canadian context has been recommended (Canadian Cancer Society, 2005; Patton, 2012). Specifically, Patton (2012) suggested focusing on increasing the intensity and duration of PA through adhering to guidelines (e.g., DPA policy guidelines, the Canadian Physical Activity Guidelines) utilizing OPHEA lesson plans and activity ideas that can be applied by a specialist via mentorship.

Mentorship-based PE and PA Programs in Schools

In an educational context, mentorship can be described as: "expanding the knowledge, skills, and confidence levels of novice teachers, [where] the mentor, too, benefits from the professional growth opportunity as she learns a great deal from the experience" (St. George & Robinson, 2011, p. 24). A mentoring-related term that is also commonly used within schools and research is that of a "coach." According to Megginson and Boydell (1979), coaching is "a process in which a manager, through direct discussion and guided activity, helps a colleague to solve a problem, or to do a task better than would otherwise have been the case" (Megginson, 1988, p. 5). Together, these terms will be used in combination and/or interchangeably to discuss how these roles function and exist in educational and PA contexts.

According to Devine and colleagues (2013), collaborative peer learning has the potential to become the most powerful resource for ongoing growth and innovation once a teacher's capacity reaches a certain level. For example, in the SPARK Program, schools that had an on-site facilitator accessible helped the program succeed by overcoming PE implementation barriers such as scheduling facilities and managing equipment (Dowda et al., 2005). Similarly, in a four-

year randomly controlled intervention, teachers in seven schools who used SPARK program curricula and were trained by a PE specialist were assessed a year and a half post-intervention to determine maintenance effects (McKenzie et al., 1997). Findings showed that upon withdrawal of PE specialists, the quantity and quality of PE was reduced and a decline in student activity to 88% of intervention levels was noted (McKenzie et al., 1997). Thus, school leaders and coaches can play an important role as on-site facilitators for PE and create learning cultures in their designated schools (Devine, Meyers, & Houssemand, 2013).

In a Canadian context, Actions Schools! BC (Action School! BC, 2016) is a non-profit association that encourages school experts, community members, and students' families to act toward the enhancement of children's health and wellness. Specifically, a practical professional development program beginning in 2003 was provided and included curriculum-linked resources and support for teachers. The researchers showed that by providing teacher mentorship with a trainer in a variety of health- and PA-related activities, they were able to effectively teach teachers how to integrate PA into the school day (Action Schools! BC, 2006). Comparatively, the Alberta Project Promoting active Living and healthy Eating (APPLE) Schools – an existing school-focused health promotion initiative – is administered by a School Health Facilitator who is trained in nutrition, PA, and community development (APPLE Schools, 2018). The facilitator works with students, school staff, and community members to develop an action plan that is specifically tailored to the needs of the respective school. Through their collaborative action planning/goal setting, including activities pertaining to PA programs, research conducted on APPLE Schools has demonstrated the program's ability to equip students with the knowledge necessary to become confident, empathetic leaders and take ownership of their own health and social behaviours (e.g., PA and diet; APPLE Schools, 2018).

Taken together, the aforementioned mentorship-based studies can serve as a model for developing and determining the utility of PA-focused programs delivered by external agents, such as university researchers in elementary schools, the results of which may benefit the health of a large number of children (Reed et al., 2008) and teachers who are not specialized in PE (Morgan & Hansen, 2008). Albeit, these programs may differ based on geographical location, school board PE policies, design, and those in the mentorship role, a commonality exists amongst all. That is, the individuals who assume a mentorship role are knowledgeable and credited to be PA ambassadors within their communities and/or school environments. Moreover, the activities led by a PA ambassador can provide teachers with a continuous, in-service source of professional development in PE-related lessons and skills (Devine et al., 2013; Dowda et al., 2005; McKenzie et al., 1997). Thus, it stands to reason that mentorships between PA ambassadors and teachers may combat PE-related implementation obstacles that teachers face, and in turn, promote enhanced PA behaviours in students.

Mentorship Strategies for PE Programming. In the absence of PE-related professional development opportunities for teachers, the presence of a PA specialist (i.e., mentor) to facilitate quality PE-lessons has been recommended (McKenzie et al., 1997) along with specific strategies to enhance success. For example, when communicating with teachers, mentors can utilize active listening, ask tailored questions, give positive feedback, and provide encouragement to help establish SMART (specific, measurable, achievable, realistic, timed) goals (Fazel, 2013; O'Connor & Lages, 2007). In turn, these practices may empower teachers' "inner" resources to enhance personal and professional development in their PA-related teaching practices (Fazel, 2013; O'Connor & Lages, 2007). Further, researchers have suggested that there should be time for teachers, especially for those who may not feel prepared to implement structured PE, to

observe experts conducting PE activities and to practice new instructional skills themselves (Kelder et al., 2003). Accordingly, schools may benefit from providing an "advisory teacher" as employed in a study that explored the experience of a generalist teacher planning art lessons alongside an advisor and then worked to deliver the mutually created lessons independently (De Vries, 2013; Russell-Bowie, 2011).

A variety of strategies were also used by the (S)Partners for Health research team for their pilot study which involved a year-long school-based program intended to enhance fifth grade students' self-efficacy toward PA and nutrition behaviours (Carlson et al., 2008). The intervention involved PE teachers, assisted by undergraduate kinesiology and dietetic students ("Spartners"), implementing eight behaviour change lesson plans over the school year. The research team provided PE teachers with copies of the curriculum and implementation guidelines, and participants underwent a two-hour training session at the outset with a trained PE Spartner who was a part of the investigative team. In order to augment training and standardize implementation of the program, all teachers received an instruction list for using the curricula which included suggestions such as verbal prompts to be active and participating in activities with the students. Upon dissemination, the authors' suggested that future studies could integrate similar methods in programs intended for other grades, regions, and curricula (Carlson et al., 2008).

In essence, studies conducted in real-life classrooms where vicarious learning takes place via expert-led demonstrations may provide a feasible, in-service professional development opportunity for teachers. This mentorship-based approach is important to consider when seeking to assist teachers with delivering a specific subject – such as PE – where professional development opportunities may be lacking (De Vries, 2013; Spittle, 2015). Cumulatively, the

PE-related strategies highlighted suggest that teacher/mentor pairs who collaboratively build tailored, yet adaptable lesson plans utilizing context-relevant resources can be useful in an educational context (e.g., Carlson et al., 2008; APPLE Schools, 2018). Building rapport and maintaining open communication channels with all parties involved (i.e., key stakeholders, teachers, and PE specialists) appears to be an important foundation for mentorship success (Kennedy et al., 2018; McKenzie et al., 2009). Thus, integrating these techniques could be beneficial to consider for DPA-specific programming delivered in a classroom environment.

Mentorship Strategies Specific to DPA. Research conducted on DPA participation in a Northern Ontario city outlined that mentors can pass on crucial PA leadership skills, regardless of the grade level (Rickwood, 2015). According to Rickwood (2015), a teacher-coach mentorship program in a DPA context could involve providing a teacher with a binder containing information pertaining to activities, lesson plans, and/or instructional techniques. The teacher could also be required to shadow his/her mentor during games and assist when necessary (Rickwood, 2015). Although these strategies were speculative, it was hypothesized that the mentorship process could be repeated into sequential years whereby the mentee would move into a mentorship role for other incoming teachers. Further support for using mentorship as a form of in-service professional development was noted in a qualitative study that explored teachers' perceptions of factors affecting APPLE Schools program sustainability (Storey et al., 2012). A participant stated that building resources together with a school health facilitator was a useful part of their DPA teaching toolkit (Storey et al., 2012). Moreover, retention and availability of resources for classroom use were considered vital to teachers continued DPA sustainability once the school health facilitator departed (Storey et al., 2012). Based on the recommendations

pertaining to the use and potential value of mentorship in a DPA context, additional research is warranted (Kogon, 2017; Rickwood, 2015).

Teacher-Coach-Student Model. Fazel (2013) suggested that high quality PE-related activities can be achieved through a teacher-coach-student model aimed at mobilizing teachers' "inner" resources through self-reflection and action. In educational settings, this model involves one-to-one guidance for leaders, teaching staff, and students delivered through mentoring methods to improve a person's ability and competency to deliver a subject such as PE (Devine et al., 2013; Fazel, 2013; Srivastra & Cooperrider, 1990). As a result, individuals who participate in a teacher-coach-student experience can derive positive personal and lifestyle outcomes including: increased self-confidence, heightened self-awareness, enhanced life balance, lower stress levels, and improved goal-setting and attainment (Fazel, 2013).

One program that mirrors the philosophies of Fazel's (2013) teacher-coach-student model is the GoodLife4Kids (GL4K) School Program (GoodLife Kids Foundation, 2016). The GL4K School Program was an Ontario-based and externally funded PE-based program developed by a child PA expert in collaboration with the GoodLife Kids Foundation. This program was created for grade four teachers and their classes in an effort to help students learn early fitness skills. The GL4K School Program also aimed to empower teachers to deliver the content on their own. This two-year program was typically delivered by a fitness professional "coach" who was associated with GoodLife Fitness. Coaches were responsible for co-developing and -delivering the appropriate and fun class plans provided by the GL4K School Program with their partner teachers while fostering support and ongoing fitness education throughout the process (GoodLife Kids Foundation, 2016).

A recent study conducted by Lennon and colleagues (under review) explored PE-related experiences among elementary school administrators and teachers in Thunder Bay, Ontario. Findings revealed that overall, teachers do not feel efficacious regarding PE delivery and desire further training and educational opportunities (Lennon et al., under review). Based on these findings, combined with the success of the GL4K program in a school-based setting, a pilot project - "Exploring the feasibility of delivering the GoodLife4Kids™ Program in a Northern Ontario elementary school: A case study approach" – was conducted and involved the delivery of a 12-week program by a trained kinesiology student who partnered with one teacher and her grade four class (Kennedy et al., 2018). In the absence of a local GoodLife Fitness Centre from which to draw a "coach" to deliver the program, it was thought that a Lakehead University senior kinesiology undergraduate student would be inherently equipped with the skills and education needed to promote health and PA (Kennedy et al., 2018). Research has advanced that partnerships with post-secondary departments such as kinesiology can be instrumental in the promotion and sustainability of school-based health promotion programs (i.e., (S)Partners for Health Program; Carlson et al., 2008). Specifically, this form of programming can be a cost-effective method of adopting a healthy education and behaviour change model into elementary schools, while providing experiential learning for both PE teachers and post-secondary students in the field of kinesiology (Carlson et al., 2008). In fact, integrating university students with health-related majors (i.e., kinesiology) as program delivery agents has been proposed as a viable approach to assist school personnel in the implementation and maintenance of school-based programming that promotes healthy behaviours amongst students (Carlson et al., 2008).

Overall, mixed methods data obtained from the GL4K case study (Kennedy et al., 2018) revealed that the structured 12-week program delivered in PE classes was well received by the

teacher and her students; the partnership between the kinesiology coach and teacher was deemed especially valuable for promoting self-efficacy for teaching PE. Findings also showed that the use of visual demonstrations and detailed instruction for various activities by the kinesiology "coach" were particularly beneficial for enhancing teacher understanding of and confidence for PE delivery (Kennedy et al., 2018). These findings align with the literature in other contexts regarding the benefits of a mentor who can provide support in PA-related lessons (Carlson et al., 2008; Dowda et al., 2005; Morgan & Hansen, 2008; Murphy & O'Leary, 2012).

While a handful of studies have integrated PA leaders/specialists to help implement PE (e.g., Perry et al., 1990; Sallis et al., 1997), none have looked at utilizing this mentorship strategy for DPA specifically (Kogon, 2017; Patton, 2012). Thus, studies focused on improving DPA implementation through the use of PA specialists who partner with teachers are needed (Kogon, 2017). The credentials and educational experiences acquired by kinesiology students through their professional training in the field make them ideal candidates for a PA mentorship role in a school-based context for teachers (Carlson et al., 2008; Kennedy et al., 2018; Storey et al., 2015).

Needs Assessment for a Mentorship-based PE Program in Northern Ontario

In response to recommendations from regional PE-oriented research (e.g., the GL4K pilot project; Kennedy et al., 2018; Lennon et al., under review), an exploratory needs assessment was conducted recently to determine what is important to Lakehead Public School Board teachers and administrators regarding PE and DPA planning and delivery (Kennedy & Pearson, in preparation). Specifically, questions included in the on-line survey focused on assessing the utility of a mentorship-based program integrating OPHEA curriculum and delivered by a university kinesiology student. The goals of developing this type of program included filling a paucity of professional development opportunities for local educators, enhancing teacher

confidence in PE delivery, increasing the quality of the PE experience for teachers and students alike, and building partnerships between the School of Kinesiology at Lakehead University and the Lakehead Public School Board.

A total of four responses were received by full-time teachers between May and June 2018 (Kennedy & Pearson, in preparation). Findings revealed that all participants used OPHEA resources (i.e., an online supplementary PE program aimed at teaching new skills and activities) regularly to implement PE and valued the "practical activities, ideas, safety, lessons, and activities that are easy to implement." Three participants shared that, "yes" a coach/mentor would be valuable "for shared expertise," and that "someone specifically trained would be a benefit." Participants also stated that the mentor would provide practical activities and modeling, as well as bring ideas and support to the program/schools. When asked specifically their views on a kinesiology student assuming this role, all participants responded positively. In line with other research that has utilized kinesiology students to provide mentorship in elementary schools (i.e., (S)Partners; Carlson et al., 2008), it would appear that this may be a valuable strategy given their related background knowledge and potential to assist teachers in implementing consistent and efficient PE- and PA-related activities.

Interventions to change health-related behaviours typically have modest effects and have been shown to be more effective if grounded in theory (Davis et al., 2015). According to the literature on theory-based programming, if teachers can embrace a physically active curriculum (e.g., such as DPA) and have positive attitudes toward it, they are likely to have stronger intentions to teach physically active classes (Martin & Hodges-Kulinna, 2004). The teacher-coach-student model could be used to foster teachers' ability to teach DPA by inspiring and supporting teaching styles and communication skills, thereby enabling students to be engaged

actively in lessons (Fazel, 2013). One theoretical concept has been deemed especially important for developing tailored and meaningful PE-based programming for the teachers: motivation (Perlman, 2013).

Self-Determination Theory and Health-Behaviour Change

Self-Determination Theory (SDT), a theory of motivation that was developed by Deci and Ryan (1985; 2000), postulates that an internal feeling or perception of volition motivates individuals and their behaviours. This theory assumes that in human nature, there is a propensity for individuals to be inherently curious about their environment and interested in learning about and developing one's knowledge (Niemiec & Ryan, 2009). Under the SDT umbrella, individual motivation (i.e., self-determination) is categorized into three main domains: intrinsic, extrinsic, and amotivation (Perlman, 2013; Vallerand, 2001). Intrinsic motivation refers to behaviours performed in the absence of external impetus that are inherently interesting and enjoyable (Deci & Ryan, 2000). That is, when people are intrinsically motivated, they play, explore, and engage in activities for the inherent fun, challenge, and excitement of doing so (Niemiec & Ryan, 2009). On the other hand, extrinsic motivation is influenced by external factors such as a reward or to avoid punishment (Deci & Ryan, 2000). For example, feeling pressure from a significant other to complete a task or earn a prize would be classified as external motivation (Deci & Ryan, 2000; Perlman, 2013). Along this continuum, different motivational regulations exist within the extrinsic domain including external, introjected, identified, and integrated regulation (Deci & Ryan, 2000); each are described in more detail below (see Figure 1). The last component is amotivation which occurs when individuals lack a desire to engage in a behaviour no matter how many external prompts are provided (Deci & Ryan, 2000; Perlman, 2013).

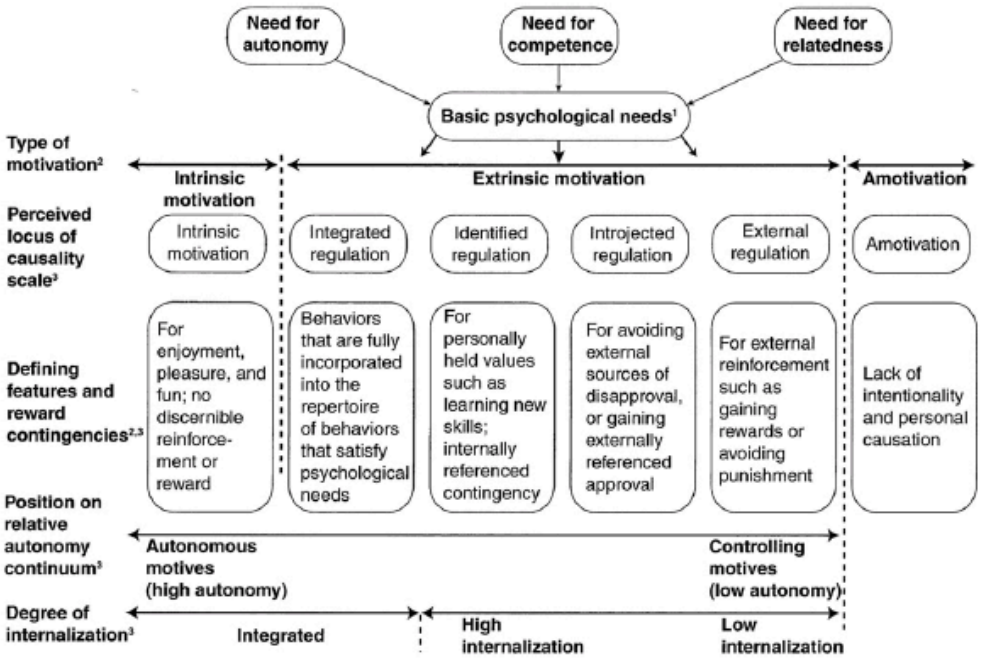

Figure 1. Self-determination theory motivational continuum. This figure shows the motivational regulations and degree of self-determination for behaviours (Ryan & Deci, 2007).

To date, there has been a vast amount of research focused on the concepts of motivation and teaching (Deci & Ryan, 2004; Perlman, 2013; Ryan & Brown, 2005; Ryan & Deci, 2009; Soenens et al., 2012; Ten Cate, Kusurkar, & Williams, 2011). The school environment – as it relates to teachers and their work surroundings and relationships – is unique from others (Klassen et al., 2012). Given the high number of hours spent in the classroom, teaching is an occupation that emphasizes establishing meaningful, long-term connections with students (i.e., in comparison to other professionals such as health or business where time spent with clients is more acute). In practice, it can be difficult for teachers to maintain their self-determination to implement school policies in the classroom when crippled with other curricular demands (Klassen et al., 2012). By exploring theoretically grounded professional development programs

that utilize PA leaders/specialists to help implement DPA, researchers may determine how best to facilitate teacher motivation and confidence in this context (Kogon, 2017).

Basic Psychological Needs Theory (BPNT). According to SDT (Deci & Ryan, 2002), there are three basic psychological needs that are assumed to be innate and universal to all humans including the need for autonomy, competence, and relatedness. Known as a sub-theory of SDT, the Basic Psychological Needs Theory (BPNT; Deci & Ryan, 2000) states that these needs must be continuously fulfilled in order for individuals to perform optimally and maintain their well-being (SDT, 2018). Autonomy refers to individuals acting in a way that is consistent with their self-initiating actions as opposed to being controlled by another individual (Deci & Ryan, 2000). In the school environment, the need for autonomy may be satisfied through a teacher's desire to experience choice and freedom in carrying out his teaching duties (Klassen et al., 2012). Competence is reflected in an individual's desire to feel effective in carrying out a task as this facilitates goal attainment (Deci & Ryan, 2000). For example, a teacher's desire to perform DPA activities effectively within environmental classroom constraints reflects her degree of competence (Klassen et al., 2012). Relatedness refers to peoples' need to feel connected, and to care for and be cared about by others without the presence of ulterior motives (Deci & Ryan, 2000). A teacher's desire to develop close relationships with other staff members and feel connected to them would be an example of what it means to satisfy the need for relatedness (Klassen et al., 2012). Together, these psychological needs contribute to well-being such as higher levels of engagement that increase positive emotions like enjoyment and decrease negative emotions such as anxiety (Gunnell, Crocker, Wilson, Mack, & Zumbo, 2013). Findings from Evelein, Korthagen, and Brekelmans (2008) demonstrated that basic need fulfillment in student teachers had a significant positive impact on their teaching experience (Korthagen &

Evelein, 2016). However, the application of SDT in education research has predominately focused on student need fulfilment within schools, with few studies focused on teachers (Korthagen & Evelein, 2016). Thus, researchers have recommended that interventions focus on improving these constructs in teachers (Korthagen & Evelein, 2016).

Autonomy Support and the BPN in an Educational Context. According to SDT, autonomy support is conceptualized as how an individual considers others' perspective, acknowledges the others' feelings, and provides the other with pertinent information and opportunities for choice, while minimizing the use of pressures and demands (Deci & Ryan, 1985). Autonomy supportive contexts have been characterized by Deci and colleagues (2001) as giving people choice and encouragement for personal initiative while supporting people's competence in a climate of relatedness (Gagne, 2003). Autonomy supportive contexts also have the ability to predict and promote self-determined/autonomous motivation (e.g., intrinsic motivation; Deci et al., 2001; Gagne, 2003). Korthagen and Evelein (2016) drafted practical strategies pertaining to how the BPN can be used to support student teachers specifically. For example, in an educational context, the need for relatedness can be fulfilled by helping teachers to become aware of opportunities to improve the social-emotional climate in the classroom (Deci & Ryan, 1985; Skinner & Belmont, 1993). Korthagen and Evelein (2016) involved teachers integrating PA into their academic lessons; while the students worked together, the student teacher walked around to make personal contact with them. The need for competence can be supported by encouraging teachers to work on learning goals set using relatively small, yet clear steps which allows a higher chance of success (Deci & Ryan, 2000, 2002). A mentor should also be attentive to providing positive feedback on the teacher's behaviours and personal growth (e.g., acknowledgements on what goes well along with personal competencies; Fredrickson, 2009).

The need for autonomy can be fostered by providing teachers the freedom to choose activities that build on their personal goals, ideals, and values (Sheldon & Kasser, 2001). To further compliment BPN-oriented strategies in teachers, the authors suggested that a gradual strategy whereby the complexity of practices is gradually increased could be a valuable approach in teacher education programs (Korthagen et al., 2001; Korthagen & Evelein, 2016).

According to Kogon (2017), studies are warranted examining how strategies with theoretical underpinnings can provide teachers with effective professional development for PE-related policies like DPA. To nurture teachers' feeling more self-determined in a (D)PA-related context, mentor-oriented programming to cultivate BPN satisfaction in a classroom setting may be especially important to consider. In light of the successes observed amongst teachers and student teachers with regards to BPN satisfaction (e.g., Korthagen & Evelein, 2016), these same approaches could be undertaken in a mentor-based program. In doing so, the competencies of the teacher, relatedness associated with the partnership, and teacher's autonomy could be fostered.

Early Career Teachers, PE Professional Development, and BPN Satisfaction

Elementary level-generalist teachers are thought to receive limited exposure to teaching PE from the outset of their training (O'Sullivan & Oslin, 2012; Spittle, 2015) coupled with few PE-related professional development opportunities throughout their careers (Hardman & Marshall, 2006; Spittle, 2015). Indeed, research has shown that those who do not receive adequate training and possess low PE content knowledge may experience uncertainty on how to teach PE effectively (DeCorby et al., 2005; Hart, 2005; Perlman, 2013; Siedentop, 2007).

In an effort to combat insufficient training, one group that may benefit from a mentorship-oriented PE intervention is early career teachers (i.e., those with up to five years of experience; Armstrong, 2015; L. Hynnes, personal communication, September 24, 2018). It has

been noted that opportunities to support teachers may result in increased confidence for and quality of PE delivery for students (Spittle, 2015); yet there is limited data on those who have recently become certified (Perlman, 2013). Research involving newer teachers has shown that actual instruction can be the most difficult task when compared to those who are more experienced due to the high cognitive demand of teaching (Fry, 2007; Perlman, 2013). Markedly, the rate at which teachers leave the profession within the first five years – estimated at 30% – is due to factors such as demanding curricular requirements and few support resources (Henke & Zahn, 2001; Johnson et al., 2004; Reichel, 2016; St. George & Robinson, 2011). For these reasons, educators who are "early career teachers" are considered an ideal population for conducting BPN-focused research given they are at a malleable part of their career (Korthagen & Robinson, 2016; St. George & Robinson, 2011). Moreover, enhancing the connection between motivational constructs and teaching practices early on may have a significant impact on the longevity and quality of their teaching career and related experiences (Perlman, 2013); targeting this group in a DPA context at the outset of their careers may prove particularly valuable.

Limitations to and Recommendations from the Existing Literature

To date, few studies have explored teachers' DPA planning and delivery experiences (Kogon, 2017; Patton 2012; Ramcharan, 2015; Rickwood, 2015), especially in less urbanized, Northern Ontario cities like Thunder Bay. In fact, according to the 2016 Annual Report on Ontario's Publicly Funded Schools, 61% of urban/suburban elementary schools have a health and PE teacher, compared to 30% of small town/rural schools (People for Education, 2016). External PA leaders or an experienced mentor can pass on crucial PA leadership skills to teachers, especially those in the early career stage (Rickwood, 2015). Further, while some qualitative studies have been conducted to explore the perceptions of teachers in regard to DPA

(e.g., Kogon, 2017; Ramcharan, 2015; Rickwood, 2015), the interview questions have lacked theoretical underpinnings – an important inclusion when considering the feasibility properties of a study (Green, 2000). Similarly, many quantitative studies have been carried out with teachers to assess the three basic psychological needs regarding teaching in general (e.g., Evelein, Korthagen, & Brekelmans, 2008; Klassen et al., 2012), but not in a DPA-context. Overall, no studies looking at DPA from an SDT perspective exist. Thus, prioritizing qualitative data that is focused on DPA and grounded theoretically adds a unique contribution to the literature.

The low DPA (Allison et al., 2018) and childhood PA rates in general (ParticipACTION, 2018), combined with the known benefits of mentorship models in an educational context (e.g. APPLE Schools, 2018; Carlson et al., 2008; GoodLife4Kids, 2018; Kennedy et al., 2018; Perry et al., 1990), highlight the need for an innovative health promotion strategy. To date, no studies have examined how OPHEA curricula administered via a theoretically grounded, collaborative mentorship program can be used to promote DPA delivery and participation in elementary school classrooms, especially among early career teachers.

