TAKING STEPS TO INCLUSION

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ABSTRACT

Quality inclusive physical activity programs have demonstrated vast benefits for all individuals, with or without disabilities. School-based physical activity interventions, including physical education (PE), have been identified as an effective means for increasing physical activity levels. Unfortunately, full implementation of inclusive practices in PE is often hindered. Specifically, when discussing inclusive PE, teachers play a vital role in initiating and creating quality and effective PE experiences for all students. Teachers however, often note challenges related to full inclusion citing a lack of training and resources. Although, teacher training in inclusive PE has demonstrated favourable teacher level outcomes, there has yet to be a comprehensive study concerning i) theory-based factors related to teacher behavior, ii) the impact teacher training resources have on inclusive PE practice, and iii) the adoption of inclusive PE teacher training resources. In a successive manner, four distinct, yet related, studies were undertaken and work to provide valuable information to the current understanding of the complex nature of teacher behavior and behavior change specific to inclusive PE practice.

Study 1: The purpose of this study was to conduct a content analysis of the *Steps to Inclusion* teacher training resource to identify content aligned with the Theoretical Domains Framework (TDF) and Quality Participation Model (QPM). A coding manual was developed to enable the researchers to identify and code text, and determine the content that was consistent with the TDF and quality participation domains within the *Steps to Inclusion* teacher training resource. Previously established methodologies for content analysis were employed.

Study 2: Using behavior change theories, this study applied the TDF and COM-B to examine factors related teachers' intentions to implement inclusive PE. Teachers (N = 387)

completed a modified Determinants of Implementation Behaviour Questionnaire which assessed potential factors influencing intentions toward implementation of inclusive PE.

Study 3: Using a randomized controlled design and guided by the TDF, this study examined the impact of an inclusive PE training resource on theoretical predictors of teachers' competencies related to the implementation of inclusive PE. PE teachers (N=62) completed a questionnaire assessing TDF constructs at baseline (pre) and 1-week follow-up (post-experiment). Participants were randomized to an experimental (i.e., read an inclusive PE training resource) or control (i.e., read a resource unrelated to inclusive PE) group.

Study 4: The Diffusion of Innovations theory (DOI) emphasizes that resources must fit the perceived needs of the stakeholders in order to facilitate adoption and use. Guided by the DOI, this study employed semi-structured interviews to examine PE teachers' (N=20) adoption and use of a teacher training resource for inclusive PE, as well as additional needs concerning teacher training resources.

Broadly, the studies in this dissertation emphasize the significance of theory for interventions within practical settings (i.e., within an educational and/or inclusive PE context). In order to provide teachers with more than knowledge-based information, interventions, such as inclusive PE training resources, should be rooted in behavior change theory. More specifically, this dissertation supports and advocates for the expanded use of the TDF as a framework to understand behavior change within an inclusive PE setting. The explicit use of the TDF throughout this program of research has bolstered the interventions' influence on determinants of behavior and provided the researchers with a conceptual understanding and allowed for the findings to be connected to existing knowledge. Further, developing and nurturing closer partnerships with relevant stakeholders (e.g., teachers, PE teachers, administration) is strongly

recommended. A participatory development process is suggested when considering new or

updating existing inclusive PE training resources. Partnering with relevant stakeholders should

be considered throughout the development and dissemination of inclusive PE training resources.

DEDICATIONS

Paul and **Mom**, you are the true authors of this story. Paul, your braveness to face the world, your tenacity (read stubbornness), and your gentle heart have me in awe of your wonder. Mom, your persistence, your unwavering support, and your simple vision that "we all have something to give" are truly the impetus of this pursuit. I hope to join your fearless crusade and lend a voice to those who are often not heard.

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Sebastian, from dark to light, through love. Always.

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DEFINITIONS

The following terms are referenced numerous times throughout this dissertation and are defined here in order to provide context and clarification.

Disability: The way in which the researcher chose to frame disability was a negotiated discourse. Though various definitions of disability exist, the researcher chose to conceptualize disability as; an activity-limiting condition that prevents full participation in intellectual, social, emotional, or physical functions or any combination thereof, whether in work, leisure, or daily living (Sherrill, 2004). This definition echoes the World Health Organization's International Classification for Function's (ICF) in which "disability" is seen as an umbrella term for impairments, activity limitations, and participation restrictions. Though this definition may not inherently reflect the social model of disability, it does seek to consider disability beyond impairment; rather, identifying and examining participation from a wider standpoint and within multiple contexts (i.e., intellectual, social, emotional, and physical).

Students with disability (SWD): For the purpose of this dissertation, SWD are defined as school-aged individuals between the ages of 5 and 21 who live with a disability as defined above.

Inclusive education: In its broadest sense, inclusive education targets individuals who are labeled as nonconforming or marginalized according to notions of mainstream society (e.g., individuals with disabilities, various racial, ethnic, and/or religious minorities, and individuals of low socioeconomic status; Shaddock, Smyth King, & Giorcelli, 2007). For the purposes of this dissertation, the term "inclusive education" refers to pedagogical processes and practices that are developed in response to and enable learners with diverse

and complex needs, specifically, education that targets students who live with disabilities that limit their ability to fully engage with the general education system and with age-matched peers (Forlin, 2012).

Inclusive Physical Education (PE): PE that provides SWD the opportunity to learn, engage, and participate in general PE classes alongside their age-matched peers (Goodwin, Watkinson, & Fitzpatrick, 2003; IDEA, 2004; Klein & Hollingshead, 2015). Inclusive PE emphasizes and supports the engagement of SWD in a physical activity environment