Purpose

The purpose of this pilot study was to explore the utility of a 6-week mentorship program designed to assist early career teachers with DPA delivery using OPHEA curricula. Administered by a MSc kinesiology student and applying a qualitative approach, the study explored: I) the participants' DPA engagement, practices, and program-based experiences through the lens of SDT; II) the utility of the 6-week program from structural, logistical, and experiential perspectives; and III) participants' recommendations for future DPA mentorship studies. Data collection methods included pre- and post-intervention semi-structured interviews, participation observation (i.e., field notes, tracking charts), and informal participant

communication (Atkinson, 2007). Before describing the qualitative methods in greater details, it is important to situate the researcher within the research.

Positionality

In qualitative research, the researcher is typically deemed the data collection instrument (Bourke, 2014). Thus, it is essential for the researcher to consider how his/her own biases, beliefs, cultural background (e.g., gender, race, class, socioeconomic status, educational background), and political stance may impact, shape, or inform the research process (Bourke, 2014; Kowalski et al., 2018). This act of examining one's position in a qualitative research context is referred to as *positionality* or – a term often used interchangeably – *reflexivity* (Bourke, 2014; Coghlan & Brydon-Miller, 2014). Reflexivity is a strategy used to enhance a study's trustworthiness, rigour, and validation (Kowalski et al., 2018), and consists of two parts: i) "reflecting on one's experiences with the phenomenon/sample being explored" (Kowalski et al., 2018, p. 184); and ii) "considering how one's experiences shape the research process" (Kowalski et al., 2018, p. 184). The position undertaken by the researcher has the potential to affect every phase of the research process (e.g., the format of how the question or problem is constructed, designed and conducted; how individuals are invited to participate; Coghlan & Brydon-Miller, 2014). Ultimately, the researcher should strive to be conscientious of the relationship between him/herself and the participants (Bourke, 2014; Chriseri-Stater, 1996; Pillow, 2003). The practice of *bracketing* ("a process where the researcher works to set aside their own experiences by outwardly acknowledging and recording their own experiences with the phenomenon being studied"; Kowalski et al., 2018, p. 258) has been shown to promote reflexivity. In the present study, reflexivity was practiced by the primary researcher (i.e., MSc

kinesiology student) through continuous journaling that served to outline experiences and perspectives as they unfolded throughout the research project.

For the reader, it is important to outline how my social locations have influenced the direction and development of my research. As a middle-class, average-sized, heterosexual, Caucasian, able-bodied female, I have lived a life of privilege and was not aware of these privileges until undertaking this project. Its' development was inspired by my personal experiences and love for physical activity, the outdoors, and sport growing up, and subsequent experiences as a kinesiology student. The direction was also inspired by my experience conducting an undergraduate research thesis where I formed a partnership with an elementary teacher to implement PE programming in her class. It was through my opportunities in post-secondary education that I have become more aware of how my social locations impact how I interact with those around me (and vice-versa).

As a child, I was active in the outdoors and involved in many extracurriculars throughout elementary school (e.g., softball, basketball, folk and traditional dance, grade 7/8 student representative on school council) and high school (e.g., badminton, student council). As I reflect on playing and being involved in these activities, I retrospectively appreciate the opportunities provided by the school and teachers who volunteered their time and expertise. Without these offerings through my public education, I would never have been exposed to certain areas of sport and recreation to which I have now grown a passion for pursuing recreationally (e.g., downhill skiing). More specifically, the two times I received peer-elected honours at each respective level of my education (e.g., grade 7 and grade 8 student representative on my school's council; grade 12 peer-elected female co-valedictorian) – I believe this recognition and appreciation enhanced my dedication to academia, and instilled in me the ability to take on social responsibilities. My

passion for using the skills and knowledge I've acquired to assist others through education, physical activity, and sport was ignited through these awards and related experiences and led me to pursue an honours and master's degree in kinesiology at Lakehead University.

As part of my undergraduate thesis, I became acquainted with and trained in resources from the GoodLife4Kids School (GL4K) Program; this enabled me to become a "coach" of the curricula which I delivered alongside a grade four teacher to her grade four class. What surprised me most throughout this experience was the amount of time we spent on classroom management versus engaging in the activities prepared. My own apparently seamless and enjoyable experiences with PE in elementary school were vastly different from this classroom and the challenges endured trying to engage some of these children. Known as a higher needs school, I learned that many of the students struggled with food insecurity, unstable home environments, and behavioural issues. This was nothing like I had experienced before, and I found myself reflecting on ways I might enhance my own practices of understanding, patience, and empathy when working to instill in these children what was so readily instilled in me many years ago. Moreover, upon completing the dissemination of this thesis, I also became more aware of the barriers local teachers can face with regards to PE-PA implementation (e.g., time constraints, curricular demands, lack of PE professional development opportunities) and how I might be able to use my education and background in a mutually agreeable way without appearing condescending. Trying to meet people where they are at has been a key undergraduate learning I have acquired and try to live by. This undergraduate thesis experience was vital for helping me to understand my own privileged experiences with PA/PE and how they might differ from other students from various socioeconomic and cultural backgrounds. Through the GL4K research experience and in anticipation of this MSc project, I knew I would have to consider the students'

general level of physical ability and skill, and work with the teachers to tailor activities accordingly. Over time, I have come to realize how my appearance and demeanor (e.g., educated, female, and Caucasian) could unduly influence the way information is perceived and taken in by both students and their teacher. While these are features I cannot readily change, being mindful of my language, assumptions made about knowledge and competence, and remaining culturally sensitive (e.g., asking all students for feedback and tailoring activities in a meaningful way) are practices I have worked to refine. Consequently, I have come to appreciate the role that understanding my own social locations in the classroom can have.

When it comes to building rapport with the teachers, I recognize that a degree of relatability may be present based upon our similar social locations (i.e., educators with post-secondary training; mutual interest in PE/PA). These commonalities may be influential and enhance rapport which could indirectly influence study outcomes (i.e., stronger mentorship to improve DPA delivery to students). Ultimately, I believe I have to treat all teachers as similarly as possible in order to limit potential inequities.

During my time at Lakehead, I have learned about the science of human movement and gained insight into the holistic approaches used in kinesiology from a lifespan perspective that can apply to a variety of populations. This notion of focusing not only on physical but mental health as well resonates with me on a personal level. Through my master's, I have truly come to understand how PA and exercise help me to maintain being "average-sized" and can impact (both positively and negatively) my lifestyle, dimensions of wellness, and overall well-being as a female, in particular. Coupled with acquiring and nourishing my critical, analytical, and creative thinking skills, I believe I have been equipped to make decisions based on evidence, ethics, and personal values throughout my graduate studies. I think it is important to reflect often on these

origins of information and how they might influence the way I develop and implement various components of my study and interact with teachers.

Preceding this post-graduate experience, it was my belief that I ultimately made personal choices to determine my own path in life (e.g., took out OSAP loans to be able to attend university). I worked hard for every work-related position and academic honour that I achieved. Now, I highly appreciate and recognize that I have never been explicitly denied access or opportunity because of my social locations in society for which I am fortunate and grateful. I don't think this is the case for some of the young students I've encountered through research in recent years. My research experiences to date have provided me with a newfound appreciation for how social stratification has the potential to shape our world and opportunities, for better and for worse. Overall, it is my hope to inspire students and teachers to value a lifestyle that fosters PA involvement in a way that will work for them, and to show them the benefits of a holistic approach to health (i.e., physical, mental, and emotional), and what this can offer through DPA initiatives, irrespective of what their social location may be.

Method

Study Design

A pre-experimental study design integrating qualitative methods was undertaken to understand this mentorship-based DPA program as it related to the participants' SDT-related experiences and overall utility. The ability of qualitative methods to obtain detailed, contextualized information has become recognized by researchers of all philosophical worldviews as a valued form of research, particularly where social sciences and kinesiology are concerned (Creswell, Plano-Clark, Gutmann, & Hanson, 2003; Kowalski, McHugh, Sabiston, & Ferguson, 2018).

The intervention involved 4-weeks of mentorship focused program delivery followed by a 2-week graduated period whereby the participant was encouraged to deliver all activities independently with access to the mentor when requested. According to previous research, teachers who were trained under a specialist's presence performed significantly better when integrating PA in their instruction compared to those without (Dowda et al., 2005). The duration of the intervention was selected to mirror the timeline of a previous study (Storey et al., 2015) wherein a six-week training program was implemented to explore the process of preparing school PA facilitators to work collaboratively with communities. A six-week timeframe is also commonly seen in other health-related research (e.g., psychosocial interventions examining the effects of yoga and meditation; patient empowerment programs to improve self-efficacy and attitudes toward diabetes; Anderson et al., 1995; Sivasankaran et al., 2007).

Participants

Sample Size. In line with previous education-oriented qualitative research (Kloeppel et al., 2012), it was anticipated that 10 early career elementary school teachers who were interested in enhancing their skills and knowledge regarding DPA delivery would be recruited. Given the pilot-oriented nature of the study, having a relatively small sample size was thought to enable an in-depth evaluation. Moreover, as a purposive sampling technique was utilized to target a distinct group (Thomas, Nelson, & Silverman, 2015), the sample size was limited due to specific inclusion/exclusion criteria.

Participant Inclusion/Exclusion Criteria. Teachers were included in the study if they worked full-time within the Lakehead Public School Board as an elementary school teacher. There were no set criteria based on age or gender; however, there was a limitation based on degree of teaching experience. The target group for this study was "early career elementary

teachers," meaning that teachers with up to five years' experience were included (Armstrong, 2015; L. Hynnes, personal communication, September 24, 2018). Ensuring that the teachers had a similar degree of teaching experience was important given they would be closer in proximity to their PE-related training (if any) compared to more seasoned teachers (Kloeppel et al., 2012; L. Hynnes, personal communication, September 24, 2018; Perlman, 2013). In addition, teachers must have been able to engage in physical activity safely and not have any contraindications for exercise. This was determined by the Get Active Questionnaire (GAQ; Canadian Society for Exercise Physiology, 2016; Appendix A).

Kinesiology Student Qualifications. The kinesiology student undertaking the research (R. K.) led this study in compliance with the requirements of the Master of Science in Kinesiology program at Lakehead University. As an Honours Bachelor of Kinesiology graduate, and the lead researcher of two related studies conducted previously (Kennedy et al., 2018; Kennedy & Pearson, in preparation), the MSc kinesiology student was deemed to have extensive experience reviewing, assessing, preparing, and teaching PE-and DPA-based programming. For example, training for the GL4K School Program involved extensive review of related materials provided by the GL4K Director which enabled her to become a "coach" and implement the program independently. The student also underwent a full day workshop in October 2018 entitled "OPHEA Conference 2018" in Alliston, Ontario where she attended interactive workshops pertaining to the OPHEA curriculum (OPHEA, 2018; see below for further detail).

Procedures

Participant recruitment. Upon receiving ethical approval from the Lakehead University Research Ethics Board (Appendix B) and the Lakehead Public School Board (Appendix C), purposive sampling was used for recruitment (Thomas et al., 2015). Participants were sought

through strategies including in-person promotion (e.g., staff meetings) with permission from school administrators (Appendix D); word-of-mouth; posters which were hung in local schools (Appendix E); email blasts (Appendix F); and social media. Schools and/or teachers were selected with the assistance of key stakeholders who were involved in previous projects (e.g., Kennedy et al., 2018; Kennedy & Pearson, in preparation). Snowball sampling (Thomas et al., 2015) was also used.

Upon receiving inquiries via correspondence or in person from potential participants, the MSc kinesiology student provided, through phone, email, or in-person, a brief explanation of the study, determined eligibility, and answered any questions that the individual had about involvement. If the individual was interested in participating and met all of the inclusion criteria, the MSc kinesiology student and participant determined a mutually convenient time to conduct an in-person baseline assessment.

Training/Mentorship Procedures

Pre-Intervention. As preparation for the intended study, the MSc kinesiology student participated in a full day OPHEA professional learning opportunity. The Fall 2018 OPHEA Conference (OPHEA, 2018) involved a series of training workshops with hands-on activities. The MSc kinesiology student attained the relevant DPA resources from the organization in order to assemble lesson plans and activities for the study.

Following initial screening (i.e., GAQ, Letter of Information; Appendix G) and the receipt of informed consent from the participant (Appendix H), an assent form was sent to parents/guardians (Appendix I) and also distributed to students (Appendix J) to inform them of the study details. The MSc kinesiology student then provided each participant with a demographic information form (Appendix K). This was used to collect information regarding

participant characteristics, professional development regarding PE, the presence of a PE specialist in the school environment, personal DPA initiatives, and whether OPHEA resources were used to assist with implementing DPA. Following completion of the demographic information form, the participant participated in a pre-intervention semi-structured interview (Appendix L). The purpose of the pre-interview was to glean the participants' experiences with DPA by exploring: autonomy, competence, and relatedness in relation to teaching/implementing DPA; barriers and facilitators associated with teaching/implementing DPA; and expectations pertaining to program involvement. The completion of the informed consent process, initial demographic information form, and interview took approximately 60 minutes for each participant.

Following data collection, the MSc kinesiology student and participant engaged in a *DPA Consultation* to determine current DPA strategies, PE practices, and program-related goals. Depending on the grade level that each participant taught (primary, junior, or intermediate), the MSc kinesiology student used the information obtained to assemble outside of this meeting, a tailored one-week DPA plan utilizing OPHEA resources that was implemented at the start of the following week. The types (i.e., appropriate for the respective grade level) and duration (e.g., the full 20-minutes versus multiple 5-to-10-minute activities) of the activities varied depending on the participant's preferences and anticipated schedule for the following week. Options were provided in order to enable the participant to have a choice regarding how DPA would be incorporated into the class schedule (Carlson et al., 2008; Klassen et al., 2012; Murphy & O'Leary, 2012). This specifically involved creating lessons plans using activities that are generalizable to a variety of grades (Carlson et al., 2008). The OPHEA DPA resources were designed with this transferability in mind and involved the MSc kinesiology student drawing

from the following resources: *One a Day for Active Play*; *BrainBlitz; 50 Fitness Cards*; and *50 Yoga Cards* (Appendix M).

Previous research has shown that school health facilitators and teachers' building resources together (i.e., DPA lesson plans and activity boxes) can be useful from a sustainability perspective; a DPA teaching toolkit can then be accessed in subsequent years (Storey et al., 2012). Ensuring that the consultation and resultant programming was tailored to the specific school community and participant's needs was an important consideration in this context. For the present study and to promote autonomy, the MSc kinesiology student strived to deliver clear expectations of what the weekly program would entail while promoting material ownership by the participant (Storey et al., 2012). This initial DPA Consultation took approximately 30 minutes for each participant.

Intervention. Within three days of the initial baseline data collection session and DPA Consultation, the participant and MSc kinesiology student met again to review the preliminary DPA plan created for week 1. During this time, the pair worked together to ensure that the activities were understood and agreed upon by both parties. This involved visual demonstrations from the MSc kinesiology student and provision of additional explanations/resources as requested. This meeting took approximately 30 minutes and served to determine which individual would implement the program (or parts thereof) each day.

The participant shadowed and/or worked alongside the MSc kinesiology student for the first four weeks. In order to promote and respect autonomy, the degree of involvement was up to each participant during this period. A visiting schedule was then confirmed for the week whereby the MSc kinesiology student attended on the participant's preferred days to assist with DPA implementation via modeling and providing support. The durations the MSc kinesiology

student spent in attendance were tracked by the MSc kinesiology student across participants. Following each DPA session, the MSc kinesiology student completed detailed journaling to record reflexively the engagement levels, environmental nuances, participant-related skills, and attitudes of the participant and their students. This process was then repeated for the following three weeks whereby the plan from the preceding week was used in order to enable familiarity with the curriculum while consistently incorporating new activities. For a full representation of the mentorship meeting process and curriculum development, please refer to Figure 2.

4-Week Assessment and Graduated Implementation Period. Prior to the start of the fifth week and similar to the first portion of the program, the MSc kinesiology student and participant worked to create the DPA lesson plans for weeks 5-6 on a weekly basis and contacted one another prior to the implementation of each in order to ensure the participant's comfort and satisfaction with the intended activities. However, in opposition to the first four weeks of the program, for weeks 5-6, the participant was encouraged to implement all DPA activities independently. Therefore, the final two weeks involved a weekly check-in by the MSc kinesiology student with the participant via email, telephone, or text (whichever was preferred by the participant) in order to maintain a supportive presence.

Post-Intervention. At the end of the sixth week of the intervention, the MSc kinesiology student arranged a mutually convenient time and location with each participant so that a post-intervention semi-structured interview could be completed. This interview (Appendix O) served to capture the participants' experiences with the graduated period and program overall (e.g., in line with the BPN, logistics, structure, feasibility).

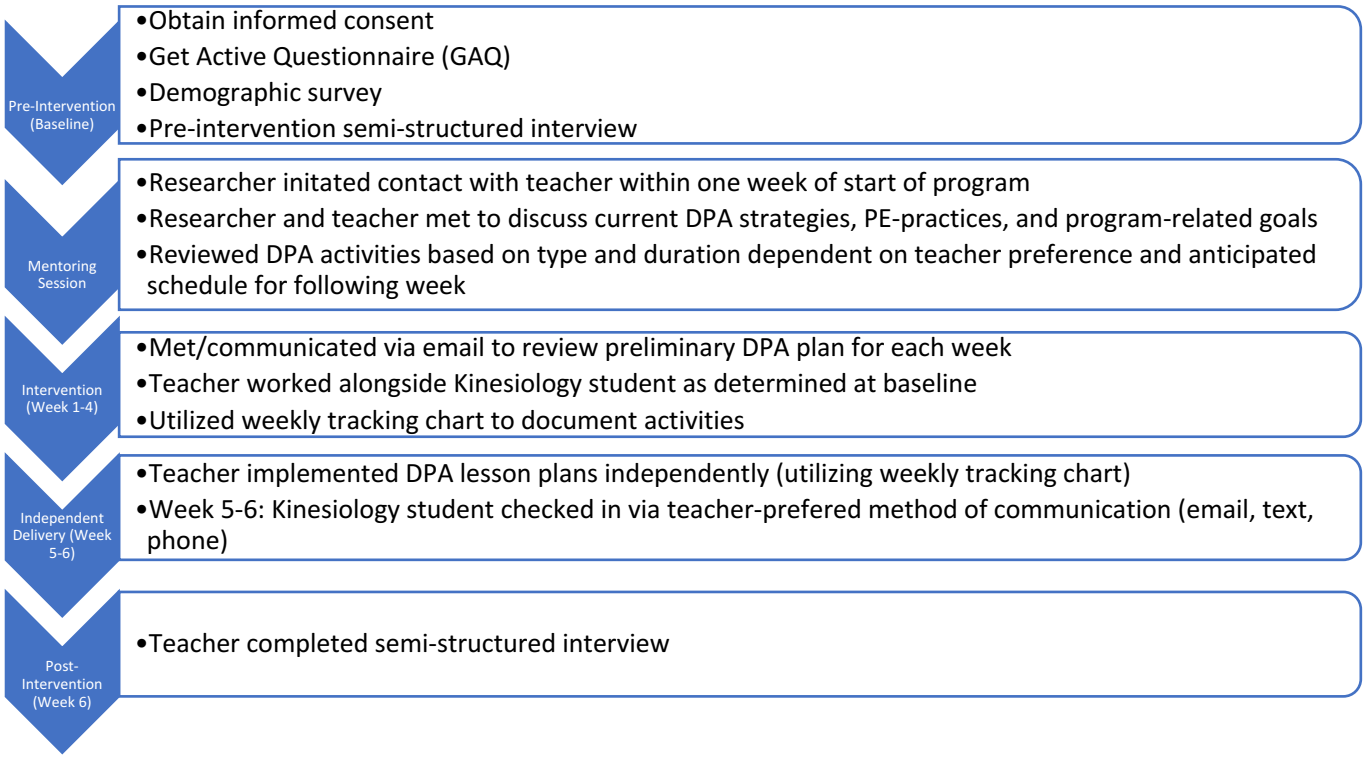

Figure 2. Mentorship process, curriculum development, and assessment procedures.

Data Collection Methods

The following three measures were used to collect information from participants pertaining to: PA and exercise participation history, personal demographics, and program adherence. The qualitative data in this study included pre- and post-intervention semi-structured interview transcripts, and journaling recorded by the MSc kinesiology student.

Get Active Questionnaire (GAQ). The participants were asked to complete the self-administered GAQ (Appendix A) developed by CSEP (2017) in order to screen individual's ability to participate in PA and exercise safely. This questionnaire enables individuals to make an informed decision pertaining to whether further advice should be sought from a health care provider/qualified exercise professional before becoming physically active.

Demographic Information. The participants were asked to complete a 13-item demographic information survey (Appendix K) with questions ascribed from a dissertation by

Spittle (2015), interview questions constructed by Ramcharan (2015), as well as questions pertaining to OPHEA resources created by the MSc kinesiology student and supervisor. The first 11 questions asked about personal demographic information (i.e., age, sex, school of employment, educational background, professional development in PE; Spittle, 2015). Then, question 12 inquired about each participant's integration of DPA with or without other academic/curricular subjects in the school environment (Ramcharan, 2015). Lastly, question 13 asked about OPHEA use and how it could be beneficial for implementing DPA.

Program Adherence. In the study by Carlson and colleagues (2008), the kinesiology/dietetic students implementing the program used web-based tracking to monitor participants' progress throughout the program. Building on these methods, adherence in the present study was monitored through the use of tracking charts (Appendix N). Instructions were provided to send the information back to the MSc kinesiology student at the end of each week. Consistent communication was maintained between the participants and MSc kinesiology student through in-person communication (i.e., daily and/or weekly onsite visits) and electronic communication networks (i.e., email, texts) to ensure that expectations were clearly defined and addressed weekly from weeks one to six in order to maintain an autonomy supportive presence for the participant. However, in order to promote autonomy to implement DPA from weeks five to six, the participants were asked to utilize DPA lesson plans compiled from previous weeks independently without the MSc kinesiology student on-site. In keeping with previous findings regarding the declining quality and quantity of PA-related lessons in the absence of an on-site facilitator (McKenzie et al., 1997), participants were encouraged to contact the researcher using their preferred communication method (e.g., email, telephone, text) at any point with questions, concerns, or to discuss support needs.

Semi-Structured Interview Guides. The two interview guides were designed to: explore participants' DPA experiences; assess the three basic psychological needs (including a scale-oriented question focused on confidence to deliver DPA); explore views on programmatic logistics including mentorship and delivery; and – as part of the post-intervention interview only – gather insights into future avenues for improving the intervention (Creswell & Clark, 2007). Questions were ascribed and modified from dissertation studies conducted by Buns (2010), Brubaker (2011), Harvey (2017), and Ramcharan (2015; Appendices L and O). The questions in the pre-intervention interview were categorized according to: *DPA Attitudes and School Culture; Current DPA Practices and Program Goals; BPNT and DPA (Competence, Autonomy, Relatedness); Kinesiology Student Involvement and DPA;* and *Additional Comments* (Appendix L). The questions in the post-intervention interview were categorized similarly with the addition of *DPA Program Experience and Future Recommendations* (Appendix O).

Field Observations*.* To explore the participants' understanding and dynamics of the DPA sessions and mentorship program, data collection began by conducting active participation observation (i.e., establishing rapport with individuals in the school/classroom community and immersing in daily physical activities; Angrosino, 2005; Borduas, 2017). This was achieved by the MSc kinesiology student transitioning between various roles, including: talking to the students/participant; taking part in activities during the lesson and observing the participant's and students' (inter)actions from inside and outside the activity as an observer in the "natural setting" (Angrosino, 2005; Borduas, 2017; Gerdin, 2014). The goal as an active participant became to achieve subjective immersion within the culture of the classrooms (Angrosino, 2005; Borduas, 2017; Wolcott, 1995). Therefore, the MSc kinesiology student introduced herself on the first day and explained the reasons why she was in their classroom. Deemed a vital part of qualitative

research, developing rapport with the participants can be achieved by communicating to the group (i.e., the participant and their students) the worthiness of the study (Borduas, 2017; Fitzpatrick, 2011; Gard & Meyenn, 2000; Gerdin, 2014; Swain, 2000, 2003). In letting the students know that the MSc kinesiology student was there to do research on supporting their teacher to implement DPA and how to make instructional time better for students within Thunder Bay, it was hoped that the students would feel comfortable with the MSc kinesiology student's presence in the classroom (Angrosino, 2005; Borduas, 2017). As the study progressed over the four weeks, the observations specifically examined the participants' and their students' interactions, engagement levels, environmental nuances, participant-related skills, and attitudes.

After every session, detailed field notes were completed on the behaviours, actions, and communication between participants and students during the observation time. This journaling allowed for the perceptions and responses of the individual interviews to be confirmed as a form of triangulation of the data sources.

Data Analysis

Quantitative Data. Visual inspection, means, and frequencies were used to analyze the participants' demographic and confidence score data (e.g., trends, commonalities, and differences amongst participants).

Qualitative Data. Qualitative data consisted of transcripts from the semi-structured interviews and journaling notes. The computer-assisted qualitative data analysis software, ATLAS.ti, was used to conduct thematic analysis on the pre- and post-intervention semi-structured interviews. The interviews were recorded via an electronic audio-recorder. Data were transcribed verbatim and analyzed using deductive content analysis: a process involving an existing framework or starting list of categories (i.e., theoretical constructs) that researchers use

to code the data within the transcripts (Kowalski et al., 2018). Deductive content analysis involves moving from general to more specific categories and is operationalized on the basis of previous knowledge of a theory or model (Burns & Grove, 2005). For the present study, the researcher started with generalized information relating to SDT (i.e., BPN) and used those theoretical constructs to explore a specific phenomenon (e.g., experiences with the teacher-kinesiology student mentorship and program). By using a repeated measures study design, potential changes to responses from pre- to post-intervention were explored with a view to understand the utility of the program over time from a qualitative perspective (Elo & Kyngas, 2008; van Zandvoort, Irwin, & Morrow, 2009).

The process of deductive analysis involves three main phases: preparation, organizing, and reporting (Elo & Kyngas, 2008). To start, the preparation phase begins with selecting the unit of analysis, which can be either a letter, word, sentence, portion of pages or words, or a theme (Cavanagh, 1997; Elo & Kyngas, 2008; Guthrie, Yongvanich, & Ricceri, 2004; McCain 1988; Polit & Beck, 2004; Robson, 1993). The next step is the organization phase which involved the development of a categorization matrix to code the data (Elo & Kyngas, 2008). Once the matrix was developed, the data were reviewed by the MSc kinesiology student and her supervisor for content and coded in line with the identified categories (Elo & Kyngas, 2008; Polit & Beck, 2004). The three BPN of autonomy, competence, and relatedness were the broad categories within the matrix and used to guide the analytical process (Harvey, 2017). To achieve this, participants' quotes were placed into sub-categories within the three categories (e.g., facilitators and barriers; Elo & Kyngas, 2008; Harvey, 2017). The concluding step in this phase involved the MSc kinesiology student and her supervisor inductively identifying themes and

determining which ones most accurately captured the participants' experiences in line with SDT's BPN (Harvey, 2017).

Trustworthiness of the data. To enhance trustworthiness of the research findings, four aspects of trustworthiness were considered throughout the development, implementation, and evaluation phases (Kowalski et al., 2018). First, the *truth value* – also referred to as to the study's credibility – is defined as, "the extent to which the findings and interpretations in a qualitative study are reflective of the participants' meanings and experiences" (Kowlaski et al., 2018, p. 179). Credibility was achieved through triangulation of the data (e.g., interview transcripts, field notes, observations, and tracking charts; Lincoln & Guba, 1985). Including participant quotations when reporting findings as well as making comparisons to previous research were also used to enhance credibility (Thomas et al., 2015; Thomas, 2003).

Second, *applicability* (transferability) is defined as, "the extent to which the findings of a particular study may be applied to other contexts or with other participants" (Kowalski et al., 2018, p. 179). It is important to note that in qualitative research, generalizations are not the goal, as the true intent is to connect the phenomena to the context being explored (e.g., school environments; Kowalski et al., 2018). Applicability was achieved via the connections discussed in relation to the current findings and other similar studies. Third, the dependability of the study, referred to as *consistency*, focuses on finding commonalities that would emerge if a study were replicated under similar circumstances (Kowalski et al., 2018). As this is a pilot study, it is important for the protocols to be dependable for future researchers (e.g., to replicate, implement, and/or expand the components of the program that were deemed beneficial for schools, teachers, and students). Thus, thorough documentation of methodologies and any modifications to protocols throughout implementation were tracked. Limitations and strengths that emerged

regarding protocols/instrumentation have also been documented in detail to assist with replicability thereby enhancing consistency of the program structure/implementation.

Finally, *neutrality* refers to "the degree to which the findings of a study are based on the participants' meanings and experiences, and not merely a function of researchers' biases, motivations, interests, and perspectives" (Kowalski et al., 2018, p. 179). The researcher practiced reflexivity (i.e., the researcher's "ways that her or his own biases, values, experiences, and background can inform the study"; Kowalski et al., 2018, p. 182) via journaling as a process of self-reflection: an important consideration when conducting qualitative studies (Kowalski et al., 2018). Hence, the researcher considered and sought to fully understand how her own meanings and experiences played a role in the meaning-making process when conducting and analyzing the semi-structured interviews (Kowalski et al., 2018). This component was also addressed by having the MSc kinesiology student and supervisor complete the analysis process separately. They then met to compare findings to ensure interpretations of the participants' data were not influenced by the researchers' biases and were representative of the information participants provided (Elo et al., 2014).

Results

The MSc kinesiology student recruited from May to June, and September to October 2019 with the goal of enrolling 10 teachers. In total, three early career teachers volunteered to participate (one in June, and two in September) and all completed the entire intervention during Fall, 2019. Anecdotally, requests from administrators proved to be the most successful recruitment method as all participants mentioned that their principal had sent them the study details as an opportunity for DPA professional development.

All assessments were conducted at the respective participants' schools at a mutually convenient time during school hours (i.e., 9:00am-4:00pm). The baseline sessions took approximately 35-45 minutes, while the post-intervention sessions took 30-108 minutes to complete. Administration of the four-week portion of the intervention occurred from September to October 2019 for participant one (5 days per week for 20 minutes per session), and October to November 2019 for participants two and three (each for 2 days per week for 20 minutes per session). Three sessions had to be cancelled due to unforeseen circumstances (e.g., a supply teacher was leading the class) or rescheduled due to holiday closures at the school, resulting in a total of 30 DPA class sessions being completed (Participant 1 = 7; Participant 2 = 16; Participant 3 = 7).

Participant Demographics

All participants completed an information form at baseline to gather details pertaining to: personal demographics (e.g., age, sex, educational background, professional development in DPA); DPA integration with other curricular subjects; and OPHEA use regarding DPA. Refer to Table 1 for a visual summary of descriptive demographic information.

Table 1

Participant Demographic Information at Baseline

Variable	Range (mean)	Frequency (%)
Age (years)	25 – 38 (30)	-
Gender		
Female	-	3 (100)
Years Teaching		
2 years	-	1 (33.33)
3 years	-	2 (66.67)
Grade Currently Teaching		
Grade 2	2 – 8	1 (33.33)
Grade 3 / 4		1 (33.33)
Grade 7 / 8		1 (33.33)
Hours of PE Scheduled/Week	2 – 3	2 (66.67)
	4 – 5	1 (33.33)
Educational Background		
BA French (minor Social Science)	-	1 (33.33)
BA Hons French	-	1 (33.33)
BSc Hons Biology; MSc Biochemistry	-	1 (33.33)
PE Taken as a Teachable Subject		
Yes	-	1 (33.33)
No	-	2 (66.67)
PE Specialist Residing at Current School		
Yes	-	0 (0.00)
No	-	3 (100)
Integration of Moderate PA into Non-PE Classes		
Rarely	-	1 (33.33)
Sometimes	-	2 (66.67)
Professional Development Taken for DPA		
Yes	-	0 (0.00)
No	-	3 (100)
Current DPA/Curricular Practices		
Integrate DPA with other curricula	-	2 (66.67)
Provide DPA on its own	-	1 (33.33)
Utilization of OPHEA resources for DPA		
Yes	-	3 (100)
No	-	-
Reasons for Utilizing OPHEA for DPA	• "Help guide health lessons, as well as some PE units" • "Online activities" • "Expectations from curriculum documents; make sure I'm covering necessary sports/skills"	

Other Resources Utilized for DPA	• *Pinterest*, as a way to "research other games to practice skills found/outlined in PE curriculum"; "games from other teachers – mostly cooperative games"

Findings

In line with the study purposes, several themes and subthemes were derived from the data and categorized into two (pre-intervention) and three main parts (post-intervention). At pre-intervention, Part I involved examining the barriers and facilitators to DPA and PE engagement and practices through a BPN lens (i.e., autonomy, competence, relatedness); Part II related to any foreseeable/perceived barriers and facilitators that could inhibit/foster participants in achieving study-related goals pertaining to program involvement. At post-intervention, Part I similarly involved exploring the barriers and facilitators to DPA and PE engagement and practices through a BPN lens; Part II related to the challenges and benefits experienced regarding program feasibility and logistics; and Part III included recommendations for future DPA- and PE-oriented research in this context. It is important to note that for Part I, some of the themes/subthemes could have been associated with more than one psychological need. However, given the MSc kinesiology student's familiarity with the data, participants, and ongoing consultations with the supervisor, themes/subthemes were placed strategically to best represent the context from which the participants were speaking. In addition, themes and subthemes were deemed salient if at least two of the three participants noted the respective point on more than one occasion.

In total, 32 main themes emerged across both time points which represented barriers and facilitators to DPA and PE engagement and practices through a BPN lens (i.e., Part I) and perceived barriers and facilitators that could inhibit/foster participants in achieving study-related goals (i.e., Part II). Future recommendations were also made following the intervention which

included three common suggestions (i.e., Part III). The most notable themes as described by the participants that emerged following completion of the program focused on the importance and value of: *Prioritizing DPA* [Autonomy; post]; *Role Modeling* [Competence; pre and post]*; Collaborating with Colleagues* [Relatedness; pre and post]; including *Variety* when doing PE and DPA [Program-related Goals; pre]; and *Enhanced DPA Toolkit* [Program-related Outcomes; post]. Future recommendations for research in this context highlighted: involving *Kinesiology Students for PE-PA related Professional Development; Kinesiology Mentor-Student Benefits* in a PA context*;* and logistical suggestions regarding program *Resources and Recruitment*. Figure 3 provides a visual representation of the thematic analysis categories for pre- and post-intervention and detailed descriptions for each are provided below.

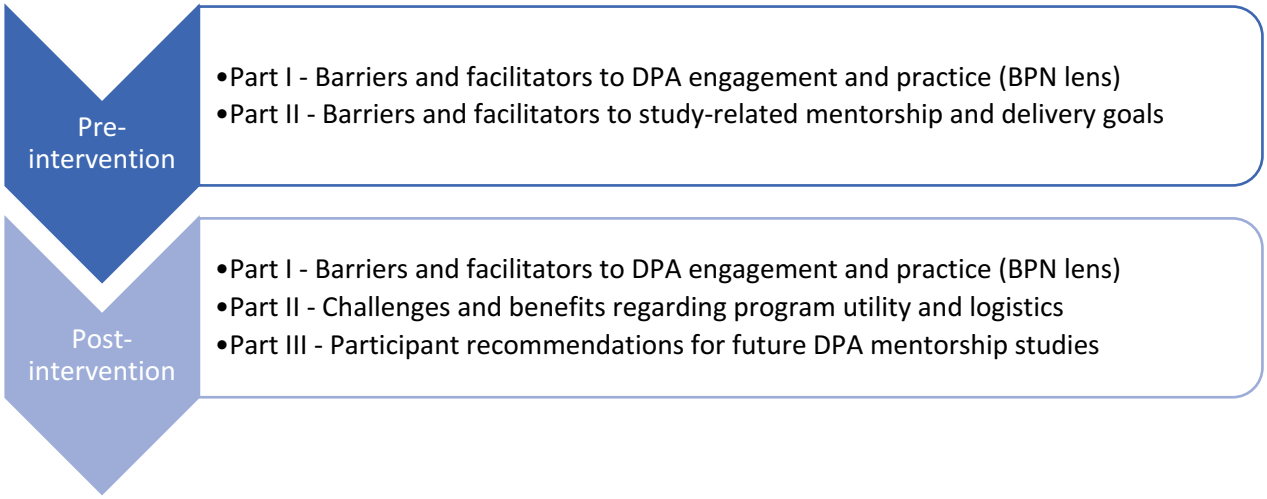

Figure 3. Pre- to Post-Intervention Semi-Structured Interview Thematic Analysis Categories.

Pre-Intervention Thematic Analysis: Part I

Several themes (*n*=13) and associated subthemes (*n*=14) emerged with regards to the barriers (*Scheduling [limited gym availability; prioritizing other subjects]; Class Structure [space and size]; Lack of Training in PE/PA [lack of resource knowledge]; Lack of Personal Exposure to PA-related Skills; Teacher-Student Connection [age-related behaviour/attitude]*)

and facilitators (*Modifiable Classroom Schedule; Personal PA Values; Variety; Foundational Activities; Role Modeling [teacher level; student level]; A Focus on Student Skills/Strategies [promote self-awareness]; Administration/Colleague Support [resources available upon request; sharing ideas with colleagues]; and Teacher-Student Relationships [ability to read students; facilitating student "buy-in;" variety; inclusivity*) to DPA engagement and practice. Data were viewed using a BPN lens and categorized accordingly. An overview has been provided below in Table 2.

Table 2

Pre-Intervention Barriers and Facilitators to DPA Engagement and Practice (BPN Lens)

BARRIERS	FACILITATORS
AUTONOMY (↓ Sense of choice) Scheduling • Limited gym availability • Prioritizing other subjects Class Structure • Space and size	**AUTONOMY (↑ Sense of choice)** Modifiable Classroom Schedule Personal PA Values Variety
COMPETENCE (↓ Confidence in ability) Lack of Training in PE/PA • Lack of resource knowledge Lack of Personal Exposure to PA-related Skills	**COMPETENCE (↑ Confidence in ability)** Foundational Activities Role Modeling • Teacher level • Student level A Focus on Student Skills/Strategies • Promote self-awareness
RELATEDNESS (↓ Connection with others) Teacher-Student Connection • Age-related behaviour/attitude	**RELATEDNESS (↑ Connection with others)** Administration/Colleague Support • Resources available upon request • Sharing ideas with colleagues Teacher-Student Relationships • Ability to read students • Facilitating student "buy-in" • Variety • Inclusivity

Autonomy

Barriers to autonomy for DPA engagement and practice. As indicated previously, autonomy refers to individuals acting in a way that is consistent with their self-initiating actions as opposed to being controlled by another individual (Deci & Ryan, 2000). Two recurrent themes that were discussed in terms of limiting the participants sense of volition or being out of their control pertaining to DPA engagement were: *Scheduling* (e.g., limited gym availability, prioritizing other subjects); and *Class Structure* (e.g., space and size). Specifically, two participants identified that restrictive gymnasium allocation for all classes in the school posed a barrier to frequent, daily access to this space. Similarly, prioritizing of other subjects such as math and reading during the instructional day were associated with constraints in allotting time for PA in the classroom. Coupled with these challenges, two participants also expressed that limited space (i.e., small classroom size) as well as larger number of students per class were often barriers for teachers seeking to implement PA within classrooms. Refer to Table 3 for representative quotes.

Table 3

Pre-Intervention Barriers to Participants' Autonomy for DPA Engagement and Practice

Scheduling
Limited Gym Availability • "Everyone was okay with us having those extra gym periods, whereas some of the **other classes don't have as much**." *(Participant 2)* • "It would be lovely **if I could have gym time every day**; that would be the best!" *(Participant 3)* **Prioritizing Other Subjects** • "**We have to make time.** It's not a question of do I have time, but more so, making time." *(Participant 1)* • "[J]ust acknowledging that it [DPA] is a priority in the whole curriculum, rather than putting it [aside] **and worrying about other curriculum expectations that you need to cover**..." *(Participant 1)* • "[A]nd **just all the other things that we have to get through**, you know?" *(Participant 3)* • "…we have to meet physical education curriculum expectations, but we also have to meet expectations for all the other subjects. So, it gets … **time consuming**." *(Participant 3)*
Class Structure
Space and Size • "[I]t can be **limited with the amount of space** … our gymnasium only accommodates two classes at one point in time. Noise levels … in the classroom; as you can see, **this classroom is quite small, so it can be hard to deliver a DPA lesson here**." *(Participant 1)* • "The amount of space that we have in here [is limiting] … **Or, lack of space**." *(Participant 3)* • "[W]**e have such limited gym space … lots of teachers also have a ton of kids in their class** … some of the older grades have, like, 30 kids in a class…We all make that joke at PD days all the time … **'Like, where do we go?' Because there were some classrooms – literally, they like made a classroom out of a piece of the hallway down there last year.**" *(Participant 3)*

Facilitators to autonomy for DPA engagement and practice. Alternatively, participants commonly discussed three main factors that could be viewed as facilitating feelings of control over their DPA practices. These included: *A Modifiable Classroom Schedule*; *Personal PA Values*; and *Variety*. All participants expressed that they appreciated the ability to be flexible with regards to their personal classroom schedules. Each participant spoke to her personal views on and experiences with PA in general, and how this value and knowledge can be

used to enhance her volition to include time for DPA in the classroom schedule – especially given the benefits associated with movement for students. The notion of choice and having a variety of activities available for the students that catered to their interests was also identified by participants as important for promoting a sense of choice. Refer to Table 4 for representative quotes.

Table 4

Pre-Intervention Facilitators to Participants Autonomy for DPA Engagement and Practice

Modifiable Classroom Schedule
• "Lots of control [helps me to do DPA]. So, I have a very specific gym time booked, but ultimately, **we can do DPA whenever**." *(Participant 2)* • "**I'm fairly flexible with my schedule and the students seem to be okay with that; they respond well** … if we need to, I can change things, or add things in and it's not a huge issue." *(Participant 2)* • "**[W]e might have to … change my schedule with the kids around sometimes, but…that's not a big thing**." *(Participant 3)*
Personal PA Values
• "I've mostly just focused on using OPHEA and **my own personal background knowledge** [when doing DPA]." *(Participant 1)* • "I think it's essential for kids…it's important that they not sit for too long… As humans, I don't think we're meant to sit for long periods of time; especially when they're…young, like our students are. **I think movement is really important to keeping their brains engaged and for healthy bodies because, especially with our group of kids, they go home, and they don't necessarily get outside…I spend a lot of time talking about [personal PA values and human anatomy knowledge] that with them**. Because that's personally how I look at physical activity: it's a whole body, kind of holistic thing." *(Participant 2)* • **"I do think physical activity is important**, but…I don't think physical activity is the only thing that matters." *(Participant 3)*
Variety
• "[H]**aving kids explore different domains of physical activity**. Uhm, 'cause every human being is different in the way it moves, and the body, the way it moves, and the way it functions. So, **we're all going to have different strengths and weaknesses in the physical movements** that we do. Uhm, so…really, **just providing variety [is an effective characteristic of DPA]**, I'd say." *(Participant 1)* • "Uh, choice just means more access to … **more kinds of resources, and more options, right?**" *(Participant 2)* • "I wanna be able to …**choose activities that my students are interested in and responding to**. So, I need to be able to have **a lot of choice**." *(Participant 2)*

Competence

Barriers to competence for DPA engagement and practice. Competence is reflected in an individual's desire to feel effective in carrying out a task as this facilitates goal attainment (Deci & Ryan, 2000). Two recurrent themes that could be viewed as hindering participant competence in this regard were: *Lack of Training in PE/PA* (e.g., lack of resource knowledge); and *Lack of Personal Exposure to PA-related Skills*. Specifically, two participants noted the absence of valuable PE/PA-related training during teacher's college and/or professional development opportunities for PE/PA offered by their respective school/board. In addition, participants stated that it is often challenging to seek out PA-oriented resources; that is, not having the knowledge of where to begin looking for such information. Relatedly, two participants also spoke directly to the lack of confidence they feel with regards to implementing new resources/activities which, in turn, impedes their ability to offer quality DPA; their own limited PA- and PE-related experiences, skills, and capabilities were highlighted in this regard. Refer to Table 5 for representative quotes.

Table 5

Pre-Intervention Barriers to Participants Competence for DPA Engagement and Practice

Lack of Training in PE/PA
<u>Lack of Resource Knowledge</u> • "So, I think DPA in a whole, **sometimes we get stuck in our ruts in what we use**… 'Cause there's lots of teachers across the city who just do the same thing. And it can get pretty monotonous for the kids…" *(Participant 2)* • "**I need some more ideas for how I can get them engaged**; both in the gym and in the classroom." *(Participant 2)* • "So, I only took French and Social Sciences. So, when I got…a job in an elementary school, **I had absolutely no…like, resources, or awareness of how to teach phys-ed; and … I would guess that a lot of teachers are in the same boat as me, in that phys-ed is not a super comfortable subject for them**." *(Participant 3)* • "I know that people do [DPA] things here and there, but **it's more co-operative games**. **I wouldn't say that the emphasis is on physical education** or, like, physical activity necessarily." *(Participant 3)*
Lack of Personal Exposure to PA-related Skills
• "I'm by no means an expert… usually it's [feeling less competent] when I'm trying to do something that I don't really understand… [or] have never done myself, personally … **So, if I don't understand how a game is played fully, then I have a hard time with that**." *(Participant 2)* • "**I do worry that my lack of confidence in phys-ed…negatively affects them**." *(Participant 3)*

Facilitators to competence for DPA engagement and practice. Alternatively, participants commonly discussed three main themes that could be viewed as facilitators to competence in relation to DPA engagement. These included: *Foundational Activities*; *Role Modeling* (e.g., teacher level; student level); and *A Focus on Student Skills/Strategies* (e.g., promote self-awareness). Two participants spoke often about their frequent use of cooperative games for students. Through repetition, their comfort with delivering these familiar, foundational activities increased over time. Two participants noted how role modeling (i.e., observing others including their colleagues or on-line resources) was important for fostering competence to engage in PA and live a healthy lifestyle; this applied to both themselves and their students. For example, one participant elaborated on how she tries to practice what she preaches, making the conscious effort to show her students that she eats a healthy lunch or cycles to school to reduce

her carbon footprint. With regards to student skills and strategies, all participants noted how focusing on the students' self-awareness about movement was important for enhancing their competence to engage in PA. Specifically, each participant noted strategies and language they use to promote self-awareness via encouraging character-building behaviour/skills within students. For example, focusing on skills versus winning; encouraging students to practice often to improve their PA-related skills; and working with students to facilitate a personal link to PA (e.g., health). Refer to Table 6 for representative quotes.

Table 6

Pre-Intervention Facilitators to Participants Competence for DPA Engagement and Practice

Foundational Activities
• "The **more often I play a game with them**, the **more comfortable** I get with it, and the **better I understand any changes I can make to better meet my students' needs**." *(Participant 2)* • "[I] already have, uhm, **things in place to play community-based games together**." *(Participant 3)*
Role Modeling
Teacher Level • "Online resources is a big one that I use … the OPHEA website. I also use YouTube a lot. So, **there's quite a few other educators … from … Canada and the States that have really good, uh, videos of the different games**." *(Participant 2)* • "[S]ome of the teachers who don't teach phys-ed at all, they-they wanna do more phys-ed-based things ... **So, I've had other classes come to [the] gym with me to observe me… And I teach two classes at once, while the other teacher sort of facilitates** …" *(Participant 3)* **Student Level** • "I would say **just being that role model [is important for demonstrating personal values] because students really do lead by example** …just showing that physical activity is an important component to your overall well-being. Uhm, eating healthy food I think is a really big one. **I mean they're always curious to see what you're eating**." *(Participant 1)* • "[E]ven **cross-curricular wise [I try to integrate PA]**. In science, we've been talking about your carbon footprint, and how we can reduce our carbon footprints. And we talked about walking to school … or carpooling. And we also talked about bicycling… So, as of **last week I started cycling to set that example… They see me with my bike helmet**." *(Participant 1)* • "I'm by no means an expert. Uhm, but I, I like to think that I'm a pretty positive person and that's how I get the kids participating … I'm always positive and … **always participating with them**. So, **I think showing them that I can do it too, is a big part of having them willing to participate… Seeing as I'm supposed to be the leader**." *(Participant 2)* • "**Your coach or your teacher, or your whoever is leading you …is who you're looking at, and who you're ready to listen to**." *(Participant 3)*
A Focus on Student Skills/Strategies
Promote Self-Awareness • "And, really have the students understand that it's not necessarily all about being the best at that skill, or being the winner, but **understand that it's about you having…a starting point and overcoming that to progress and become better in that skill set**." *(Participant 1)* • "[B]**eing a good leader**, uhm, **a good team member, being encouraging, not-not showing any kind of anger, frustration, or discouraging comments towards your**

teammates or other students in the class [are part of an effective PE class]." *(Participant 1)*

- "I spend a lot of time talking about, like, the anatomy of the human body, and why it's important that we, uhm, get our heart rates up and we do this … **not just because somebody told me I have to do it. It's for their own health and it's their full body health…**" *(Participant 2)*
- "**[It's ok if] I'm not confident in it, but we're trying our best…And we're having fun**. And if someone's not being nice to you when you're trying your best then that's not yours to worry about." *(Participant 3)*
- "So, uhm, **not just skill building, but also with a purpose** like, 'Okay, are we calming down? Focusing on our breathing? **Or are we working on social skills, or are we working on…physical comfort?**'" *(Participant 3)*

Relatedness

Barriers to relatedness for DPA engagement and practice. Relatedness refers to peoples' need to feel connected, and to care for and be cared about by others without the presence of ulterior motives (Deci & Ryan, 2000). One recurrent theme that could be viewed as detracting from relatedness regarding DPA engagement was: *Teacher-Student Connection* (e.g., age-related behaviour/attitudes). Specifically, all participants noted how age – namely older students who are (close to) entering puberty – was the main barrier to student engagement/ participation during DPA or PE. For example, one participant mentioned how student attitudes at the intermediate level negatively impacted willingness to participate in exercise (e.g., activities that caused them to sweat). These attitudes subsequently impacted the connection experienced between the teacher and student. Refer to Table 7 for representative quotes.

Table 7

Pre-Intervention Barriers to Participants' Relatedness for DPA Engagement and Practice

Teacher-Student Connection
<u>Age-related Behaviour/Attitude</u> • "[L]ast year, I found myself **in a grade seven PE class and I really struggled**." *(Participant 1)* • "Because they're at this…grade seven/eight age…**they're in that weird physical transition period where they don't really want to get really active**. They don't want to get sweaty ... So, **that's probably my biggest barrier is getting them engaged and participating**." *(Participant 2)* • "[T]hey're [the students] not just willing to do whatever I ***Chuckles*** whatever I ask them to do [regarding PA] …They're pretty particular about … **refusing to do something if they decide they don't like it**." *(Participant 2)* • "[W]hen you have an older grade, **you want to do DPA so that they're motivated and focused, but you have to motivate them first to do the DPA.**" *(Participant 3)*

Facilitators to relatedness for DPA engagement and practice. Participants discussed two main themes that could be viewed as fostering their connections with others to engage the students in DPA. These included: *Administration/Colleague Support* (e.g., resources available upon request; sharing ideas with colleagues); and *Teacher-Student Relationships* (e.g., ability to read students; facilitating student "buy-in"; variety; and inclusivity). Two participants spoke to how their administrators supported them by acquiring equipment or materials that they requested for the school year to enable planned lessons and activities. All participants noted how they would collaborate with their colleagues to share effective or fun activities to do with their classes. In particular, one participant mentioned how she would share ideas with educators for similar grade levels given the proximity in skill to her own students. With regards to teacher-student relationships, two participants spoke to how their ability to read students fostered connections when considering DPA participation. Specifically, one participant noted how she can tell when her students need movement to heighten energy levels. Facilitating student buy-in for DPA was also mentioned as an avenue to improve connections with students. Two

participants described how using DPA as an incentive following a lesson, coupled with integrating student interest and enjoyment of different activities, encourages participation. Giving the students a voice and open communication were important facets of this subtheme. For example, one participant mentioned that the majority of her students showed an interest in gymnastics previously which led them to pursue related fieldtrips and engage in activities that fostered those interests. This open communication enabled the participant to discern student likes and dislikes, as well as enhance the variety of the PA-related lessons and activities offered based on student enjoyment. All participants valued inclusivity and discussed its importance in fostering connections with the students when engaging in PA. One participant mentioned promoting sportsmanship and being a good teammate as an avenue to encourage inclusivity among her students. Another participant focused on how an activity should have modifiers to enable all skill levels and abilities. Specifically, this participant commented on how she tries to avoid games that include sedentary components (e.g., being tagged out equated to sitting out) to ensure that everyone has equal opportunity to engage in movement. Refer to Table 8 for representative quotes.

Table 8

Pre-Intervention Facilitators to Participant's Relatedness for DPA Engagement and Practice

Administration/Colleague Support
Resources Available Upon Request • "At the beginning of each year, they [administrators] ask us what we might need, uh, based on what we were planning or intending to do in terms of units, uh, for physical education." *(Participant 1)* • "[T]hen **when we need new equipment in the gym, the last year administrator had no problem ordering us what she could**." *(Participant 2)* **Sharing Ideas with Colleagues** • "I've **known in the past, for teachers to join classes together and do coop-cooperative games with another class**: team-building, things like that. Uhm, and then also just **collaborative planning**." *(Participant 1)* • "[W]**hen we find a game or activity that our class likes, usually we'll share it with each other, because we all have similar issues in our phys-ed class**. So ... if I find an activity that works really well, I definitely share it … with the five-six class because they're more similar to my group of kids, as opposed to like, the JKs." *(Participant 2)* • "[**W]e share games and…if I find something that works well, I'll share it with them.** Uhm, and that's true for-especially up here, upstairs: we're all kindergarten to grade three… teachers…L**ike, if we use something that works well**, or if-if we see that another teacher is like…really killing it in one subject – including phys-ed… **we might just be like, 'Hey, what are you doing over here? What're you using?'**" *(Participant 3)*
Teacher-Student Relationships
Ability to Read Students • "I take them to the gym every day. So, I kind of make that my DPA. But, having said that, **if I see them getting antsy** … if they need to, they get up and they walk around. **We have a big space, so I will, uhm, use it as a cue to try to get them to do activities**." *(Participant 2)* • "So, **I have a good idea of whether they actually enjoy it; they're not just humouring me. They won't do that…** They'll do it maybe once, but twice: they won't … So, they don't humour by trying to do things that, uh, they don't…see value in, or find fun, so." *(Participant 2)* • "Like, the **kids are ready to be active any time**, which is like, that's along with the age as well, too, you know?" *(Participant 3)* **Facilitating Student Buy-in** • "So, it **[DPA] helps them develop a relationship also with you**, and learn to like you, and appreciate those moments when they do get DPA … and **it motivates them to work harder knowing that they'll have that little extra time to do something fun and active at the end of whatever we're doing**." *(Participant 1)* • "They tell me if they don't like an activity. They tell me if they want to play something different, and I'm always open to suggestions – and I tell them that. **Like, if you don't want to play this, that's fine – but you have to give me suggestions**." *(Participant 2)* • "I believe **students do have to like you in order to learn from you**." *(Participant 1)* • "[T]**hey are able to communicate with me** whether they like something or not." *(Participant 2)*

- "**See what their interests are [when planning DPA], and base your planning around that**. I mean, last year – for example – I had many students that were really interested in gymnastics. So, we started a little gymnastics and yoga unit in gym. And then we carried through to bringing them on a fieldtrip to Body Mind Centre; they got to experience some Zumba, some yoga… **Just really following the lead of the students and where their passion…goes.**" *(Participant 1)*

Variety

- "**Providing variety…giving the kids the option**; always like, they love to have a voice as well... So, focus on student voice." *(Participant 1)*
- "So, like we're not just stopping 'cause you don't wanna play this. **We need to have an alternative, so**. They're pretty good at communicating that to me. And I try to, uhm, incorporate everyone's-'cause, obviously they all have different preferences… when it comes to-uh, sports, or the games we play. **So, I try to find a balance between everyone's likes and dislikes**." *(Participant 2)*

Inclusivity

- "[A]s well as **being a good leader**, [I try to teach them to be] **a good team member, being encouraging, not-not showing any kind of anger, frustration, or discouraging comments towards your teammates or other students in the class**." *(Participant 1)*
- "**That it's [DPA] inclusive, and that it's serving its purpose**; so, the purpose of DPA is that they're getting physically active, so. **I don't like choosing games, for example, where somebody's out right away, and then they just sit.** So, I try to avoid games like that a lot because **then they're not all getting that exposure equally."** *(Participant 2)*
- "Uhm, just making sure whatever activity we choose, **has modifiers that allow everyone to access it**." *(Participant 2)*
- "And making sure that **everyone's safe and participating**, and **feels comfortable**, and…**inclusion, you know?**" *(Participant 3)*

Pre-Intervention Thematic Analysis: Part II

Some themes (*n*=3) and subthemes (*n*=4) did emerge with regards to foreseeable or perceived facilitators that could foster participants in the achievement of their study-related goals pertaining to program involvement (*Enhanced Student Engagement; Variety; Expectations of a Kinesiology Student Mentor: tailoring to student capabilities, resource knowledge and enthusiasm of kinesiology student, collaboration*); no themes pertaining to barriers and program-related goal achievement were observed. A thematic overview has been provided in Table 9.

Table 9

Pre-Intervention Program-related Goals

BARRIERS	FACILITATORS
N/A	Enhanced Student Engagement Variety Expectations of a Kinesiology Student Mentor • Tailoring to student capabilities • Resource knowledge and enthusiasm of kinesiology student • Collaboration

Barriers to Program-related Goals

For Part II, participants did not make mention of any potential barriers to program involvement and/or goal achievement.

Facilitators to Program-related Goals

Participants discussed three main themes (with associated subthemes) that they hoped or expected could facilitate the achievement of their overarching program-related goal which was to become more proficient in DPA delivery. These included: *Enhanced Student Engagement*; *Variety*; and *Expectations of a Kinesiology Student Mentor* (e.g., tailoring to student capabilities; resource knowledge and enthusiasm of kinesiology student; and collaboration).

All participants noted enhancing student PA engagement as a reason for program involvement. Specifically, participants spoke to goals related to provoking students' passion for PA; promoting the value of investing in their well-being through DPA; extending engagement within and outside of the classroom; and encouraging students to try their best, be good teammates, and have fun regardless of ability/what others are doing or saying. In terms of variety, two participants hoped the exposure to the different activities brought in by the MSc kinesiology student could encourage and broaden their DPA practices in an effort to further engage students in PA-related activities. For example, one participant noted that the OPHEA

resources the MSc kinesiology student planned to use could be tailored to different student activity preferences/skills, which in turn, could facilitate engagement – particularly in those who are harder to engage in PA-related activities.

In line with the program purpose and design, several comments were made regarding participant expectations of a MSc kinesiology student mentor. Overall, these involved tailoring materials to student capabilities and grade level; the value of resource-related knowledge and enthusiasm of the MSc kinesiology student, and the importance of taking a collaborative approach. For example, one participant hoped that having a MSc kinesiology student involved in the DPA program planning would expose her and the students to activities that would solicit heightened participation and involvement intensity. Enthusiasm coupled with expertise on DPA resources was noted by the participants as important for promoting student engagement. Moreover, one participant was hopeful that the mentor's passion and knowledge for PA activities would translate to the students and her. Another recurrent theme all participants spoke to was collaboration throughout program involvement with a focus on open communication and mutual respect (e.g., participants feeling comfortable enough to ask questions). Given the competing demands she experiences, one participant noted that being enrolled in a program with a MSc kinesiology student mentor was a "smart thing to do" and hoped this involvement would help improve her DPA practices and adherence. Refer to Table 10 for representative quotes.

Table 10

Pre-Intervention Facilitators to Program-related Goals

Enhanced Student Engagement
• "[I hope to learn new] ways that I may not have thought of on my own or have discovered on the Internet. And, uhm, **really understanding the maturity level of these students and how to engage them … have them grow passion… for being physically active and knowing that it's a key asset for well-being**." *(Participant 1)* • **"[I hope t]hat, my students will have been positively impacted, that they'll be more engaged in the activities that I bring.** And that hopefully they'll maybe even take them home and do them at home with their siblings…" *(Participant 2)* • "I think it's [PE class is effective when] the majority of the students [are] participating. **So, in that they are at least trying whatever activity we are doing. So, not sitting on the side, not refusing to even try; that is a big factor for me is the…the at least attempting to try**. So, that's what I'm going to be using as my main guide to how well we're choosing our activities is how their participation levels [are] …" *(Participant 2)* • **"[I]t's important to me that people listen to the coach, people are trying their best, and that people are being good teammates**… it doesn't matter if I'm good or not, it matters that I'm being a nice teammate." *(Participant 3)*
Variety
• "[My goal is to] … **gain, uh, new variety of ways to incorporate DPA… into my programming**… As well as [have] many resources at my hands or at my fingertips." *(Participant 1)* • **"[T]he different activities that you supply me with will help engage them [the students]** in those different types of movement as opposed to just the tag games that they really love." *(Participant 2)* • "[W]hat I'm hoping to get from you is … **the resources that are more geared towards the reluctant participants in a variety of different uhm, activity styles**…I haven't had much luck with dance. So, maybe you'll have access to resources that they will enjoy-or activities that they'll enjoy more." *(Participant 2)*
Expectations of a Kinesiology Student Mentor
<u>Tailoring to Student Capabilities</u> • **"[I need] a little bit of mentorship and where I should be leading the students…or what I should be incorporating**. If you have a specific idea of what you envisioned to see in a grade three/four classroom, and what their DPA program should look like." *(Participant 1)* • "So, lots of back and forth [communication]. 'Cause obviously I know my class well, and you know the content well. So, **we need to be able to, uhm…work together to streamline the content to match my class' needs**." *(Participant 2)* **<u>Resource Knowledge and Enthusiasm of Kinesiology Student</u>** • "So…**I think that your enthusiasm for physical activity will help**…me engage the students more, **as well as your knowledge into all the different OPHEA resources**…" *(Participant 2)* • "So, **you'll have the resource knowledge**, but you'll also have a good, uh, understanding …of exercise in general, and how the body works, and all that. So, uhm, **my experience**

with kin students in the past is that they're very passionate about what they do. So, I'm hoping that'll translate into our class…" *(Participant 2)*

- **"[M]y goal is to add more tools to my personal toolkit for DPA so that I have them, I've done them with your guidance, and that it'll be easier for me to implement in the future.** And then for the students, uhm, to hopefully have them, uhm, be more engaged in the things that I try to implement in the classroom and as well as in the gym." *(Participant 2)*
- "Overall, **[a kinesiology student will] help with uhm, student engagement and … motivation to participate."** *(Participant 2)*

Collaboration

- "To have open communication…mutual respect for each other, and just, really, uh, **open to collaboration and being open-minded to hear different opinions and sharing ideas with each other**." *(Participant 1)*
- "Communication … So, we need to make sure that we have similar goals, and **that uhm, it will be done as like a collaboration**." *(Participant 2)*
- "…there's already five million other things on my plate so **I thought if I could get help from someone outside instead of spending all that time looking into things myself, uhm, that would be a smart thing to do**." *(Participant 2)*
- "**Yeah, and each person feels they can… you know [openly communicate]?** It's hard when you're trying to learn from someone, but you don't feel comfortable to ask questions…" *(Participant 3)*

Post-Intervention Thematic Analysis: Part I

Several themes (*n*=9) and subthemes (*n*=4) emerged with regards to the barriers (*Student Expectations; Identity: Novice Teacher Evolving*) and facilitators (*Prioritizing DPA; Willingness to Learn; More Activities: Out of a Rut; Role Modeling; Integrating PA Across Curriculum; Collaboration with Colleagues; Teacher-Student Relationships: student management, routine building, student "buy-in," tailoring and inclusivity*) to DPA engagement and practice. Data were analyzed using a BPN lens and categorized accordingly. A thematic overview has been provided below in Table 11.

Table 11

Post-Intervention Barriers and Facilitators to DPA Engagement and Practice (BPN Lens)

BARRIERS	FACILITATORS
AUTONOMY (↓ Sense of choice) Student Expectations	**AUTONOMY (↑ Sense of choice)** Prioritizing DPA
COMPETENCE (↓ Confidence in ability) Identity: Novice Teacher Evolving	**COMPETENCE (↑ Confidence in ability)** Willingness to Learn More Activities: Out of a Rut Role Modeling Integrating PA Across Curriculum
RELATEDNESS (↓ Connection with others) N/A	**RELATEDNESS (↑ Connection with others)** Collaborating with Colleagues Teacher-Student Relationships • Student management • Routine building • Student "buy-in" • Tailoring and Inclusivity

Autonomy

Barriers to autonomy for DPA engagement and practice. At post-intervention, one main theme that could be viewed as a barrier to autonomy was discussed: the impact of *Student Expectations.* For example, one participant noted how students viewing PA as a privilege rather than a right was important for her sense of volition regarding the implementation of activities. Specifically, feeling overwhelmed by the strength of the student voice served as a deterrent to her choosing new activities. In addition, one participant noted how she would have to revoke DPA privileges from students due to misconduct in the classroom and how this affected the notion of choice and freedom in the classroom for everyone present. Refer to Table 12 for representative quotes.

Table 12

Post-Intervention Barriers to Participants' Autonomy for DPA Engagement and Practice

Student Expectations
• "[J]ust having the students, uhm, **understand the value [of PA], but also perhaps a bit of the privilege of doing these activities**… Sometimes I'm like, really gung-ho on what I want to do… And like fixed on it. And other times, I'm - can be very flexible and usually focused on student voice, but I find when I focus on student voice too much, then we just do the repetitive activity." *(Participant 1)* • "But, like on this day, yeah, **it's too bad that he can't join us for the DPA because he probably needs it the most …** However, **if he doesn't know that there's a certain way he has to act during DPA… Then that negatively impacts everyone**, … and him." *(Participant 3)*

Facilitators to autonomy for DPA engagement and practice. Alternatively, all participants highlighted one common facilitator that exemplified their autonomy post-program completion: consciously *Prioritizing DPA*. All participants expressed how they planned to volitionally continue prioritizing DPA in their classrooms following the program given the positive outcomes observed (e.g., improved classroom management, student concentration/productivity), and importance of PA for their students overall. Refer to Table 13 for representative quotes.

Table 13

Post-Intervention Facilitators to Participants' Autonomy for DPA Engagement and Practice

Prioritizing DPA
• "Usually **I'll read their energy, and then if they need the DPA, it's like. '[W]e're doing DPA now.'**" *(Participant 1)* • "[M]aking that **conscious effort to implement it every day [is something I do now]**, even if it's just for a short five minutes." *(Participant 1)* • "[N]ow … **if I plan to have DPA sometime before 2 o'clock … I can plan that something [a lesson/activity] will get done after that… If I don't do DPA, then I can plan to just put it [the lesson/activity) in the garbage**, 'cause it's not gonna happen." *(Participant 3)* • "[M]aking enough time for it is hard when there are, like, sort of outside…forces or people who maybe don't see the benefit of it? … Who sort of see it as a waste of time. Because like, **their main concern is that we're doing 100 minutes of math every day**, 100 minutes of language every day…and when you're saying, you know, 'Well, **if I want to get the best work out of them, then maybe that means I can only do 80 minutes of math and 20 minutes of DPA**.'" (*Participant 3*) • "Like I said, it [DPA] is important … **it's important whether or not my colleagues or admin think it is.** *(Participant 3)*

Competence

Barriers to competence for DPA engagement and practice. At post-intervention, two participants identified a common factor that could be considered a barrier to their sense of competence in relation to DPA engagement/practice: *Identity: Novice Teacher Evolving.* Specifically, participants spoke to the pressures associated with being new to the teaching field while also trying to be successful, in general, at the onset of their careers. One participant elaborated on how trying to adhere to established teaching practices while simultaneously working to develop her own unique teaching style was a challenge. Another participant spoke to how trying new activities for the first time could pose as a confidence inhibitor in a PA context. Refer to Table 14 for representative quotes.

Table 14

Post-Intervention Barriers to Participants' Competence for DPA Engagement and Practice

Identity: Novice Teacher Evolving
• "**[T]o try things for the first time, I'm gonna always feel a little less confident, but… in my mind – [to] be at a point where I [can] kind of be like, the leader teacher in the school… [doing] the DPA programming**, and encouraging other teachers to implement different activities… and showing them the ways. But that's years to come I would say!" *(Participant 1)*
• "I**t's sort of hard as a new teacher to kind of go rogue and decide like, 'I'm gonna do that [(D)PA] anyway,'** which I sort of have been, but it's not easy." *(Participant 3)*
• "[T]**he first year I was here, I didn't teach phys-ed at all. And when I suddenly had to teach two blocks of it, I was mortified**… Because it's hard to manage!" *(Participant 3)*

Facilitators to competence for DPA engagement and practice. Alternatively, participants commonly discussed four main themes post-intervention that could be viewed as heightening their sense of competence in relation to DPA practices/implementation. These included: *Willingness to Learn*; *More Activities: Out of a Rut*; *Role Modeling*; and *Integrating PA Across Curriculum*. Each participant spoke to her willingness to learn about new approaches and activities for DPA in order to expand teaching practices and improve skills. All participants expressed how program involvement had helped them transition out of their DPA "rut." Participants mentioned specific improvements to confidence by: consciously integrating a warm-up, main activity, and cool-down; choosing from a variety of new activities; and observing and experiencing the positive impact PA has on the students (e.g., productivity). Two participants highlighted the value of role modeling on both a teacher and student level, especially with respect to the visual demonstrations provided by the kinesiology student mentor to promote competence in activity delivery. Integrating PA across curricula was also discussed by two participants who noted specific OPHEA activities that they used (or hoped to use) with other subjects. For example, an activity called "Higher or Lower" from OPHEA's *One-A-Day for Active Play* was discussed by the two participants as a useful way to help students integrate PA

with math-related skills (i.e., addition/subtraction, multiplication/division). A few other examples one participant provided was the use of the Yoga Alphabet in the game *Formation* from *One-A-Day for Active Play* to enhance (physical) literacy skills, and the study of science via *Moving Around Like Animals* to engage students. Refer to Table 15 for representative quotes.

Table 15

Post-Intervention Facilitators to Participants' Competence for DPA Engagement and Practice

Willingness to Learn
• "There's **always room for improvement**." *(Participant 1)* • "There's always room for-**always room for improvement**." *(Participant 2)* • "And **I want to be open to that** [taking on student teachers/assistance in the classroom] ..." *(Participant 3)*
More Activities: Out of a Rut
• "Just implementing different activities…just **consciously making the effort to do a main activity to get them moving, get their heart rate up, and then coming back to a calming activity at the end**." *(Participant 1)* • "I think it's [competence] increased just because I…I have more activities in my brain, right? … [T]hat was one of my things that I feel like I'm always playing the same games with them, and then they get bored … [H]aving … **more activities to choose from, makes me feel more confident**." *(Participant 2)* • "I was motivated to do it [DPA], but like **seeing the positive impact of it [DPA]… It helped with my confidence**..." *(Participant 3)* • "I see the difference in [students]…**like, I look forward to it [DPA] too**, I guess!" *(Participant 3)* • "So, I was like, '[W]ell, if DPA goes into the bucket of things that I can't do, then I'm just not gonna, you know? **Like, we'll find something else… that I can manage,' but … I've been able to see the benefits more clearly than I thought I would**." *(Participant 3)* • "I think…**the more comfortable we are to do physical activity in the room, the better** when it comes like, we're getting to this time now where the indoor recesses are coming… **As soon as it's colder than minus twenty-five, we can't go outside**." *(Participant 3)*
Role Modeling
• "[S]**eeing it [implementation of this DPA program] from like, a by-stander's perspective [observing the Kin student]**…it was like, 'Oh, sometimes I do that too – maybe I should change that' So, it [mentorship] **has helped…my own personal practice**…" *(Participant 2)* • "So I think a big part was just having you…introduce the game and the activity, and I was able to just observe … [S]ometimes when you're introducing something you're not really paying attention to everything that's going on. **So, when I watched you do it, I could see the kids – like, what worked with some kids, what didn't work with some kids**. So, it was just that, uh, **being a fly on a wall, really helped at some points**." *(Participant 2)* • "So, I feel like if I try it again – **now that they've seen it – they should be more willing to try**." *(Participant 2)* • "I'm not as far along as I would've liked to be, but I'm further along than I was when you came… with DPA. **I'm much more comfortable with it**." *(Participant 3)*
Integrating PA Across Curriculum
• "**And have them learn their academics while still participating in the DPA**. So, for example, uhm, with the jumping activity that you introduced [*Higher or Lower*] of whether the number is too high, or too long, and them wiggling down… [w]e did that with

fractions, so…**I put up for example one third, and they keep guessing higher or lower… And it worked quite well**." *(Participant 1)*

- "The *Moving Like Animals [will be helpful]*, like that's easy-like we're not doing animals in science until the end…But I'm sure there's a lot **that gave me lots of good inspiration for phys-ed activities with animals that we can do later**…"*(Participant 3)*
- "**The *Higher/Lower* one was great 'cause math**…I might try that with like addition questions, or… subtraction questions, or like multiplication and division later…" *(Participant 3)*
- "[I]t's all skill building. [I] like to do things together [n]o matter what subject it's for. [I]'d like to do the *Formation* thing again. 'Cause **I think while you were doing that, I was thinking about word study words**… **For me to give them a word, and then they have to come in and show the class the word, and the class has to "read" their bodies to read what word I gave them.**" *(Participant 3)*

Confidence in capabilities to implement DPA scale scores from pre- to post-intervention. At pre- and post-intervention, participants were asked verbally to identify a number on a scale from zero (being not at all confident) to 10 (being extremely confident with no room for improvement), that best fits how confident they currently feel regarding their capabilities to teach DPA. Following this, participants were also asked what their aspired "goal" number to achieve would be as they moved through the program (e.g., building their confidence and capabilities to teach DPA). For all three participants, an observed increase occurred between the two time points. Refer to Table 16 for a comparison of pre- to post-intervention confidence to implement DPA scores.

Table 16

Confidence Scores in Capabilities to Implement DPA Pre- to Post-Intervention

Participant	Pre-Intervention Confidence Scale	Post-Intervention Confidence Scale
P1	*Present*: 7 *Goal*: 9	*Present*: 8.5 *Goal*: 9.5
P2	*Present*: 5/6 *Goal*: 10	*Present*: 7 *Goal*: 8
P3	*Present*: 3 *Goal*: 8/9	*Present*: 7.5 *Goal*: 9

Relatedness

Barriers to relatedness for DPA engagement and practice. At post-intervention, no specific barriers to relatedness emerged.

Facilitators to relatedness for DPA engagement and practice. Participants commonly discussed two main themes that could be viewed as facilitating their sense of relatedness in this context. These included: *Collaborating with Colleagues*; and *Teacher-Student Relationships* (e.g., student management; routine building; student "buy-in"; and tailoring and inclusivity). Following the six-week program, two participants spoke to how they felt more compelled to collaborate with their colleagues and their classes in a PA context, with the aim of learning more from each other's teaching styles and gaining new activities. With regards to teacher-student relationships, two participants relayed their appreciation for the kinesiology student mentor and how her presence fostered their ability to manage and learn program-related DPA activities through observation (versus having to simultaneously do both), which in turn, enabled more opportunities to connect with students during DPA. Routine building was another topic discussed by two participants in relation to classroom scheduling and expectations surrounding PA-related activities. For instance, one participant noted that building a DPA-inclusive routine could improve student motivation to adhere to other tasks in the classroom. Coupled with this, achieving student buy-in regarding DPA engagement/practice was noted as important for building relationships by all participants. Repeating activities to enhance familiarity and comfort while providing a variety of options were discussed as ways to facilitate buy-in and subsequent student engagement. Lastly, tailoring activities and fostering inclusivity were expressed by two participants as avenues to facilitate relatedness for DPA engagement/practice. One participant endorsed the importance of acknowledging individual student strengths as a way to facilitate

connections and inclusivity during PA-related lessons. On a peer-to-peer level, one participant highlighted how independent other curricular subjects could be, whereas DPA promoted teamwork, being conscientious of other's needs, and working together to achieve the objectives of the lesson or DPA activity. Refer to Table 17 for representative quotes.

Table 17

Post-Intervention Facilitators to Participants' Relatedness for DPA Engagement and Practice

Collaborating with Colleagues
• "I just have more diversity and exposure to different types of activities [now], uhm, and it's given me more drive to research other activities for me to introduce into my class, and **also given me more drive to collaborate with other teachers in the school**." *(Participant 1)* • "…well, just having that exposure, **I think it's really important for us teachers to collaborate too**, and to bounce ideas off each other in what we do in all of our classes, rather than just staying in our own enclosed class, and doing the same thing**. And really talking and trying to adopt other teacher's styles and activities that they do in their class…**" *(Participant 1)* • "So, yeah, **I did share Conquer the World with the grade four-five, and five-six class** because every kid was engaged when we played it… And that's huge! … There's very, very, very few activities where there isn't someone sitting out …" *(Participant 2)* • "Yeah, **I'm very afraid to be a teacher who just like, is set in what they do** - I have a lot of respect for teachers who like take on student teachers all the time, and take-**like they're always like trying to learn from other people** … I think that's something that's not easy for me, but I want to be like that because, like, in thirty years **when I'm getting close to retiring, things are going to be completely different from what they are now … And I want to be open to that.**" (*Participant 3*)
Teacher-Student Relationships
<u>Student Management</u> • "Uh, it [the 4-week program] definitely helped…because **I was able to focus more on like classroom management while you implemented things**." *(Participant 2)* • "[T**]he classroom management piece would've been a challenge [for you] had I not been here**. Like, if you came in to do that yourself…**My most favourite thing was that I could just sort of focus on observing and managing and participating, and not so much on content… Especially since it's not content that's comfortable for me**… **I knew you were bringing the content. I just had to help you get through the content**… And then I could reflect after without having to be, uhm, like too caught up in…the details. **Because when you reflect on something that you've planned, it's different than just reflecting on something that you've experienced**." *(Participant 3)* **<u>Routine Building</u>** • "[I]t was actually **easier for me to implement those**, like the new activities and the things you already introduced **on my own [during weeks 5-6] because they were finally settling in as a group**, and…understanding the-our routines, and that…**our relationships are getting a little stronger...**" *(Participant 2)* • "[N]ow it's [DPA]…getting to be more and **more a part of our normal routine** … So, they know … I just have to do this amount of math work, and eventually I know a game is coming … **it motivates them without me even having to say it**." *(Participant 3)* • "But **I think the more comfortable that I get with it [DPA], and the more comfortable the kids get with it being part of our routine**… The less thought will have to go anywhere, because they'll more and more know that it's coming." *(Participant 3)* **<u>Student "Buy-In"</u>**

- "**Effective DPA activities** are those that **all your students are buying-in**." *(Participant 1)*
- "I have more activities in my toolbox [now], and I always find with this group, **playing a game the second, third, fourth time, they always buy-in more**." *(Participant 2)*
- *[Breathes out heavily]* "Relationships! Building relationships. So, I find that even with those, those students who repeatedly refused to engage, like, they're becoming more willing to just because we-our relationships are-now we're at week nine..." *(Participant 2)*
- "[T]**hey buy-in [to lessons being taught] so much more when they know that I know [what I'm doing] … Or that I'm comfortable with it**." *(Participant 3)*

Tailoring and Inclusivity

- "Anybody can throw a ball, anybody can tag someone, or run…I**t's lending to their strengths, where their strengths are**." *(Participant 2)*
- "And that's another benefit of DPA too, is because in independent work time, they don't need to – other than sharing materials – they don't really need to take turns and pay attention to other people's needs so much. **But in like DPA, most of the time you have to pay attention to other people's needs...**" *(Participant 3)*

Post-Intervention Thematic Analysis: Part II

Several themes (*n*=7) and subthemes (*n*=3) emerged with regards to the challenges (*Scheduling Realities; Lack of Equipment and Infrastructure*) and benefits (*Enhanced DPA Toolkit: OPHEA DPA resources; Teacher-Kinesiology Student Partnership: role modeling, open communication; Value of a Kinesiology Student; Positive Student Outcomes; Intervention Length*) experienced in relation to program goals. An overview has been provided in Table 18.

Table 18

Post-Intervention Program-related Challenges and Benefits

CHALLENGES	BENEFITS
Scheduling Realities Lack of Equipment and Infrastructure	Enhanced DPA Toolkit • OPHEA DPA resources Teacher-Kinesiology Student Partnership • Role modeling • Open communication Value of a Kinesiology Student Positive Student Outcomes Intervention Length

Program-related challenges. At post-intervention, participants identified a number of (un)anticipated program challenges that ensued and/or could be encountered in future studies involving a DPA mentorship program. These included: *Scheduling Realities* and *Lack of Equipment and Infrastructure*. In regard to scheduling realities, two participants expressed how planning a full 20-minute block of DPA was not realistic for their own schedules and that collaborating with the kinesiology student to identify mutually agreeable time frames was important. Similarly, booking a five- to ten-minute bout of DPA in the mornings, and another five- to ten-minute bout of DPA in the afternoons was also noted as problematic; more frequent disruptions can impede the kinesiology student's ability to build rapport with the students in addition to disrupting more curricular areas. Given that limited time during the instructional day is a prominent scheduling barrier in an education context, having to accommodate another person being scheduled into existing routines was also identified as a deterrent for program involvement. Regarding lack of equipment, one participant mentioned how sharing/depending on materials being available in a large school served as a deterrent to DPA implementation. As for infrastructure, two participants spoke to how disruptions from close neighbouring classrooms could pose a challenge to the types and degree of PA activities she (and her colleagues) can do in their classrooms. Refer to Table 19 for a summary of the themes, and corresponding representative quotes.

Table 19

Post-Intervention Program-related Challenges

Scheduling Realities
• "**I think maybe I was, too ambitious, too optimistic about how seamlessly it [scheduling DPA] would [flow]**…or that I would be able to just like, **'Oh, like I'll just do 20 minutes in the afternoon**.'" *(Participant 3)* • "I can tell you right now that **it's definitely not twenty minutes a day**… But it is happening every day now." *(Participant 1)* • "That's **[coming in for five minutes sporadically throughout the day] not realistic**…And that's because you're a person that we don't know, **that would probably be more disruptive** – no offense to you…Yeah. And for you to come for five minutes, leave for thirty, come back for ten, leave for forty, come back for five…**They would just be like, 'What is going on?' So, it's better if you're just here for [twenty-minute blocks], you know**?" *(Participant 3)* • "The only potential drawback I see [for a program like this] is that, ah, **some teachers don't want other people coming in**… So, they won't take advantage of it… **Because they just see it as one extra thing**." *(Participant 2)*
Lack of Equipment and Infrastructure
• "For math and things like that [sharing resources] works. But, the gym, like pretty often I get to the gym **and I have games planned for us to play in the gym… And the materials that I wanted are gone**." *(Participant 3)* • "It's just having the resources, in terms of equipment, and also the space, and **having it not interrupt the other class next door**." *(Participant 1)* • "And we don't really coordinate our loud activities with our, like, with our colleagues, so like **sometimes I'm doing independent reading, and somebody else is doing like 'Just Dance' DPA in the next room**. So, it's…**yeah, it's hard [to implement DPA]**." *(Participant 2)*

Program-related benefits. At post-intervention, participants identified various program-related benefits that they viewed as useful in a PA-PE context. These included: *Enhanced DPA Toolkit* (e.g., OPHEA DPA Resources); *Teacher-Kinesiology Student Partnership* (e.g., role modeling and open communication); *Value of a Kinesiology Student*; *Positive Student Outcomes*; and *Intervention Length*. Following program completion, all participants noted that they valued enhancing their DPA toolkit from a PA-related professional development perspective. Notably, the OPHEA DPA resources were deemed especially helpful and facilitated student enjoyment and learning as they: included activities requiring no/minimal equipment; were inclusive;

addressed more than just physical skills (i.e., mental, emotion-regulating, and life skill-based); and could be easily integrated with other curricula such as numeracy and literacy. Examples of favoured (by participants and students alike) and potential cross-curricular activities noted were: *Higher or Lower*, *Fast Pass*, *Freeze Dance*, *Move Like Animals*, and *Conquer the World* (from *One-a-Day for Active Play*); *BrainBlitz Meditation and Relaxation* activities; and the *Yoga Alphabet Cards*.

Participants also appreciated the partnership with the MSc kinesiology student in regard to role modeling and open communication. Two participants spoke to the benefit they derived from being able to observe the kinesiology student explain and implement the activities within a classroom or gymnasium. Two participants highlighted the value of maintaining open communication within the partnership through various channels (e.g., text, email) which enhanced accessibility to the kinesiology student mentor and enabled the transfer of important information in a timely manner (e.g., questions pertaining to activity choice or session scheduling). Ultimately, participants appreciated the expertise that the kinesiology student mentor brought into their classrooms which benefitted participants as well as the students. Having someone else plan PA-related activities in advance, assist with implementing them, and introduce new resources and teach activities that participants "probably would not have thought of themselves," were discussed. Moreover, two participants mentioned the positive impact of DPA on student outcomes in terms of productivity and focus in the classroom post-DPA sessions. As one participant noted, it helped improved students "mental endurance." Finally, the length of the intervention was also well-received as participants deemed the duration of the program (i.e., 4 weeks, 2-week graduation) to be "reasonable" and "appropriate." Refer to Table 20 for a summary of the themes, and corresponding representative quotes.

Table 20

Post-Intervention Program-related Benefits

Enhanced DPA Toolkit
• "Before, it was always the same activity that I'd pick...**I didn't have a wide toolbox. Whereas now, it's a much-broadened toolbox, and we can diversify the activities**." *(Participant 1)* • "**I think it's [the kinesiology student mentor and program] helped my, uh, DPA instruction**...**given me those extra tools for my toolbox, new activities**, and I've been able to…be more aware of how I'm introducing new things to them…To make sure that…they'll be most engaged." *(Participant 2)* • "[**I] always have something [DPA] to bring them back into our academics**. Bringing them back with a **mindfulness activity** or a meditation." *(Participant 1)* • "[**J**]**ust diversifying the program**, and… **introducing the kids to other DPA activities other than the same repetitive one that we've always done**." *(Participant 1)* • "[O]ver time, I've really kept an open-mind, and **I've been exposed to a lot of different resources and ideas that I probably would never of thought of myself**." *(Participant 1)* • "Now I just **have more activities that I can pull from**." *(Participant 2)* • "I'm putting DPA in my bucket with signing songs, reading stories that like'…maybe other people who work for the board; if they can't see like the kids work on paper, **if they can't see the improvements on paper, then it's not valuable**." *(Participant 3)*
OPHEA DPA resources
• "[**I**] **prefer the no equipment or very little equipment ones in here**." *(Participant 3)* • "And with that game [*Fast Pass*] too, it was good because it's like you have to be paying attention the whole time and you have to be looking at the person who passed it…to you last time, and you have to pay attention. So, that-**that's good for a lot of things…Like memory, and endurance, and-like mental endurance, and physical endurance**…" *(Participant 3)*
Teacher-Kinesiology Student Partnership
Role modeling
• "[I've] done it [OPHEA DPA activities] myself a couple of times. **Not as effective as you did it, but more effectively than I would have before I saw you do it…And more effectively than I thought I could do it** …" *(Participant 3)* • "**Obviously having someone model it for me, show my class how to do it so they already know the norms of the activity, and how to perform it**. And then, **once that's been done, I mean, me being in the leadership role and me getting my feet wet and having myself experience it. Just the repetition [was helpful]**." *(Participant 1)* • "[S]ometimes I go online, and I'm like, 'This game doesn't even make sense when I read it,' or if I watch the video, I'm like, '[M]y kids aren't gonna buy-in.' … But, actually having them try it… **Now I can see what worked, what didn't, how I can tweak it even to make it something that they'll buy-into more**." *(Participant 2)* • "I still am glad that I did it [participated in the DPA program] because, uh, **I know more than I did, and I can see more of how it would fit in a classroom**. **Whereas if I had not had you to come and model it for me and show me the resources that you do…I don't**

think that I would've ever figured out on my own how it would…look in here." *(Participant 3)*

Open communication

- "[J]ust having you as a contact [was helpful]. So, **if I need to, I can send you an email, or if I have any questions, or…inquiries about anything**." *(Participant 2)*
- "…**open communication would be the main**…Like if that, if one person needs more from the other person that they can say so…and paying attention to what that person's strengths are. Especially if they're not your strengths…**So I think we did that well**." *(Participant 3)*

Value of a Kinesiology Student

- "I think it [involvement of kinesiology student in DPA curriculum delivery] **should become a thing that most new teachers are exposed to**, I'd say." *(Participant 1)*
- "**I think a lot of teachers don't have a strong DPA program**. So, **I think having someone come in and say, like '[T]his is the plan, and this is how it's gonna work.' …Any extra help that we can get to put stuff into our classroom is always beneficial**." *(Participant 2)*
- "[T]o have you come and do it [DPA] with them… and **the kids know that like you're the expert, and you know what you're talking about ... I found that to be very valuable**. That was the biggest draw for me, for sure, yeah." *(Participant 3)*
- "**Not too many elementary teachers are phys-ed experts**… So, **it's good to have physical activity experts coming to help us with that**… 'Cause I think a lot of teachers are in the same boat as me that it's not an area of comfort for us. Uhm, some are, and then they don't need help with that, **but that's something that you bring to the table that we don't all have.**" *(Participant 3)*

Positive Student Outcomes

- "Uhhh, slightly better [how students respond to her DPA efforts now] … **There's still those hold-outers that don't want to engage, but uh, the ones who do are, they're buying in pretty good, I think**… So, it's beneficial in that they're proactively taking care of their health, whether they realize it or not." *(Participant 2)*
- "You would leave and I would say, you know, 'K, like, it's time to do this now.' Uhm, and you know, **kids who are often fidgety when I was talking, were not as fidgety**…**I did notice increased attention span, for that part of** the **day**… **I did notice increased, like, mental endurance-like stamina."** *(Participant 3)*
- "**I could always do that [DPA] at the end of the day, but then I sort of lose the…productiveness [after a DPA session]** … There is a lot of benefits of doing it in **the middle … 'Cause then I get all of the nice benefits of how productive they are after**." *(Participant 3)*

Intervention Length

- "I would say **it was a fair amount of time**…it was reasonable." *(Participant 1)*
- "**The six-week block was good**… **It didn't feel like it was too much**." *(Participant 2)*
- "**[B]y the fourth week that you were here, I was like, 'I think I could do this myself now.'** … I was like, I'm comfortable with this – **I'm still glad that you were here… [By] the third week, I was like, 'Oh, I'm not sure.' The fourth, I was like, 'K, I think I have a good understanding of how this works … and I could take this on.'** Uhm, so

maybe if you did something that like, **the fourth week the teacher *has* to lead it, but the kin student still comes**." *(Participant 3)*

Post-Intervention Thematic Analysis: Part III

As part of the post-intervention semi-structured interview only, participants were asked to provide their recommendations on how to enhance the ability of teachers to provide DPA for similar future studies. Participants identified three common suggestions (*Kinesiology Student Involvement for Professional Development; Kinesiology Mentor-Student Benefits; Resources and Recruitment*) that could be important to consider. The first recommendation pertained to enhancing the inclusion of kinesiology students within school communities to share their expertise on PA-related activities with teachers and their classes. For example, teachers could choose to have a kinesiology student come in for a formal placement to assist them in implementing classroom friendly DPA-specific activities. One participant offered the idea of having a professional development day led by kinesiology students and dedicated to DPA efforts to equip teachers with more ideas and resources (e.g., suggestions for indoor recesses due to cold temperatures). From a mentorship perspective, several suggestions were made. One participant suggested intervening with students as young as senior kindergarten to introduce them to PA-related skills and movements. This would then expose students to different skill sets (e.g., properly kicking a soccer ball) and enable them to build on these abilities from a younger age. Moreover, one participant stated that this would offer a 'clean slate' for kinesiology students to build on their professional skills to educate others in the community about proper movement, sport-specific skills, and/or offer an outlet to foster youth passion for PA. Lastly, one participant highlighted the value of schools investing in personalized DPA 'toolkits' for teachers which could contain a combination of equipment and other resources. This could also be an incentive

for teachers to begin integrating more DPA in the classroom without having to worry about access. For recruitment, two participants recommended that word-of-mouth may be the most 'sustainable' and effective mode for recruitment in comparison to email or posters that teachers could easily discard or disregard. Refer to Table 21 for a summary of themes and illustrative quotes.

Table 21

Participants' Recommendations for Future DPA Mentorship Studies

Kinesiology Student Involvement for Professional Development
• "[I]f we could even have like, **a PA [professional development] day where a bunch of Kin students come in and work with the teachers**, and…**teach us, and implement different DPA activities that we could do in our classes**." *(Participant 1)* • "[U]ndergrad students: if **they could do some kind of placement type thing where they go to the schools and implement 20-minute programs in different classes**." *(Participant 1)* • "Well, **I do think that there are some teachers who would love to like, always have a Kin student come; there are some who would never want to lead it themselves**…So, if there was some sort of ongoing program where, like different Kin students had different placements at one time… Or, different placements at different times that …part of something that they come and…lead…" *(Participant 3)* • "For you to show us how to do stuff in the room that can get the kids moving… **Like our own materials, I mean**…**for DPA…if it was more of a focus and a push like within the board, and we knew that us taking it on was going to be supported by upper administration, then definitely that would make it easier for everyone**." *(Participant 3)*
Kinesiology Mentor-Student Benefits
• "And even if-if there are, like, **from time to time Kinesiology students who are varsity athletes…to set that role-model for students I think is a big… A big thing**. I mean, if we're doing, say a basketball unit…" *(Participant 1)* • "Like when I'm doing SK stuff with them, it's **like back to absolute basics… like kicking a soccer ball**, like turn out your foot, hit it with your foot; and they are so unsure. Like for lots of them, it's the very first time they're doing it, so… **I think if Kin students wanted like, the absolute, starting from zero [skill set]**." *(Participant 3)* • "[A] **large group that Kin students lead**, and that…like these kids would die for that. They would love that, so… **I think that would be well-received. I think schools would be all over that**, too." *(Participant 3)*
Resources and Recruitment
• "**And for everyone to actually open up that email, and read that email; how many people actually did that?** …We don't know. I think one thing that would be very essential is to go to…for example, **like for this PA day we have a Wellness Fair… So, a bunch of people brought their stands, there should be the Lakehead Kinesiology students with the stand, offering this program to us teachers**." *(Participant 1)* • "'Cause I think not a lot of people, even within the school, they were like, 'Who's that girl who comes and helps-who is that?' … So, even though we had like, the poster in here, and we all got the email, so … **I think word-of-mouth is probably a big thing to have it be more sustainable**." *(Participant 2)* • "[T]he sashes, or uhm, like things like that. Like those are great and the kids loved those. And I would definitely like to do that again. But, you know, I don't have my own set of those…**And, pretty much if I don't have my own set of it, it's not practical**." *(Participant 3)*

Discussion

The purpose of this pilot study was to explore the utility of a 6-week mentorship program designed to assist early career teachers with DPA delivery using OPHEA curricula. This involved assessing qualitatively: I) the participants' program-based experiences through the lens of SDT; and II) the utility of the 6-week program from structural, logistical, and experiential perspectives. Overall, the findings revealed that participants had positive experiences throughout the intervention and follow-up period, particularly in terms of having raised awareness of the multi-faceted benefits students gain from DPA (e.g., physical, cognitive). By exploring the findings through the perspective of SDT's basic psychological needs, this research provides unique and theoretically driven empirical evidence regarding the utility of a teacher-MSc kinesiology student partnership as it relates to the initiation and short-term maintenance of DPA. This is the first DPA mentorship study focusing on the early career teaching population which makes the findings particularly valuable, since approximately 30% of teachers leave the profession within the first five years (Henke & Zahn, 2001; Johnson et al., 2004; Reichel, 2016; St. George & Robinson, 2011). The heightened reported use and associated benefits of OPHEA resources for the intervention are similarly noteworthy due to the previous challenges that have been cited with regards to engaging adequately in DPA. Having a mentor to facilitate access to the curriculum while modeling the activities were noted by the participants as especially helpful for enhancing DPA frequency and quality. Logistically, the qualitative nature of this project enabled a detailed account of the nuances associated with implementing this type of DPA program for early career teachers within a public school board located in a mid-sized, Northern Canadian community. Cumulatively, the findings suggest that a 4-week kinesiology student led, mentorship-based DPA program with a 2-week graduated period can be a useful avenue to foster

the BPN among new teachers while enhancing DPA rates positively. Further discussion can be found below regarding the participants' experiences with autonomy, competence, and relatedness in the context of DPA engagement and practice, as well as their study-related goals and experiences. Study strengths and limitations are then noted, followed by an exploration of participant recommendations for conducting future teacher-MSc kinesiology student partnership research for DPA engagement.

The Basic Psychological Needs and DPA Engagement and Practice

According to Evelein, Korthagen, and Brekelmans (2008), facilitating basic need fulfillment in student teachers can have a positive impact on their teaching experience. This finding aligns with the present study whereby the utility of a 6-week mentorship program for assisting early career teachers with DPA delivery using OPHEA curricula and grounded in BPN principles was supported.

Autonomy. Autonomy refers to individuals acting in a way that is consistent with their self-initiating actions as opposed to being controlled by another individual (Deci & Ryan, 2000). This BPN is especially important to explore, as research has shown that autonomy supportive contexts have the ability to promote intrinsic motivation within an individual: a regulation essential for maintained behaviour change (Deci et al., 2001; Gagne, 2003). Participants noted several autonomy-related experiences that they had throughout the teacher-MSc kinesiology student DPA mentorship program.

Barriers to autonomy. Participants discussed several barriers that appeared to constrain their perceived sense of volition for engaging in DPA. One of the most salient themes was identified in the pre-intervention interviews and centered around scheduling, with a focus on limited gym availability and prioritizing other subjects. Two participants spoke to how

gymnasium allocation time for all classes in the school restricted daily access, noting that this type of scheduling is out of their control. This was especially noteworthy in cases where limited classroom space inhibits DPA, and/or infrequent access to the gymnasium for PE classes exists. Dwyer and colleagues (2003) paralleled this finding, noting the added barrier of having the gym space booked for other events such as assemblies and presentations which hindered availability further. Given that many teachers have responsibilities and demands which are outside their control (Klassen et al., 2012; Kogan, 2017; Korthagen & Evelein, 2016; Morgan & Hansen, 2008; Patton, 2012), it is not surprising that participants also highlighted that they felt the need to prioritize other subjects during the instructional day: an experience they associated with constraints in allotting time for PA in the classroom. These findings have been supported by many studies (e.g., Brown & Elliot, 2015; Dwyer et al., 2003; Kogon, 2017; Lee et al., 2013; Morgan & Hansen, 2008; Patton, 2012; Strampel et al., 2014) wherein a lack of time and pressure to focus on other subjects (e.g., mathematics and language) were reported as the most common barriers to DPA implementation. Other detractors from autonomy which impacted participants' ability to engage in DPA included limited space and larger class sizes. This mirrors findings from a study by Strampel and colleagues (2014) wherein 22% the teachers included identified lack of space for activities and associated safety issues as concerning. Limited space particularly impacted upper elementary grades where there were more students in the classes and larger bodies (Strampel et al., 2014). These authors noted that if shuffling classroom furniture is needed to implement DPA, additional time constraints on teacher's classroom scheduling occur, thereby serving as another barrier to engagement (Strampel et al., 2014). Taken together, these findings suggest that scheduling and class structure are long standing systemic challenges to

DPA engagement. Uncovering strategies to reduce their impact while fostering autonomy amongst teachers in this context are needed.

Facilitators to autonomy. Freedom of choice has been purported to support teacher autonomy (Sheldon & Kasser, 2001): an important consideration given this psychological need is known to foster the initiation and maintenance of behaviour changes over time (deCharms, 1968; Deci & Ryan, 2000). Participants discussed a number of personal and program-related practices that help to facilitate their autonomy for engaging in DPA. For example, at pre-intervention, having a modifiable classroom schedule and specific teaching practices (e.g., variety of activities) were noted as facilitators for promoting a greater awareness of self, and helping participants to feel that they were initiators of their own choices in the classroom. Yet, the most salient and re-occurring themes related to enhancing autonomy for delivering DPA centered around personal PA values and purposefully prioritizing DPA in classroom schedules.

The importance of linking personal values with health behaviours to enable positive, prioritized change has been demonstrated in various populations and contexts. According to Deci and Ryan (2000), individuals have the ability to connect a behaviour to one's own personal values by means of modifying the performance of a behaviour that originated from an external source. In a PE/DPA context, personal PA values and beliefs of teachers have been identified as playing an important role in program implementation on an individual level (Allison et al., 2016; Huberty, Dinkel, Coleman, Beighle, & Apenteng, 2012; Kennedy, Cantell, & Dewey, 2010; Masse, McKay, Valente, Brant, & Naylor, 2012). Further, these findings have been supported by studies in the life coaching and SDT literature (e.g., Harvey, Pearson, Mantler, & Gotwals, 2018; Silva et al., 2008; Whitworth, Kimsey-House, Kimsey-House, & Sandahl, 2007) wherein connections to personal values were reported as common facilitators to behaviour change. For

example, Stewart (2017) conducted interviews with three elementary classroom teachers who had committed to DPA participation. A key finding that emerged was participants' recognition of how their past and present personal/educational experiences influenced their DPA practices. This awareness then enabled their choice to optimize the school and community resources available to assist in overcoming barriers to DPA implementation (Stewart, 2017). Upon program completion, participants in the present study discussed how prioritizing DPA was related to them becoming more aware of the positive impact that engagement can have on their students (i.e., improved concentration, productivity, student wellness, and classroom management). Further, all participants expressed how they planned to continue prioritizing DPA in their classroom following the program given the positive outcomes observed. This heightened awareness and enhanced clarity regarding personally meaningful reasons for engaging in DPA suggests that educating teachers on such benefits may be an important step for enhancing engagement. It appears that this mentorship program may have provided participants with the opportunity to synthesize meaning with regards to attaching values to PA: an essential component for facilitating one's self-determination (Deci & Ryan, 2000). Therefore, professional development on how to structure and run a successful DPA program that promotes and facilitates teachers' beliefs in the socio-emotional well-being and academic benefits that students receive from DPA may be required and should be considered by school boards.

Prioritizing DPA purposefully into classroom schedules was a theme that was noted by all participants during the post-intervention interviews: a notable change from pre-intervention. Based on the experiences shared, it may be the case that program involvement itself enabled or even empowered the participants to modify their schedules to enable the inclusion of more regular DPA. A recent qualitative study employing an SDT lens explored the impact of a

professional learning program for elementary teachers on other subjects (i.e., sciences, mathematics; Power & Goodnough, 2018). Specific to autonomy, the teachers reported that the program supported their volitional will to engage in self-directed learning by offering them choice, encouragement, and constructive feedback (Power & Goodnough, 2018). These same findings emerged in the present study pertaining to fostering choice regarding classroom practices. For instance, one participant described how choosing to go against convention and making time for DPA is sometimes needed in order to garner the best work from the students (e.g., 80 minutes of math, with 20 minutes of DPA vs. 100 minutes of math; refer to Table 13, *Prioritizing DPA*). This quote mirrors sentiments expressed by Strampel and colleagues (2014) whereby it was suggested that daily time constraints could be reduced by modifying curricular expectations in other subject areas to allow for more time to engage in physical activity. Thus, to help facilitate autonomy among teachers facing barriers to DPA engagement, alterations to curricular policies and expectations from upper administration may be required and should be considered by school boards. Taken together, these findings suggest that efforts to promote personal values for PA and prioritization of DPA in classroom schedules can improve DPA engagement. Continuing to implement strategies through DPA programming initiatives and partnerships to support autonomy among early career teachers in this context are needed.

Competence. Competence can be defined as an individual's desire to feel effective in carrying out a task to facilitate goal attainment (Deci & Ryan, 2000). This need is especially important to explore, as research has shown that the more competence an individual feels, the more likely he/she is to carry out a behaviour (Ryan & Deci, 2000). Participants discussed several themes in the form of barriers and facilitators that centered around their perceived competence for engaging in DPA and the mentorship program.

Barriers to competence. One of the most commonly discussed barriers in the interviews involved limited resource knowledge (e.g., OPHEA) and forming a new teaching identity. The absence of valuable PE/PA-related training during teacher's college and/or current professional development opportunities, coupled with the challenges associated with not having the knowledge of where to begin looking for such information were noted specifically. These findings have been corroborated in other studies (e.g., Kogon, 2017; Ramcharan, 2015; Strampel et al., 2014) wherein limited access to resources and few opportunities to develop PE-related skills have been reported as barriers to implementing DPA. For example, Strampel et al. (2014) highlighted a lack of physical (e.g., balls, hula hoops, etc.) and infrastructure resources as making DPA implementation difficult, with many participants commenting on how limited materials, ideas, and games posed as barriers to quick and easy DPA implementation. Relatedly, one participant in the present study explained how reduced resource knowledge impacted her feelings of competence to deliver DPA (i.e., no resources or awareness on how to teach the topic of PE which resulted in lack of comfort in teaching PE; refer to Table 5, *Lack of Training in PE/PA*).

With regards to training, Gilmore and Donohoe (2016) highlighted how DPA qualifications are not a current requirement of generalist teachers in Ontario. Similarly, in their study comparing self-efficacy for delivering elementary level PE among specialist and generalist teachers, Breslin and colleagues (2012) emphasized the need for more training among generalist teachers to develop the skills necessary. Given that self-efficacy has been deemed a consistent predictor of behavioural outcomes and developing confident and competent teachers (Gilmore & Donohoe, 2016; Graham & Weiner, 1996; Hoy & Spero, 2005; Pajares, 2002), it is important to

continue exploring the relationship between teacher self-efficacy within the context of DPA and delivery of related programming (Gilmore & Donohoe, 2016; Simpson et al., 2011).

Following program completion, another barrier to developing competence for engaging in DPA among participants was finding their teacher identities as novice employees. One participant elaborated on the challenges associated with trying to adhere to established teaching practices and also working to develop her own unique teaching style. While solidifying a teaching identity is important, varying teaching approaches may result in students receiving inconsistent DPA throughout their elementary school years, especially if teachers are spending more time on other curricular areas (Strampel et al., 2014). Indeed, research has revealed that teachers' perceived competence to deliver DPA is not consistent across schools and individuals (Gilmore & Donohoe, 2016). By and large, trends in province-wide research (Stone et al., 2012) have revealed that the success of DPA programming is at risk in Ontario – especially given that schools are left to their own devices to do ensure implementation. Focusing on strategies to enhance this BPN for new teachers in a PA context is especially important given they are at a malleable stage of their careers and well positioned to solidify efficacious teaching practices they can carry with them moving forward (Korthagen & Evelein, 2016; Perlman, 2013; St. George & Robinson, 2011). In light of the known health and learning-related benefits for children (Lee et al., 2013), and the reliance that exists on teachers to deliver these curricula – irrespective of training – cost-effective solutions to enhance resource knowledge, skills, and develop identities are needed (Ramcharan, 2015; Strampel et al., 2014). Heller and Sindelar (1991) noted how mentorship programs for early career teachers promote both professionalism and personal rewards. Teacher-kinesiology student partnerships for DPA implementation may be a viable channel to provide this form of PA-oriented professional development.

Facilitators to competence. Gilmore and Donohoe (2016) emphasized that understanding teachers' perceived competence for DPA implementation is imperative for enhancing understanding and implementation of the DPA policy. Participants discussed a number of personal and program-related outcomes that may have helped to facilitate their confidence in their ability to teach PE/DPA. The most prominent themes centered on role modeling and integrating PA across other curriculum on a more regular basis. The quantitative data pertaining to *confidence scores in capabilities to implement DPA pre-to post-intervention* revealed an increase for all participants: results that aligned with the qualitative findings. This may have been related to the mentorship structure of the program. Two participants highlighted often the value of role modeling on both teacher and student levels. For example, the visual demonstrations provided by the kinesiology student mentor to promote participant competence in activity delivery were noted as especially helpful. With regards to influencing the students positively, one participant elaborated on how she tries to practice what she preaches, making the conscious effort to role model for her own students and increase their self-awareness (e.g., eating a healthy lunch or cycling to school to reduce her carbon footprint). This notion of role modeling is supported in the SDT literature. One study comparing PE specialists to generalist teachers determined that a role model who is more skilled will have a greater influence on learning than a less skilled model (Breslin et al., 2012). Other studies recommended similarly the involvement of a positive DPA role model for students as a solution to DPA barriers (Rickwood, 2015; Strampel et al., 2014; Stratton & Mullen, 2005; Varpalotai & Thomas, 2007, 2009). Therefore, it may be inferred that the partnership between a teacher and kinesiology student, in particular, can provide an avenue for role modeling (D)PA behaviours and strategies for both teachers and their students. In doing so, competence may be impacted positively, thereby enabling a more positive

and potentially sustained PA experience (Deci & Ryan, 1985; Korthagen & Evelin, 2016; Rickwood, 2015).

Previous research has indicated that in a teacher-mentor relationship, encouragement is an essential aspect and provides the basis for a teacher's progress and competence (Robertson-Wilson et al., 2018). For example, in their qualitative study exploring the experiences of Ontario pre-service elementary teachers with DPA and PE, Robertson-Wilson and colleagues (2018) showed that the teachers appreciated informational supports such as resources, strategies, and instructions on lesson planning provided by a trained mentor. Participants also noted that not having the opportunity to do the activities themselves made it difficult to prepare for and teach PE (Robertson-Wilson et al., 2018). Likewise, the participants in the present study also described a lack of opportunities to expand their PE/PA teaching practices. Based on the current findings, it may be the case that the use of PA mentors during the school day could offset these limitations while enhancing teacher competence positively. Techniques such as role modeling and repeating activities to enable feelings of mastery are noted often in the SDT literature as avenues to promote competence (Breslin et al., 2012; Deci & Ryan, 1985; Korthagen & Evelein, 2016; Rickwood, 2015) and were also mentioned by those in the current study.

Integrating PA and OPHEA activities across curricula was also discussed by two participants as both a study goal and positive program-related outcome. While some research has shown that teachers do not find it easy to integrate DPA into other subjects (e.g., Brown & Elliot, 2015; Dziadura, 2017; Strampel et al., 2014), participants in the present study found it easier to merge DPA into other subjects following program completion. For example, the OPHEA *One-a-Day for Active Play* activity titled "Higher or Lower" was mentioned as being an applicable PA-related activity for teaching mathematic skills (i.e., subtraction and addition, division and

multiplication). This heightened confidence to weave subjects together may be indicative of the value of equipping participants with a larger repertoire of activities (e.g., via OPHEA) and demonstrating them. The frequent contact with and support provided by the kinesiology student mentor throughout the first four weeks of the program could also have been valuable for the participants as they experimented with new curricular inclusions. Moreover, the two-week follow-up period could have served to promote competence further as the participants continued to merge their subjects with PA based on earlier guidance. To help facilitate competence among early career teachers facing barriers to DPA, a mentorship approach could be integrated into PA-related lessons, which may help a teacher's ability to perform DPA activities despite environmental classroom constraints (Klassen et al., 2012). Given that early career teachers have many factors that impact their perceived ability to engage in DPA, it is important to continue exploring the role that kinesiology students can play in facilitating this psychological need.

Relatedness. Relatedness can be defined as peoples' need to feel connected, and to care for and be cared about by others without the presence of ulterior motives (Deci & Ryan, 2000). Relatedness is especially valuable to capture in a behavioural context, as research has shown that a climate fostering this need helps promote connectedness and belonging, subsequently enhancing receptivity to change (Ryan & Deci, 2000). Participants noted one barrier to and several facilitators for relatedness that they experienced in relation to DPA delivery and involvement in the mentorship program, some of which are discussed below.

Barriers to relatedness. Only one theme was identified in the pre-intervention interviews as a barrier to relatedness and centered around poor teacher-student connections, with a focus on age-related behaviours/attitudes. Specifically, participants spoke about how older students who are (close to) entering puberty can be challenging to engage during DPA – this subsequently

impacted their ability to connect with the students in this context. For example, one participant mentioned how activities that cause intermediate students to sweat negatively impacted their willingness to participate in exercise. Heightened consciousness regarding hygiene and accommodating larger bodies in a small space have been identified similarly in the literature as contributors to these types of attitudes among youth (Dinkel, Schaffer, Snyder, & Lee, 2017; Luke & Sinclair, 1991; Strampel et al., 2014). While causation-type statements cannot be made, it is noteworthy that this theme did not emerge again following completion of the intervention. This may be indicative of the teacher-kinesiology mentorship alleviating concerns regarding student attitudes. Given the existing trends associating the adolescent years with decreases in physical activity, especially for females (Hedstrom & Gould, 2004; Sallis, 1993, 2000; World Health Organization, 2008), identifying avenues to reduce this barrier while enhancing relatedness are needed. Participants discussed several facilitators to enhance this BPN at pre-and post-intervention.

Facilitators to relatedness. A number of facilitators to relatedness in a DPA context emerged among participants before and after program involvement. In fact, the quantity of themes and related subthemes was greatest for this need at both time points suggesting that those involved in the study valued connections with others and a sense of belonging. As noted previously, teaching is an occupation that emphasizes establishing meaningful, long-term connections with students in line with a high number of hours spent in the classroom (i.e., in comparison to other professionals such as health or business where time spent with clients is more acute; Klassen et al., 2012). Thus, it is not surprising that this particular need appeared to be more discussed than the others. Two types of connection were evident at pre-and post-intervention: teacher-colleague and teacher-student relationships.

In education/SDT-related research, relatedness has been shown to be satisfied when a teacher's desire to develop close relationships with and feel connected to other staff members is facilitated (Bakker et al., 2007; Klassen et al., 2012). Notably, Joyce and Showers (2002) explained that teacher training alone is not sufficient to enhance connections and rapport; teachers must receive on-the-job coaching to adapt their training to real-life situations in their working environment (Lee et al., 2013). That is, teachers need on-going guidance and support (Joyce & Showers, 2002; Lee et al., 2013). In line with this notion, it is not surprising that participants in the present study discussed how the support of colleagues was important for helping them to deliver DPA effectively. Sharing resources and ideas were noted as especially helpful. Similarly, Strampel and colleagues (2014) suggested that a lack of ideas, games, and equipment available in each classroom for DPA could be countered by sharing and collaborating with colleagues. In contrast, participants in the present study noted difficulties in sharing equipment, in larger schools especially, to which they recommended personalized DPA equipment kits as a way to counter access barriers.

One possible contributor to enhanced feelings of collegial relatedness among participants could have been the mentorship structure of the program. St. George and Robinson (2011) summarized that mentoring amongst veteran and novice teachers benefits both parties involved, whereby the mentee is able to expand on their knowledge, skills, and confidence levels while the mentor benefits from the opportunity for professional growth. This was discussed similarly by a participant in the present study who acknowledged colleagues (refer to Table 17, *Collaborating with Colleagues*). The importance of building rapport, providing collegial support, and information sharing has become increasingly apparent – especially considering that 30% of teachers choose to leave their positions after the first 3-5 years (Henke & Zahn, 2001; Johnson et

al., 2004; Reichel, 2016; St. George & Robinson, 2011). In order to enhance novice teacher retention, mentoring may be a channel to ensure qualified and skilled individuals remain in the profession (St. George & Robinson, 2011). In fact, according to Lee and colleagues (2013), common barriers to DPA implementation (e.g., lack of time and competing curricular demands) will persist until a training and support structure to enhance peer-to-peer sharing is established to aid DPA implementation in schools.

In the context of teacher-student relationships, the notion of attaining student "buy-in" when delivering DPA was highlighted before and following program completion and could have impacted feelings of relatedness positively. Involving the students in decision making, providing a variety of activities, and tailoring DPA and PE to accommodate diverse interests and abilities were all noted as important for fostering this connection. Research suggests that if teachers are positive toward DPA and implement activities viewed as fun by the students, this may translate to improving student engagement (Fazel, 2013; Martin & Hodges-Kulinna, 2004; Strampel et al., 2014) – this appeared to be the case in the current study.

Following program involvement, study participants spoke to improvements in student management which also could have enhanced their feelings of relatedness positively. One participant reported: "Uh, it [the 4-week program] definitely helped…because I was able to focus more on like classroom management while you implemented things." *(Participant 2, Post-Intervention Interview)*. Similarly, in a qualitative study exploring DPA's capacity to affect teachers' experiences of classroom management, one participant spoke to how DPA enabled them to have "more control in the classroom" (Bubienczyk, 2017, p. 39), noting the calming effect DPA had on their students by providing an opportunity to release excess energy. Taken together, these findings suggest that the support provided through a mentor combined with the

beneficial physical effects of physical activity enable effective student management to take place. From an SDT perspective, Klassen and colleagues (2012) acknowledged teachers need to connect to their students and identified this connection as a vital predictor in shaping their intrinsic motivation and emotions towards their profession. Therefore, it is important for future research to continue to explore avenues in which to strengthen teacher-student connections while also supporting teachers in their ability to manage their students in the classroom: especially in areas like DPA where they may need additional assistance. Partnerships between teacher-kinesiology students can not only assist teachers in fostering their relatedness to students through PA, but enable both teachers and students "to reap the benefits of a PE specialist's knowledge, passion, and mentoring that embraces and celebrates PE and DPA" (Patton, 2012, p. 101).

Program-related Goals and Feasibility

A secondary purpose of the present study was to explore the utility of the 6-week program from structural, logistical, and experiential perspectives. At pre-intervention, this involved asking about involvement goals while the post intervention focused more on programmatic logistics and feasibility. Participants then provided recommendations on how to improve the program in the future. Each has been discussed below by time-point.

Pre-intervention barriers to program involvement and DPA delivery. There were no perceived barriers to program involvement or goal attainment noted by participants before the intervention. This could be due to the nature of being involved in a research study; the participants were volunteering, suggesting that they were eager to join of their own volition. They may have also anticipated that involvement would facilitate their ability to overcome any barriers faced regarding DPA engagement at that time. A recent study's findings examining Ontario generalist elementary teachers perceived competence to deliver a DPA program

suggested that the likelihood of teachers participating in professional development programs can largely be dependent on their degree of motivation to teach DPA (Gilmore & Donohoe, 2016). Research has shown that mentoring programs can be effective and serve to ameliorate the sense of isolation and lack of support that early career teachers often feel (D'amato-Andrews & Quinn, 2005). Therefore, it may be inferred that participants in the present study had the motivation to improve their DPA practices and the sought resources and opportunities to help them do so.

Pre-intervention facilitators for program-related goal attainment. At the outset of the program, participants were asked what would facilitate their ability to achieve program-related goals. The most salient theme for all participants centered around gaining more resource knowledge (i.e., OPHEA curriculum) and harnessing the enthusiasm and expertise from the kinesiology student partnership. This finding is not surprising given research has shown that teachers feel inadequately prepared to implement PE-related lessons due to a lack of training/interest (Kelder et al., 2003; Ramcharan, 2015). Building on the findings of previous mentorship-based programs (e.g., "SPARK" program; Dowda et al., 2005; The "CATCH-ON" program; Kelder et al., 2003), the current study integrated a number of features to facilitate this "resource knowledge" goal: namely, the provision of training and retrieval/organization of equipment; ongoing support; and easy-use materials enabling the creation of quick lesson plans to help participants overcome apprehension around implementing structured DPA. Specifically, tailored resource/curricula (i.e., OPHEA) that aligned with underlying participant DPA-oriented values and philosophies was applied similar to previous non-DPA studies (Kelder et al., 2003; Storey et al., 2012). Asking about participant goals and values at the outset of a PA-based program may be an important precursor to subsequent success given studies have shown links between goal attainment and personalizing behaviour change programs in line with participant

beliefs (Cameron, Bertenshaw, & Sheeran, 2017; Gollwitzer, 1996, 1999; Gollwitzer & Moskowitz, 1996; Niemiec, Ryan, & Deci, 2009; Reeve, 2009; Smith, Ntoumanis, & Duda, 2007). Moreover, kinesiology students are inherently equipped with PA-related knowledge thereby making them ideally suited to create and deliver such programs.

Post-intervention program-related challenges. Given that early career teachers have many factors outside of their control that impact their ability to engage in DPA, it is important to explore the role that kinesiology student mentorships can play in facilitating implementation and PA-related professional development. To identify avenues for improving subsequent offerings, participants were asked at the end of the intervention to comment on challenges associated with involvement. The most re-occurring themes focused on scheduling realities and lack of equipment and infrastructure.

First, allocating time for DPA was identified as a detractor to goal attainment (i.e., enhancing activity levels). For example, participants discussed the challenges associated with scheduling full 20-minute blocks and/or breaking the 20-minutes up throughout the instructional day depending on other requirements. This finding aligns with current literature which states that delivery of PA content is dependent upon the mentor's schedule and responsibilities (Gilmore & Donohoe, 2016). Essentially, it is important to note an underlying sense of lacking control (i.e., autonomy) that appeared to exist for the participants regarding DPA scheduling before and following the intervention. While the kinesiology student mentor worked to accommodate schedules and preferences to assist with delivery throughout the four-week intervention phase (and participants noted their appreciation of these efforts), it would appear that more flexibility is needed for participants to feel fully in charge of their day-to-day. In light of the benefits observed by the participants themselves regarding DPA among their students (e.g., enhanced

concentration, improved productivity, better classroom management), alternative strategies for enabling regular 20-minute intervals are still needed (e.g., curricular weaving, collaborations with kinesiology students and programs).

Second, lack of equipment and infrastructure have been noted in the literature as systematic barriers to DPA/PE implementation (Dinkel et al., 2017; Strampel et al., 2014). This finding aligns with the present study which also identified that classrooms are not large enough for indoor DPA, and that there is a lack of PA-related equipment available to quickly and easily implement activities. Following study completion, one participant mentioned how sharing materials in a large school served as a deterrent to DPA implementation while two others spoke to their concerns of how DPA could disrupt neighbouring classrooms (e.g., limiting the types and degree of activities offered). In particular, one participant in the present study worked at an "open concept" school where classrooms are only separated by bookshelves. This form of infrastructure, while noted pedagogically as important for learning and promoting cohesion across classrooms/grades (Bennett, 2012; Harwood, Hudson, & Van Soest, 2008; Nair & Fielding, 2005), also has its drawbacks such as noise and distractions for students in neighbouring classes. To counter some of these space and infrastructure limitations, it has been suggested that teachers reserve the school gymnasium for DPA, just as one would do for a regularly scheduled PE class (Strampel et al., 2014). However, it was also noted that this may not be a realistic solution for all schools (Strampel et al., 2014) - sentiments expressed in the present study. In the absence of appropriate physical space, one alternative health promoting strategy may be to offset excessive sitting; that is, add a "sit less" mentality to the existing "move more" practice. According to the Canadian 24-Hour Movement Guidelines for Children and Youth (Canadian Society for Exercise Physiology, 2016), this young population spends a significant

portion of the day in sedentary pursuits which equates to substantial health risks (e.g., chronic disease development, depression; World Health Organization, 2018). Reducing seated time via integrating more standing or moving on the spot into lesson plans could be a complementary way to address infrastructure and equipment limitations. Other recommendations have included the creation of simple, equipment-free activity lists to assist with overcoming space issues (Strampel et al., 2014).

Post-intervention program-related benefits. Aligning with pre-intervention interview goals, the two most salient benefits identified following program completion involved participants enhancing their DPA toolkits with OPHEA resources, and the teacher-kinesiology student partnership with a focus on role modeling; intervention length was also discussed.

Davies and colleagues (1999) praise educators who continuously seek to improve their teaching effectiveness noting that this, in turn, will positively impact the children they teach. Following program completion, all participants noted that they valued enhancing their DPA toolkit from a professional development perspective. Consistent with previous mentorship studies (e.g., Kelder et al., 2003; Storey et al., 2012), participants shared that they experienced improved motivation regarding teaching DPA. Given that motivation is an important predictor of sustained behaviour change (Ryan, Patrick, Deci, & Williams, 2008), this finding, though anecdotal, is noteworthy. Self-determination theory research has highlighted that for individuals to move toward self-determination in regard to making a positive change, they must first grasp the importance of the behaviour and integrate their values into its performance (Deci & Ryan, 2000). In light of generalist teachers' perceptions that external support and funding for DPA is insufficient (Allison et al., 2018; Naylor et al., 2015), motivation to learn and enhance one's leadership and toolbox is important for fostering competence to deliver DPA (Gilmore &

Donohoe, 2016). The OPHEA DPA resources and related activities were deemed especially helpful for facilitating student enjoyment and learning as they: required no/minimal equipment; were inclusive; addressed more than just physical skills (i.e., mental, emotion-regulating, and life skill-based); and could be easily integrated with other curricula such as numeracy and literacy. These findings are corroborated with previous literature (Carlson et al., 2008; Kennedy et al., 2018; Kogon, 2017; Strampel et al., 2014), wherein new games and limited set up time were ranked as the most helpful for breaking down barriers to DPA. Furthermore, retention and availability of classroom resources/equipment have been considered vital by teachers for DPA sustainability once a PA mentor/facilitator departs from the school (Storey et al., 2012).

It is important to note that at post-intervention, participants discussed the value of the kinesiology student and the positive student outcomes that they experienced throughout the intervention, which may have facilitated their program involvement goals and impacted their ability to engage in DPA. Two participants highlighted the value of role modeling on both a teacher and student level, especially with respect to the visual demonstrations to promote competence in activity delivery, and exposure to a variety of new activities. It may be the case that having an 'expert' to (re)introduce teachers to using resources such as OPHEA via role modeling and tailoring is needed in order to address existing barriers to DPA delivery and facilitate safe and effective DPA lessons. Participants suggested that post-secondary kinesiology student placements for PE/DPA-related programming be created whereby they transfer to different classrooms throughout the day across local schools. This could be a mutually beneficial opportunity for both parties wherein teachers gain assistance with DPA delivery and reap the associated benefits while kinesiology students are able to apply their skills and knowledge in a real-world setting.

This four-week pilot study with the unique addition of a two-week graduated period enabled participants to reflect upon the impact of a MSc kinesiology student mentor in comparison to implementing DPA independently. Consequently, each participant spoke to how the intervention length was appropriate and impactful for their program goals/outcomes. According to Michie and Abraham's (2004) research on theory-based health interventions, the greater number of weeks person-to-person counselling is delivered, the more effective it is. Based on their findings, a range of four to seven sessions in an intervention was deemed especially effective (Fiore et al., 1996; Michie & Abraham, 2004). Within the current kinesiology student-teacher mentorship study, two participants received seven sessions, while one participant preferred to participate daily whenever possible, totaling 16 sessions. Therefore, it can be implied that participants received an optimal number of sessions according to previous intervention research, as well as to their personal preferences.

Study Strengths and Limitations

Strengths

Similar to research integrating PA leaders/specialists to help implement PE (e.g., Perry et al., 1990; Sallis et al., 1997), it appears that engaging in a mentorship program with a MSc kinesiology student specific to *DPA implementation*, was of interest for and valuable to these three participants. To my knowledge, this is the first study of its kind to use this pairing in a DPA context. Overall, participants appreciated the partnership, especially in relation to the role modeling and resource knowledge provided. An additional and unique study strength is its' theoretical underpinnings which served to inform the rationale and methodology. Notably, the interview guide was created using SDT and the BPN in order to explore the participants' perceptions of the barriers and facilitators associated with implementing DPA. The insurgence of

theory in health behaviour research has helped to inform and test interventions of real-world practicality in a variety of health behaviour contexts (Patrick & Williams, 2012). The present study was applied in nature which enabled the exploration of this novel program's utility in a real-world setting.

Inclusion of theory is also important when considering the feasibility properties of a study (Green, 2000). The secondary goal of this research was to glean the structural, logistical, and experiential perspectives associated with the DPA mentorship program. These data enabled insights into what worked (and what did not) in terms of program structure, logistics, and implementation. Weatherson and colleagues (2017) noted how theoretical analysis of the barriers and facilitators affecting implementation of school-based PA policies is advantageous, wherein it provides a framework for comprehensively understanding the relationship between these factors and the mechanisms by which they impact teacher behaviour. Policymakers, researchers, and individuals responsible for delivering policies like DPA should seek to understand the connections from a theoretical perspective to improve the uptake of policy into practice via evidence-based strategies (Weatherson et al., 2017). This theoretical basis has important implications for furthering the field of PA mentorship-based research specific to DPA in elementary schools and in an early career teacher population.

One final study strength is its qualitative focus: important for addressing areas of concern in applied health research (Xu & Storr, 2012). According to Straus and colleagues (2010), qualitative methods are a helpful approach in order to explore the "active ingredients" (p. E96) of an intervention. The MSc kinesiology student's awareness of her position as an instrument of this research (Xu & Storr, 2012) enabled her to work closely with each participant and create a rich representation of the complex relations and discourses within the elementary school

classroom via observations, informal conversations, formal interviews, and reflections on the process (Borduas, 2017).

Overall, this is the first DPA mentorship intervention delivered by a MSc kinesiology student, theoretically grounded in SDT, and exploring the promotion of student DPA among early career teachers. By capturing this unique population's study-related experiences, future larger-scale DPA mentorship studies can now be developed.

Limitations

One limitation of the present study is the notion of social desirability (Edwards, 1957) which can be defined as: "the tendency of subjects to attribute to themselves statements which are desirable and reject those which are undesirable" (Abstract). In the present study, the MSc kinesiology student delivered the intervention and conducted both the pre- and post-intervention semi-structured interviews to better comprehend the barriers and facilitators related to DPA and glean each participant's program goals and expectations. This approach was taken purposefully in order to promote rapport building within the partnership. Yet, having participants interviewed by the MSc kinesiology student at post-intervention regarding areas for improvement and whether/how the kinesiology student's involvement benefitted them throughout program could have evoked socially desirable responses (Tourangeau & Yan, 2007). Despite efforts to reduce this occurrence (e.g., using honesty demands; Sanjari et al., 2014; Warusznski, 2002), it is possible that some responses were influenced by the MSc kinesiology student's presence. Therefore, it is important to interpret the findings with this in mind. Future researchers could consider employing another member of the research team to conduct post-intervention interviews to limit any biases associated with the interviewer's presence. To strengthen the interview findings further, it is recommended that future researchers apply the practice of triangulation to

enhance the trustworthiness (Decrop, 1999; Lincoln & Guba, 1985) of the data. In hindsight, it could also have been valuable to include an interview immediately following completion of the four-week intervention to capture involvement experiences in real time versus having to reflect back upon them after two weeks passed. This could have served to attenuate any recall bias that could have been present.

A second study limitation is the smaller than expected sample size. Despite a lengthy recruitment period and frequent contact with the local school board, only three participants were enrolled in the study. Recruitment challenges experienced during this study (i.e., low participant enrollment) are consistent with other, similar qualitative studies (Storey et al., 2015), which highlights the difficulties associated with engaging teachers in externally sourced professional development. While qualitative research typically involves smaller sample sizes in order to investigate the chosen topic in its entirety and provide rich data specific to a particular context (Awoko-Higginbottom, 2004; Grbich, 1999), having additional participants from a range of schools would have been useful in order to enhance the transferability of the findings.

Considerations for Future DPA Mentorship Studies with Early Career Teachers

The first objective of the present study was to glean participants' experiences with the partnership-based program through a BPN lens using semi-structured interviews. Given the detailed and contextualized data that emerged from this qualitative approach (Creswell, Plano-Clark, Gutmann, & Hanson, 2003; Kowalski et al., 2018; Straus et al., 2010; Xu & Storr, 2012) future PA-related interventions should consider collecting quantitative data to compliment and support qualitative findings – especially as this type of program is scaled up. Specifically, questionnaires based on the SDT framework have been adapted to a teaching context in light of the positive implications observed when fostering BPN (e.g., Korthagen & Evelein, 2016).

However, a PA/PE/DPA-specific scale to assess BPN for generalist teachers does not currently exist. Therefore, researchers should consider developing and testing instruments to be validated in this context in order to assess BPN quantitively.

With regards to study logistics, future researchers should consider using word-of-mouth or other in-person avenues as the primary means of recruitment. Being explicit in communications with busy administrators and staff, and scheduling intentional meetings are recommended in an effort to highlight the benefits of program involvement (e.g., cost-effective professional development opportunity; student academic benefits). Researchers should make an effort to reach out to potential participants directly rather than taking a more passive/indirect approach to recruitment (e.g., via email, posters, and administrative relaying). Anecdotally, given the challenges with participant recruitment experienced in the present study, it is recommended to begin far in advance (i.e., the previous school year) in order to engage teachers before fall so they can plan ahead for their involvement in the study during the school year. Feedback from one participant obtained during the post-intervention interviews also highlighted the importance of advertising incentives for participation.

All participants in the present study reported that the length of the intervention (i.e., four weeks) was an optimal amount of time for them to participate. Given this was the first study of its kind, a four-week intervention with a two-week graduated period was created in line with other behaviour change interventions (e.g., smoking cessation; Department of Health, 2000; Michie & Abraham, 2004; Raw, McNeill, & West, 1999). It was also thought that creating a lengthy intervention could have served to deter already busy participants from involvement. Imploring a graduated approach aligned with a recent BPN fulfillment study in the teaching profession where a gradual strategy was identified as a viable approach as the complexity of

teaching duties increased over the course of the year (Korthagen & Evelein, 2016). The graduated period was also created to empower participants' competence and autonomy to independently deliver DPA more effectively to their students following the close mentorship portion of the program. With regards to individual sessions, efforts were made to tailor offerings by participant preference (e.g., in 5-10-minute increments or 20-minute blocks). However, logistically for the mentor and to limit disruption amongst students, a 20-minute window is recommended.

One strength of the present study was the use of a graduate level MSc kinesiology student to create and deliver the intervention. Building on her undergraduate thesis which centred around the provision of a 12-week tailored PE program to an elementary school teacher and her class, the student was educated in resource development and implementation (e.g., OPHEA). Combined with her educational background in kinesiology and health promotion, the student was well equipped to deliver the intervention. Site-based partnerships such as this have been viewed as a catalyst for the professional development of early career teachers (Davies et al., 1999). In light of the economic and competing curricular barriers experienced in relation to delivering DPA as intended per provincial guidelines, it would seem that kinesiology students are ideally positioned to assist in this vein. To further explore the utility of teacher-kinesiology student DPA mentorships over time as a means for PE-related professional development among early career teachers, it would be beneficial to implement a similar study on a larger-scale. Furthermore, as the intervention agent (i.e., a kinesiology student in their classrooms) was identified by participants as being helpful, it would also be valuable to explore the efficacy of teacher-kinesiology student partnership placements among teachers of varying teaching experience. This is especially the case in more remote, northern Ontario locations such as the Thunder Bay region

where participants may not have adequate access to professional development opportunities aimed at improving PE/PA practices.

Conclusion

The low rates of DPA programming in schools (Allison et al., 2018) and childhood PA rates in general (ParticipACTION, 2018), combined with the known benefits of mentorship models in an educational context (e.g. APPLE Schools, 2018; Carlson et al., 2008; GoodLife4Kids, 2018; Kennedy et al., 2018; Perry et al., 1990), highlight the need for an innovative health promotion strategy. Therefore, given the competing demands facing early career teachers who are learning how to blend their own unique teaching style with traditional teaching practices, it is important for researchers to meet teachers where they are at. Thus, identifying avenues to offset these challenges is an important priority. Partnering with a knowledgeable mentor has shown considerable promise as an intervention for evoking PA engagement in the elementary school classroom (Davies et al., 1999; Kelder et al., 2003; McKenzie et al., 1997; Rickwood, 2015). Health promotion strategies with theoretical underpinnings can provide effective professional development for PE-related policies like DPA, and have also been deemed helpful (Kogon, 2017; Korthagen & Evelein, 2016). Findings from this qualitative study suggest that a 6-week, DPA specific mentorship-based intervention using OPHEA curriculum appears to be an effective means for supporting the satisfaction of SDT's basic psychological needs (i.e., autonomy, competence, and relatedness) among these early career teachers. This program provided unique insights into participants' study-related experiences from the perspective of SDT (Deci & Ryan, 2000, 2002; Ryan & Deci, 2000), and new empirical evidence with regards to the relationship between the need-supportive environment and PA mentorship in an education context. Participants discussed a range of

factors that posed as barriers to and facilitators for the BPNs based on their unique experiences in the context of DPA engagement and practice, program goals and logistics, and their study-related experiences in general. Overall, their experience was positive. They valued the additional OPHEA resources, guidance, and support provided by the kinesiology student. Heightened autonomy regarding prioritizing DPA, enhanced competence for delivery as a function of role modeling and greater knowledge, and stronger collaborations with colleagues were noted as beneficial outcomes. Participants experienced improvements in their motivation regarding what and how to integrate DPA into their classroom schedules, and confidence scores supported these findings whereby increases were observed from pre- to post-intervention. Participants also discussed several program-related components that promoted their ability to prioritize DPA upon completing the intervention including a variety of activities, curricular weaving, visual demonstrations providing by the mentor, and help with routine building. Improved student management was also noted as a valued outcome of involvement.

Cumulatively, these findings suggest that teacher-MSc kinesiology student DPA mentorship programming provides the resources (i.e., OPHEA) and strategies necessary to facilitate the SDTs psychological needs and improve motivation to engage in DPA to benefit student health and academic success. Given the positive findings from the present study and the fact that the teachers can be difficult to engage in (D)PA-related interventions due to competing curricular demands (Kogan, 2017; Morgan & Hansen, 2008; Patton, 2012; Strampel et al., 2014), theoretically grounded teacher-kinesiology student partnerships could be an efficacious method for encouraging DPA engagement, especially in early career teachers and, consequently, their students. The preliminary findings of this small-scale pilot study highlight the need for more

DPA research to explore mentor-oriented programming aimed at enhancing BPN satisfaction in a classroom setting further.

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Appendix A: Get Activity Questionnaire (GAQ)

CSEP | SCPE
THE GOLD STANDARD IN EXERCISE SCIENCE AND PERSONAL TRAINING

Get Active Questionnaire

CANADIAN SOCIETY FOR EXERCISE PHYSIOLOGY –
PHYSICAL ACTIVITY TRAINING FOR HEALTH (CSEP-PATH®)

Physical activity improves your physical and mental health. Even small amounts of physical activity are good, and more is better.

For almost everyone, the benefits of physical activity far outweigh any risks. For some individuals, specific advice from a Qualified Exercise Professional (QEP – has post-secondary education in exercise sciences and an advanced certification in the area – see csep.ca/certifications) or health care provider is advisable. **This questionnaire is intended for all ages – to help move you along the path to becoming more physically active.**

☐ I am completing this questionnaire for myself.

☐ I am completing this questionnaire for my child/dependent as parent/guardian.

PREPARE TO BECOME MORE ACTIVE

The following questions will help to ensure that you have a safe physical activity experience. Please answer YES or NO to each question before you become more physically active. If you are unsure about any question, answer YES.

YES	NO	
		1 Have you experienced **ANY** of the following (A to F) **within the past six months**?
○	○	**A** A diagnosis of/treatment for heart disease or stroke, or pain/discomfort/pressure in your chest during activities of daily living or during physical activity?
○	○	**B** A diagnosis of/treatment for high blood pressure (BP), or a resting BP of 160/90 mmHg or higher?
○	○	**C** Dizziness or lightheadedness during physical activity?
○	○	**D** Shortness of breath at rest?
○	○	**E** Loss of consciousness/fainting for any reason?
○	○	**F** Concussion?
○	○	2 Do you currently have pain or swelling in any part of your body (such as from an injury, acute flare-up of arthritis, or back pain) that affects your ability to be physically active?
○	○	3 Has a health care provider told you that you should avoid or modify certain types of physical activity?
○	○	4 Do you have any other medical or physical condition (such as diabetes, cancer, osteoporosis, asthma, spinal cord injury) that may affect your ability to be physically active?

NO to all questions: go to Page 2 – ASSESS YOUR CURRENT PHYSICAL ACTIVITY

YES to any question: go to Reference Document – ADVICE ON WHAT TO DO IF YOU HAVE A YES RESPONSE

CSEP | SCPE
THE GOLD STANDARD IN EXERCISE SCIENCE AND PERSONAL TRAINING

Get Active Questionnaire

ASSESS YOUR CURRENT PHYSICAL ACTIVITY

Answer the following questions to assess how active you are now.

1 During a typical week, on how many days do you do moderate- to vigorous-intensity aerobic physical activity (such as brisk walking, cycling or jogging)? ☐ DAYS/WEEK

2 On days that you do at least moderate-intensity aerobic physical activity (e.g., brisk walking), for how many minutes do you do this activity? ☐ MINUTES/DAY

For adults, please multiply your average number of days/week by the average number of minutes/day: ☐ MINUTES/WEEK

Canadian Physical Activity Guidelines recommend that adults accumulate at least 150 minutes of moderate- to vigorous-intensity physical activity per week. For children and youth, at least 60 minutes daily is recommended. Strengthening muscles and bones at least two times per week for adults, and three times per week for children and youth, is also recommended (see csep.ca/guidelines).

GENERAL ADVICE FOR BECOMING MORE ACTIVE

Increase your physical activity gradually so that you have a positive experience. Build physical activities that you enjoy into your day (e.g., take a walk with a friend, ride your bike to school or work) and reduce your sedentary behaviour (e.g., prolonged sitting).

If you want to do **vigorous-intensity physical activity** (i.e., physical activity at an intensity that makes it hard to carry on a conversation), and you do not meet minimum physical activity recommendations noted above, consult a Qualified Exercise Professional (QEP) beforehand. This can help ensure that your physical activity is safe and suitable for your circumstances.

Physical activity is also an important part of a healthy pregnancy.

Delay becoming more active if you are not feeling well because of a temporary illness.

DECLARATION

To the best of my knowledge, all of the information I have supplied on this questionnaire is correct.
If my health changes, I will complete this questionnaire again.

I answered NO to all questions on Page 1

Sign and date the Declaration below

I answered YES to any question on Page 1

Check the box below that applies to you:

☐ I have consulted a health care provider or Qualified Exercise Professional (QEP) who has recommended that I become more physically active.

☐ I am comfortable with becoming more physically active on my own without consulting a health care provider or QEP.

Name (+ Name of Parent/Guardian if applicable) [Please print]	Signature (or Signature of Parent/Guardian if applicable)	Date of Birth

Date	Email (optional)	Telephone (optional)

With planning and support you can enjoy the benefits of becoming more physically active. A QEP can help.

☐ Check this box if you would like to consult a QEP about becoming more physically active.
(This completed questionnaire will help the QEP get to know you and understand your needs.)

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Get Active Questionnaire – Reference Document

ADVICE ON WHAT TO DO IF YOU HAVE A **YES** RESPONSE

Use this reference document if you answered YES to any question and you have not consulted a health care provider or Qualified Exercise Professional (QEP) about becoming more physically active.

1 Have you experienced ANY of the following (A to F) within the past six months?	
A A diagnosis of/treatment for heart disease or stroke, or pain/discomfort/pressure in your chest during activities of daily living or during physical activity? ☐ YES	Physical activity is likely to be beneficial. If you have been treated for heart disease but have not completed a cardiac rehabilitation program within the past 6 months, consult a doctor – a supervised cardiac rehabilitation program is strongly recommended. If you are resuming physical activity after more than 6 months of inactivity, begin slowly with light- to moderate-intensity physical activity. If you have pain/discomfort/pressure in your chest and it is new for you, talk to a doctor. Describe the symptom and what activities bring it on.
B A diagnosis of/treatment for high blood pressure (BP), or a resting BP of 160/90 mmHg or higher? ☐ YES	Physical activity is likely to be beneficial if you have been diagnosed and treated for high blood pressure (BP). If you are unsure of your resting BP, consult a health care provider or a Qualified Exercise Professional (QEP) to have it measured. If you are taking BP medication and your BP is under good control, regular physical activity is recommended as it may help to lower your BP. Your doctor should be aware of your physical activity level so your medication needs can be monitored. If your BP is 160/90 or higher, you should receive medical clearance and consult a QEP about safe and appropriate physical activity.
C Dizziness or lightheadedness during physical activity ☐ YES	There are several possible reasons for feeling this way and many are not worrisome. Before becoming more active, consult a health care provider to identify reasons and minimize risk. Until then, refrain from increasing the intensity of your physical activity.
D Shortness of breath at rest ☐ YES	If you have asthma and this is relieved with medication, light to moderate physical activity is safe. If your shortness of breath is not relieved with medication, consult a doctor.
E Loss of consciousness/fainting for any reason ☐ YES	Before becoming more active, consult a doctor to identify reasons and minimize risk. Once you are medically cleared, consult a Qualified Exercise Professional (QEP) about types of physical activity suitable for your condition.
F Concussion ☐ YES	A concussion is an injury to the brain that requires time to recover. Increasing physical activity while still experiencing symptoms may worsen your symptoms, lengthen your recovery, and increase your risk for another concussion. A health care provider will let you know when you can start becoming more physically active, and a Qualified Exercise Professional (QEP) can help get you started.

After reading the ADVICE for your YES response, go to Page 2 of the *Get Active Questionnaire* – ASSESS YOUR CURRENT PHYSICAL ACTIVITY

CSEP | SCPE
THE GOLD STANDARD IN EXERCISE SCIENCE AND PERSONAL TRAINING

Get Active Questionnaire – Reference Document

ADVICE ON WHAT TO DO IF YOU HAVE A **YES** RESPONSE

Use this reference document if you answered YES to any question and you have not consulted a health care provider or Qualified Exercise Professional (QEP) about becoming more physically active.

2 Do you currently have pain or swelling in any part of your body (such as from an injury, acute flare-up of arthritis, or back pain) that affects your ability to be physically active? ☐ YES

If this swelling or pain is new, consult a health care provider. Otherwise, keep joints healthy and reduce pain by moving your joints slowly and gently through the entire pain-free range of motion. If you have hip, knee or ankle pain, choose low-impact activities such as swimming or cycling. As the pain subsides, gradually resume your normal physical activities starting at a level lower than before the flare-up. Consult a Qualified Exercise Professional (QEP) in follow-up to help you become more active and prevent or minimize future pain.

3 Has a health care provider told you that you should avoid or modify certain types of physical activity? ☐ YES

Listen to the advice of your health care provider. A Qualified Exercise Professional (QEP) will ask you about any considerations and provide specific advice for physical activity that is safe and that takes your lifestyle and health care provider's advice into account.

4 Do you have any other medical or physical condition (such as diabetes, cancer, osteoporosis, asthma, spinal cord injury) that may affect your ability to be physically active? ☐ YES

Some people may worry if they have a medical or physical condition that physical activity might be unsafe. In fact, regular physical activity can help to manage and improve many conditions. Physical activity can also reduce the risk of complications. A Qualified Exercise Professional (QEP) can help with specific advice for physical activity that is safe and that takes your medical history and lifestyle into account.

After reading the ADVICE for your YES response, go to Page 2 of the *Get Active Questionnaire* – ASSESS YOUR CURRENT PHYSICAL ACTIVITY

WANT ADDITIONAL INFORMATION ON BECOMING MORE PHYSICALLY ACTIVE?

- **csep.ca/certifications**
  CSEP Certified members can help you with your physical activity goals.
- **csep.ca/guidelines**
  Canadian Physical Activity Guidelines for all ages.

Appendix B: Lakehead University Research Ethics Board Approval Notice

Lakehead UNIVERSITY

Research Ethics Board
t: (807) 343-8283
research@lakeheadu.ca

April 09, 2019

Principal Investigator: Dr. Erin Pearson
Student: Rebecca Kennedy
Faculty of Health and Behavioural Sciences\School of Kinesiology
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1

Dear Dr. Pearson and Ms. Kennedy:

Re: Romeo File No: 1467008
Granting Agency: N/A
Agency Reference #:N/A

On behalf of the Research Ethics Board, I am pleased to grant ethical approval to your research project titled, "Exploring the Feasibility of a Mentorship Program for Teachers on Daily Physical Activity Delivery in the Elementary School Classroom".

Ethics approval is valid until April 9, 2020. Please submit a Request for Renewal to the Office of Research Services via the Romeo Research Portal by March 9, 2020 if your research involving human participants will continue for longer than one year. A Final Report must be submitted promptly upon completion of the project. Access the Romeo Research Portal by logging into myInfo at:

https://erpwp.lakeheadu.ca/

During the course of the study, any modifications to the protocol or forms must not be initiated without prior written approval from the REB. You must promptly notify the REB of any adverse events that may occur.

Best wishes for a successful research project.

Sincerely,

Dr. Lori Chambers
Chair, Research Ethics Board

/sm

Appendix C: Lakehead Public School Board Research Ethics Approval Notice

Lakehead Public School Board Ethics – 04/12/19 Pearson & Kennedy

RESEARCH APPLICATION FORM

Approved by _____
Superintendent Responsible for Research
Lakehead District School Board

Date Approved April 4/18

1. Title of Research: Exploring the Feasibility of a Mentorship Program for Teachers on Daily Physical Activity Delivery in the Elementary School Classroom
2. Name of Researcher(s): Erin Pearson, PhD; Rebecca Kennedy, MSc Candidate
3. Position(s) of Researcher(s): Assistant Professor, Lakehead University, School of Kinesiology; Graduate Student, Lakehead University, School of Kinesiology
4. Name of Faculty Advisor or Organizational Supervisor: Lakehead University
5. Brief Abstract of Research Project (Maximum 500 words, typed)

Appendix D: Principal Permission Letter-Script-Email

REQUEST FOR PERMISSION TO RECRUIT IN SCHOOLS E-MAIL/LETTER/SCRIPT

PRINCIPALS AND VICE-PRINCIPALS

Dear _____,

My name is Rebecca Kennedy and I am a Master of Science in Kinesiology student at Lakehead University. The reason I am reaching out to you is because I am undertaking a study titled, “Exploring the Feasibility of a Mentorship Program for Teachers on Daily Physical Activity Delivery in the Elementary School Classroom” under the supervision of Dr. Erin Pearson, Assistant Professor in the School of Kinesiology at Lakehead University.

As the (vice) principal of _____, I would like to ask your permission to recruit early career teachers (i.e., those with five years of experience or less) at your school to participate in this study. With your permission, this could include posting study advertisements within your school, speaking with teachers who qualify based on your recommendation or through their own self-identification, and possibly attending your school in-person (e.g., via a staff meeting) to give a brief summary about the study. I have attached the Participant Information Letter to inform you of the nature of the study and requirements of participants.

Please do not hesitate to contact me should you have questions or wish to discuss the study further.

Thank you for your consideration.

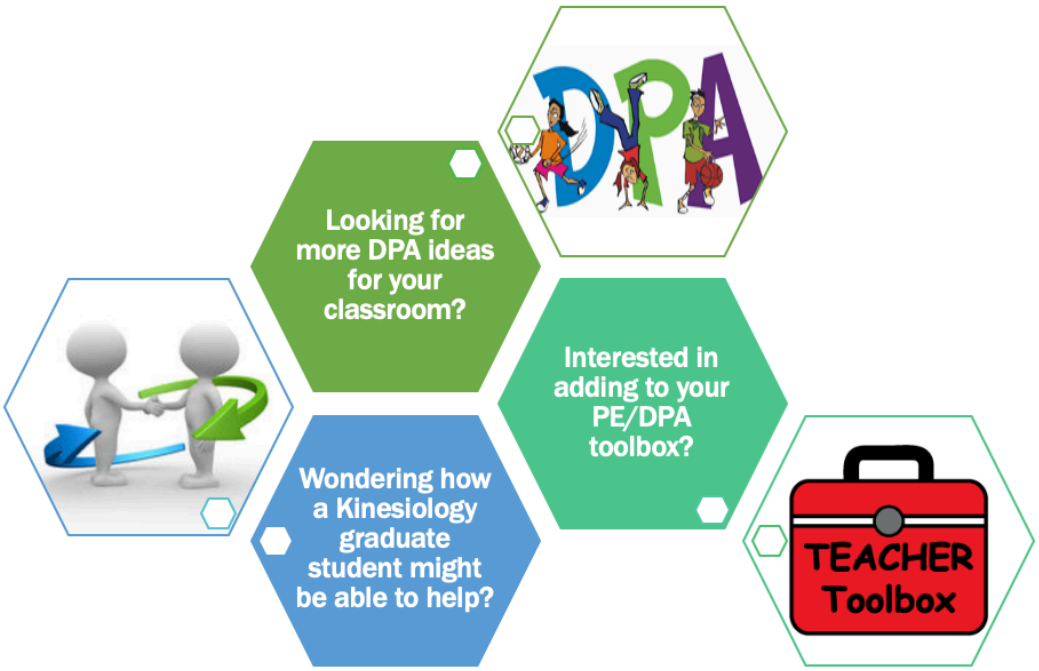
Sincerely,

Rebecca Kennedy, MSc Candidate
School of Kinesiology, Lakehead University
rakenne1@lakeheadu.ca

Appendix E: Participant Recruitment Poster

Lakehead UNIVERSITY | School of Kinesiology

ELEMENTARY TEACHERS WANTED FOR STUDY



Lakehead Researchers are exploring the effectiveness of a 6-week DPA-mentorship program. We are looking for teachers who are:

- **Newer to teaching with ≤ 5 experience**
- **Employed full-time with the Lakehead Public School Board**
- **Interested in expanding their knowledge on classroom DPA strategies**

For more information or to volunteer for this study, please contact:

Rebecca Kennedy
MSc in Kinesiology Candidate
rakenne1@lakeheadu.ca
(807) 343-8481

Appendix F: Teacher-Email-Phone-In-Person Script

Recruitment – Phone-In-person-Email Script for Potential Participants

Hello, my name is Rebecca Kennedy, and I am currently pursuing a Master of Science degree in the School of Kinesiology at Lakehead University. As part of my studies, I am undertaking a thesis project titled, *"Exploring the Feasibility of a Mentorship Program for Teachers on Daily Physical Activity in the Elementary School Classroom"* under the supervision of Dr. Erin Pearson, Assistant Professor in the School of Kinesiology.

We are looking for early career elementary teachers who are interested in learning about new ways to deliver DPA and adding to their physical activity toolboxes while working alongside a kinesiology graduate student. So, I am here (emailing; calling) to invite you to participate in this study. In order to enroll, you need to be newer to teaching with five years or less teaching experience, employed full-time within the Lakehead Public School Board, and interested in expanding your knowledge on classroom DPA strategies. I'd like to give you a few more details on the purpose of the project if that is ok?

Specifically, we want to explore the feasibility of a 6-week mentorship program that is designed to assist early career teachers with delivering DPA using Ontario Physical and Health Education Association (OPHEA) resources. The intent is for the graduate student to act as a support for teachers in a way that works for them (e.g., leading the activities, observing the teacher leading the activities, co-leading the activities). On a weekly basis throughout the program, the student and teacher will meet to create a personalized weekly DPA plan for the classroom – this will be tailored to times and activities that work for the teacher and his or her students.

Because this is a research study, we are very interested in hearing participant views on the program (things like the structure, what worked, what didn't) – basically, what was this experience like for you? This information will be captured through completion of a few questionnaires asking about things like your physical activity history and teaching background. We will also be asking participants to partake in an interview with the student researcher before and after the program to provide insights into their program experiences.

Email – I have attached an information letter for you which contains additional details on the study. Please don't hesitate to reach out via email or phone if you have any thoughts or questions.

In person - Do you have any questions you'd like to ask?

Thank you so much for your time and allowing me to present (share information about) this study to you.

For more information, please contact me at:
Rebecca Kennedy (MSc Candidate, Lakehead University)
rakenne1@lakeheadu.ca

Appendix G: Teacher Letter of Information

Dear Potential Participant,

Thank you for expressing an interest in the study titled, “Exploring the Feasibility of a Mentorship Program for Teachers on Daily Physical Activity (DPA) Delivery in the Elementary School Classroom.” I, Rebecca Kennedy, a Master of Science (MSc) in Kinesiology student, will undertake this study under the supervision of Dr. Erin Pearson, Assistant Professor in the School of Kinesiology. You are being invited to participate because you are an early career teacher employed within the Lakehead Public School Board with five years of experience or less in your role. You have also expressed an interest in receiving assistance with and expanding your knowledge on classroom DPA strategies.

STUDY PURPOSE

The purpose is to explore the feasibility of a 6-week mentorship program that is designed to assist early career teachers with teaching DPA using OPHEA resources. We are also interested in hearing your views on the program (e.g., structure, logistics, theoretical, experiences). In addition to the mentorship program, your involvement will entail the completion of a demographic information form and a one-on-one interview conducted before and after the 6-week intervention.

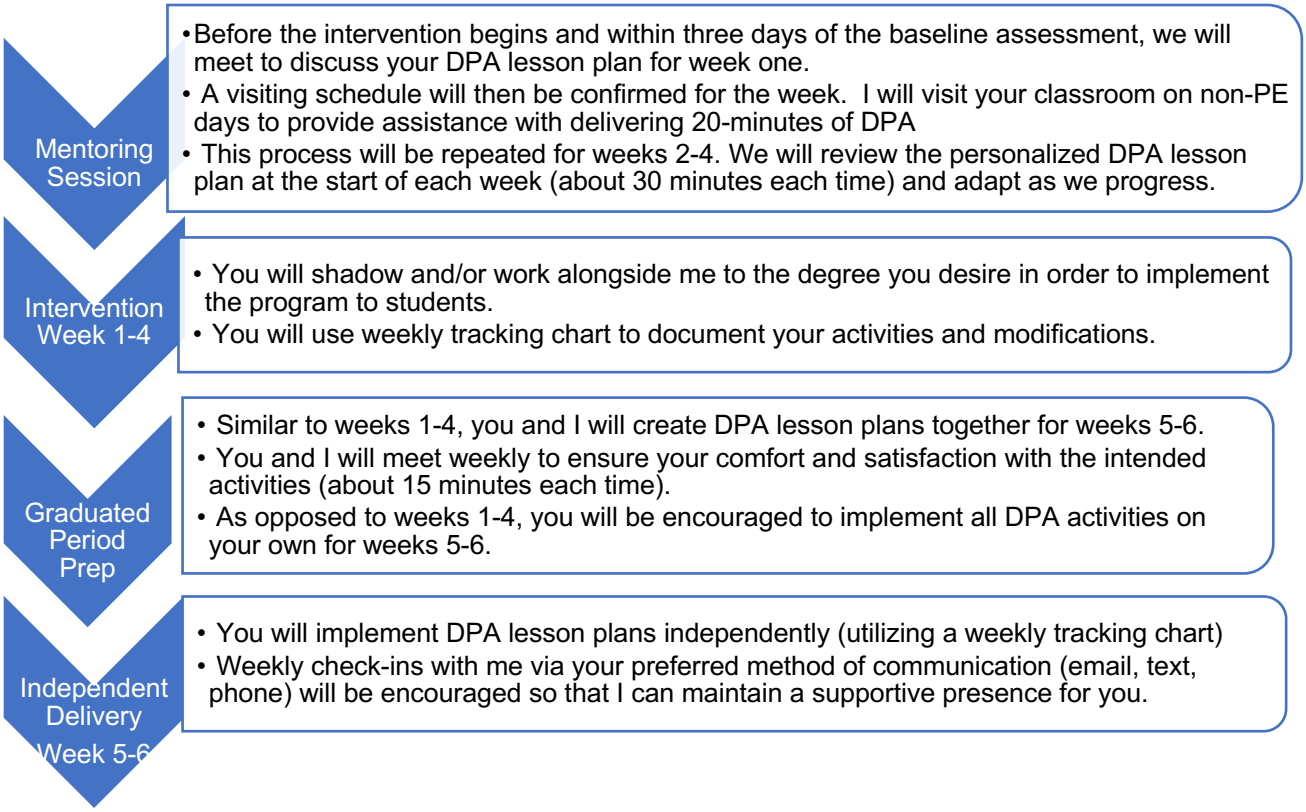
WHAT INFORMATION WILL BE COLLECTED?

Once you provide informed consent, you will be asked to complete the Get Active Questionnaire (a screening tool to ensure a safe physical activity experience) and a demographic information form (e.g., asking about your professional history, DPA-related practices, etc.). Then, you will participate in an audio-recorded one-on-one interview with me so that the researchers can understand your expectations, history, and experiences regarding physical activity and DPA. After completing these components, you will meet with me for a DPA Consultation where we will discuss your existing practices and goals for the 6-week intervention. This information will be used to develop a personalized DPA plan integrating OPHEA resources for week 1 of the intervention. The completion of the informed consent process, initial demographic information form, interview, and DPA Consultation will take approximately 60-90 minutes.

In order to monitor your DPA-related activities from weeks 1-6, I will ask that you complete weekly tracking charts and submit them at the end of each week (approximately 15 minutes per week). If you make any modifications to lesson plans/curricula, I ask that you document these changes as part of the tracking charts. A one-on-one interview will also be conducted at the end of week six in order to hear from you regarding your program experience (approximately 45 minutes).

WHAT IS REQUESTED OF ME AS A PARTICIPANT?

As a participant, you will be asked to continue with your regular teaching duties (e.g., supervision of the students during class time). If there are circumstantial reasons for missing one of the DPA sessions (i.e., absence from school due to illness, appointments, etc.), you will still be able to participate in the remaining sessions and complete the required post-intervention questionnaire(s) and interview. After completion of the sixth week, we will arrange a date so that you can complete a one-on-one interview (ideally within one week of program completion).



WHAT ARE MY RIGHTS AS A PARTICIPANT?

As a researcher, it is my responsibility to inform you of your rights as a participant. As a participant, your involvement is completely voluntary. You may refuse to answer any questions or participate in any activity at any given time. You may also withdraw from this study at any time without penalty. You have the right to remain anonymous and to ensure this, all results from this study will be presented without identifiers. In the event of publication of the results, you will be referred to as "teacher" and not by name. The data will only be accessible to the researchers conducting this study (i.e., Dr. Pearson and myself). The data will be stored at Lakehead University for five years' time in a filing drawer in the locked office of the supervisor. Electronic data will be stored on a password-protected computer.

WHAT ARE THE RISKS AND BENEFITS?

There are no anticipated physical or psychological risks to you as a participant involved in this research project. However, because of the time required to participate, you should be aware that you may be taken away from teaching duties, and will be asked to spend time with the researcher to complete related tasks (e.g., completing logs, completing assessments, creating lesson plans); this commitment could fall outside of the regular teaching day. Information gathered from this study will be kept confidential; you will have the right and be encouraged to answer questions that you feel comfortable with. Students will not be at any greater risk than they would be as a result of participating in 'regularly scheduled' DPA. In the event that an injury does occur, there will be you, myself (a MSc kinesiology student trained in CPR/First Aid), and a telephone on hand during the sessions. Appropriate participant supervision will minimize this risk.

There are a number of direct benefits to you as a participant in this study. You may find participating in the DPA program with OPHEA curriculum enjoyable and informative. New

activities and ways to promote DPA/PA in the classroom could be acquired. You may also experience the psychological (e.g., improved concentration, enhanced physical literacy through visual demonstrations of activities) and physiological (e.g., higher energy, improved fitness) benefits of completing multiple bouts of acute exercise. Moreover, you may experience the psychological benefits of reflecting and providing perspectives on your current teaching methods which could result in enhancements to practice.

There are also some indirect benefits of participating in this study. As a participant, you will be able to express your opinions and provide future recommendations on enhancing DPA implementation efforts at a local level. In addition, you will have the chance to add to the existing research surrounding DPA and teacher-based strategies for delivery. This study may also enable increased participation in exercise, which in turn could lower the rates of sedentary activity and improve health-related outcomes in school children (e.g., improved concentration, higher energy, and improved fitness).

HOW CAN I RECEIVE A COPY OF THE RESEARCH RESULTS?
Participants will be made aware of the results if requested. Please contact me (information below) if you wish to receive a summary of the results following completion of the study. If you agree to participate, please sign and return the attached consent form. You may also contact me via phone or email with any additional questions or concerns or also feel free to contact the Lakehead University Office of Research Ethics.

RESEARCH ETHICS BOARD REVIEW AND APPROVAL:
This research study has been reviewed and approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

RESEARCHER CONTACT INFORMATION:

Thank you for your consideration,

Rebecca Kennedy, MSc Candidate – Student Researcher
(705) 987-0066
rakenne1@lakeheadu.ca

Dr. Erin Pearson, Student Supervisor
(807) 343-8481
espearso@lakeheadu.ca

Appendix H: Teacher Informed Consent Form

CONSENT TO PARTICIPATE IN RESEARCH

MY CONSENT:

I agree to the following:

- ✓ I have read and understand the information contained in the Letter of Information
- ✓ I agree to participate
- ✓ I understand the risks and benefits of the study
- ✓ I am a volunteer and can withdraw from the study at any time without penalty
- ✓ I can refuse to answer any question
- ✓ The data will be securely stored at Lakehead University for a minimum period of 5 years following completion of the research project
- ✓ I understand that the research findings will be made available to me upon request
- ✓ I will remain anonymous
- ✓ All of my questions have been answered

By consenting to participate, I have not waived any rights to legal recourse in the event of research-related harm.

_____ _____

(Please Print Name of Participant) (Date)

_____

(Signature of Participant)

Contact email or address for request of a copy of research results:

_____

Allowance of audio/video recording if applicable (please circle): YES / NO

Appendix I: Letter to Parent/Guardian

Dear Parent/Guardian,

My name is Rebecca Kennedy, and I am a Master of Science in Kinesiology student at Lakehead University. I am writing to inform you that I will be undertaking a research study in your child's classroom titled, "Exploring the Feasibility of a Mentorship Program for Teachers on Daily Physical Activity Delivery in the Elementary School Classroom." The purpose of this research is to explore how a 6-week mentorship program for teachers could enhance the delivery of daily physical activity to your child. This letter is to inform you of my presence in your child's classroom for the next 4 to 6 weeks where I will be working alongside the teacher to assist in Daily Physical Activity (DPA) lesson planning and delivery.

Your child and his/her classmates will not be involved in any part of the research. Rather, he/she will participate in DPA with the teacher just as he/she would be expected to do as part of the regular school day. Thus, it is not expected that any sort of risk or harm will come to your child beyond what is normally associated with being physically active at school. Appropriate supervision will always be present to minimize any risk. Potential benefits that your child may experience by participating in regular DPA include improved concentration, higher energy, and enhanced fitness. Ultimately, we hope this research will support the effective delivery of DPA to enhance the health of children and youth in our region.

The Lakehead Research Ethics Board and the Lakehead Public School Board have approved this research. If you have any questions concerning this study, please contact me via email, which can be found below.

Thank you for your time,

Rebecca Kennedy, MSc (c)
Student Researcher
rakenne1@lakeheadu.ca

Dr. Erin Pearson, Assistant Professor
Student Supervisor
espearso@lakeheadu.ca

Appendix J: Assent for Students

DPA Mentorship Program – Information for Students

Hello, my name is Rebecca Kennedy, and I am a student in kinesiology at Lakehead University. The reason I am writing is to tell you about a project I will be running in your class over the next 6 weeks. The purpose of my project is to try out different ways to do Daily Physical Activity – or DPA – in your class. I will be working closely with your teacher, _____, to come up with some plans each week.

What is DPA (program) all about?
The main point of DPA is to give students a chance to move around between subjects AND give them a break from sitting at their desks. DPA activities can even help you concentrate better in class, given you more energy, and make you feel good. The goal of this DPA project is for me and your teacher to learn some new ways to do activity in the classroom – then we will share them with you! You'll participate in DPA during class, same as always. The only difference is you might be trying some new activities that you haven't done before – like, move and freeze to upbeat music, rock-paper-scissors, chicken jacks, and more!

Will DPA hurt?
Just like with gym and other activities you do in your classroom, there isn't anything bad that can happen by doing DPA. Your teacher and me will be supervising you to make sure you stay safe. If you do get hurt or feel sick, be sure to let your teacher or myself know so that we can help you.

Will DPA make you feel good?
Doing DPA activities can help you be more active. It can help you focus better, have more energy, and make you healthier. Most importantly, exercising can be fun!

What if you have any questions?
You can ask me or your teacher questions at any time.

Do you have to do DPA?
Just like gym or math, you do have to do DPA as part of your school day. You may refuse to perform any activities that you do not feel comfortable with. No one will be mad at you if you don't want to do this. If you choose not to be involved, you will be asked to do other classroom activities by your teacher.

Appendix K: Demographic Information Survey

ID #: _____ Date: _____

Demographic Information Survey

Please provide information on aspects of yourself, your education/training, and sporting/physical activity experiences. Please CIRCLE or WRITE CLEARLY where appropriate.

1. **Gender _____**

2. **Age _____**

3. **School Name _____**

4. **Which university did you attend for your undergraduate degree and for teacher's college?**

Undergraduate:_____

Teacher's College: _____

5. **What is the name of the undergraduate degree you completed?**

_____

6. **How many years have you been teaching for?** Years: _____ Months: _____

7. **How many courses/credits of physical education did you complete at university?**

_____

8. **Is physical education one of your teachable subjects?**

Yes No

9a. **Do you have a physical education specialist working at your school currently?**

Yes___ No___ I am the physical education specialist__

b. If you answered "yes" to a), have you interacted with the physical education specialist to assist you in figuring out how to incorporate Daily Physical Activity (DPA) into the classroom?

Yes____ No____

10a. **Within your school setting, approximately how many hours of physical education do you teach per week?**

<1 1 – 2 2 – 3 3 – 4 4 – 5 5+

b. To what degree do you currently incorporate moderately intense physical activity into non-physical education classes?

Always___ Very Often___ Sometimes___ Rarely___ Never___

11. **Have you undertaken any professional development on how to incorporate DPA into non-physical education classes beyond your teaching degree? If so, please describe:**

12. **Do you tend to teach DPA on its own or do you integrate it with other curriculum subject areas?**

Yes, I integrate it on its own ___ Yes, I integrate it with other curricula ___

13. **Do you use Ontario Physical Health and Education Association (OPHEA) resources when planning and delivering DPA in classes?** □ Yes □ No

If yes, please elaborate on how OPHEA helps you to do so:

If no, please identify and elaborate on what other resources help you to do so:

Appendix L: Pre-Intervention Semi-Structured Interview Questions

Pre-intervention Semi-Structured Interview Questions

DPA Attitudes and School Culture

- What is your general opinion on DPA?
    - Probe: personal values, knowledge, attitudes of PA?
- What seems to be the general attitude toward DPA in your school?
- How does your administrator hold teachers accountable to DPA (if at all)?
    - Probe: What types of accountabilities exist for DPA (PE?)?
- What facilitators exist to assist teachers with the delivery of DPA? Can you provide an example?
    - Probe: School board? Administration? OPHEA? Other?
    - Probe: lesson plans, description of activities, music provided, etc.
- What barriers make it difficult to deliver DPA, if any? Can you provide an example?
    - Probe: Competing demands, time, school policies
    - Probe: How do you think those challenges might be overcome?

Current DPA Practices and Program Goals

- What are your current DPA practices in the classroom, if any?
    - Probe: Frequency, duration, types of activities?
    - Probe: What does a typical week of DPA look like to you?
- To what degree do you feel that DPA impacts the students?
    - Probe: (e.g., energy levels, academic focus, learning skills)
- What is your main reason for joining this program?
- What goals do you have in relation to program involvement?
    - Probes: For yourself? For the students? Other?
- What do you need to help facilitate your needs/goals moving forward?
    - Probes: From the Kin student? From administration? Personally? Other?
- What challenges associated with involvement do you anticipate, if any?
- What are you willing to do to help achieve your goals?
    - Probe: What do you need from me?

BPNT and DPA

- What do you believe are characteristics of an effective PE class?
- What do you believe are characteristics of an effective DPA program?

Competence

- How confident do you feel in your capabilities to teach DPA right now – zero being not at all confident, and ten being extremely confident with no room for improvement?
    - Probe: What do you think contributes to this number (positive/negative)? What number would you like it to be and why?
- What contributes to your feeling more competent when it comes to teaching PE/DPA? Less?
    - Probe: Can you provide an example?

    - Probe: How motivated are you to take your confidence to the next level?

Autonomy

- How much control do you feel you have over your schedule in relation to DPA?
    - What facilitates the inclusion of DPA? What limits its inclusion?
- How important is choice to you when teaching a subject like PE or DPA? (i.e., choice in relation to selecting activities, time of day to implement, other?)
    - Probe: What does choice mean to you?
- What is important to you when creating your *own* DPA program?
- How do you believe you demonstrate your personal values and knowledge as they pertain to D(PA) in the classroom?
    - Probe: Can you provide an example?
    - Probe: Health and personal PA practices

Relatedness

- How do you and your colleagues (i.e., fellow teachers) support one another in teaching a subject like PE or DPA?
    - Probe: Can you provide an example?
    - Probe: sharing of resources, ideas, etc.?
- How important is support from your colleagues (i.e., fellow teachers, principal, vice-principal) to you for teaching PE or DPA?
- What is important to you when engaging in a mentorship-based relationship?
- How do your students respond to your DPA efforts? What is beneficial about this? Challenging?

Kinesiology Student Involvement (Autonomy Support) and DPA

- How do you foresee a kinesiology student partnership contributing to your existing DPA practices (if at all)?
- What are your hopes and expectations regarding the DPA-focused partnership you'll be involved with?
- What benefits do you foresee regarding a kinesiology student assisting you with implementing DPA? In Thunder Bay elementary schools?
- Similarly, what drawbacks do you foresee regarding a kinesiology student assisting you with implementing DPA? In Thunder Bay elementary schools?

Additional Comments

- Is there anything that we have not discussed today that you would like to share before we end the interview?

Appendix M: OPHEA DPA Resources Descriptions

Resource	Topic(s)	Grades	Description of Resource
One a Day for Active Play	Daily Physical Activity (DPA)	EL – 12	*"One A Day For Active Play* includes 200 creative games and activities that are fun to use for active breaks, ice-breakers, warm-ups or to support the implementation of Daily Physical Activity (DPA). Fun for all ages and abilities, the games and activities can be implemented in small or large indoor/outdoor spaces" (OPHEA, 2018). "The 200 games and activities are organized into nine categories: Cooperative Games, Dance, Fitness, Gymnastics, Territory, Net/Wall, Striking/Fielding, Target, and Tag Games. Also included is an upfront introduction section with safety considerations, and information on inclusive play, activity modifications, and instructional approaches" (OPHEA, 2018).
BrainBlitz	Physical Activity	K – 12	*"BrainBlitz* is a series of 25 bilingual activity cards that can be used for an active break during learning, as an opportunity to improve attention, or as part of a fun team-building activity. *BrainBlitz* activities can be led by children, youth, or adults, and enjoyed by everyone (OPHEA, 2018)." "Each activity can be completed within 5-15 minutes and are suitable for use in limited or large indoor and outdoor spaces, all with minimal or no equipment" (OPHEA, 2018). "The resource includes 5 activity cards for each of the following themes: meditation and relaxation, dance and rhythm, movement and physical activity, balance and yoga, and life skills" (OPHEA, 2018).
50 Fitness Activity Cards	Daily Physical Activity (DPA) Physical Activity/Education	K – 12	"The *50 Fitness Activity Cards* are a valuable resource in creating a library of core, on the spot, fitness moves. They can be used on their own or added to existing activities and are perfect for use in limited space" (OPHEA, 2018).
50 Yoga Cards	Daily Physical Activity (DPA) Physical Activity	K – 12	Actively engage children's minds and bodies by integrating yoga into your lessons or activities with the *Yoga Alphabet Cards*! (OPHEA, 2018). These playful poses will promote active participation and active physical fitness and will have children learning the basics of yoga while developing their physical literacy and language skills. *Yoga Alphabet Cards* are great for daily physical activity, physical education and literacy instruction and are perfect for use in limited space (OPHEA, 2018).

Appendix N: DPA Session Tracking Sheets

Based on the weekly plan developed by you and your coach, please track the progress of your DPA activities below.

	ID: ____			**Grade ___**		**Week # ____**
	DPA Activities (name and describe)	**Location of Activity**	**Time Spent on Activity**	**Time of Day Completed**	**Perceived Degree of Student Enjoyment**	**Benefits and Challenges**
Monday						
Tuesday						
	DPA Activities (name and describe)		**Time Spent on Activity**	**Time of Day Completed**	**Perceived Degree of Student Enjoyment**	**Benefits and Challenges**
Wednesday						

Thursday						
Friday						

Appendix O: Post-Intervention Semi-Structured Interview Questions

Post-Intervention Semi-Structured Interview Questions

Current DPA Attitudes/Practices and Program Goals

- What is your general opinion on DPA today?
    - Probe: personal values, knowledge of PA?
- What are your current DPA practices in the classroom? How has this changed from 6 weeks ago (if at all)?
    - Probe: Frequency, duration, types of activities?
- How do you feel DPA impacts the students today (compared to 6 weeks ago)?
    - Probe: (e.g., energy levels, academic focus, learning skills)
- What was your main reason for joining the program?
    - Probes: Has it changed? Has it stayed the same?
- Based on your experience with the DPA mentorship program, to what degree were your goals met regarding program involvement?
    - Probes: For yourself? For the students? Other?
- What challenges did you experience regarding program involvement, if any? Similarly, what benefits did you experience regarding program involvement, if any?
- What are you planning to do moving forward with regards to your DPA goals?
- What do you need to help facilitate your needs/goals moving forward?
    - Probes: From the Kin student? From administration? Personally? Others?

BPNT and DPA

- What do you believe are characteristics of an effective PE class?
- What do you believe are characteristics of an effective DPA program?

Competence

- How confident do you feel in your capabilities to teach DPA today (compared to 6 weeks ago) – zero being not at all confident, and ten being extremely confident with no room for improvement?
    - Probe: What do you think contributes to this number (positive/negative)? What number would you like it to be and why?
    - Probe: What do you feel contributed to this change?
- What contributes to your feeling more competent when it comes to teaching PE/DPA? Less?
    - Probe: Can you provide an example?
    - Probe: How motivated are you to take your confidence to the next level compared to before the program?

Autonomy

- How much control do you feel you have over your schedule in relation to DPA compared to before the program?
    - What facilitates the inclusion of DPA? What limits its inclusion?
- How important is choice to you when teaching a subject like PE or DPA? (i.e., choice in relation to selecting activities, time of day to implement, other?)
    - Probe: What does choice mean to you?
- What is important to you when creating your *own* DPA program?

- How do you believe you demonstrate your personal values and knowledge as they pertain to D(PA) in the classroom compared to before the program?
    - Probe: Can you provide an example?
    - Probe: Health and personal PA practices

Relatedness

- How will you or your colleagues (i.e., fellow teachers) continue to support one another in teaching a subject like PE or DPA?
    - Probe: Can you provide an example?
    - Probe: sharing of resources, ideas, etc.?
- How important is support from your colleagues (i.e., fellow teachers, principal, vice-principal) to you for teaching PE or DPA?
- What is important to you when engaging in a mentorship-based relationship?
- How do your students respond to your DPA efforts compared to before the program? What is beneficial about this? Challenging?

Kinesiology Student Involvement (Autonomy Support) and DPA

- Were your expectations regarding the DPA-focused partnership involved in with the kinesiology student met?
- What did you like about working alongside a kinesiology student to help you implement DPA in the classroom? What was challenging?
- What are your hopes for the future regarding the involvement of a kinesiology student in DPA curriculum delivery?
- What benefits do you foresee regarding kinesiology students assisting in the implementation of policies like DPA in Thunder Bay elementary schools?
- Similarly, what drawbacks do you foresee regarding kinesiology students assisting in the implementation of DPA in Thunder Bay elementary schools?

DPA Program Experience/Worked Well or Not?

- How was your experience from weeks 1-4 compared to 5-6 (when implementing without kinesiology student physically present)?
    - Probe: Did the first four weeks help you in any way (or not help) in implementing DPA during weeks 5-6?
    - Probe: Do you have any recommendations on how long (or shorter) future projects like this should ideally be?
- What have you learned as a teacher from the implementation of this DPA curriculum?
- What new exercises or activities did you learn through the DPA lesson plans?
- What activities and practices do you feel the students responded well to and why? Examples?
    - Probe: Not so well? Examples?
- How do you define “effective” DPA activities and which were effective for you (and why)?
    - Probe: Which will you continue with?
- Which did you not find effective (and why)?
- How has the mentorship program impacted your teaching instruction?
    - Probe: support, prep time?

- What barriers did you perceive that made it difficult to deliver DPA?
    - Probe: How do you think those challenges might be overcome?
    - Probe: regarding the program curriculum, competing demands, school policies, etc.
- What facilitators exist that made it easy to deliver the DPA?
    - Probe: School board? Administration? OPHEA? Other?
    - Probe: lesson plans, description of activities, music provided, etc.

Future Recommendations

- Based on this experience, what recommendations do you have to improve the structure or delivery of DPA in your classroom? School
- How might a mentorship program impact teaching DPA in the public-school system in a community like Thunder Bay?
- Do you have any recommendations regarding how a DPA mentorship program with kinesiology students can be sustained in the public-school system in a community like Thunder Bay?

Additional Comments

- Is there anything that we have not discussed today that you would like to share before we end the interview?

Appendix P: Definitions for Commonly Used Terms

Daily Physical Activity (DPA): As defined by the Ontario Ministry of Education (2017), the Daily Physical Activity initiative in all elementary schools should be used to counteract the decline in physical activity levels seen recently among children. This mandates that all students, from kindergarten to grade 8, are provided with 20 minutes of physical activity every day (Patton, 2012).

Physical Activity (PA) Specialist: The National Physical Activity Society (n.d.) defines a physical activity specialist as a technical expert and convener who works with partners inside and outside of the government to address conditions that support physical activity.

Physical Education (PE) Teacher: A PE Teacher can be characterized as someone who values physical activity: who promotes participation and seeks to uncover a willingness to participate in literate and critical ways (Siedentop, 1996). This involves being a knowledgeable mover, understanding and potentially responding to structural inequalities, and preparing citizens who are physically educated in terms active lifestyles (Cloes, 2017; Quennerstedt, 2019).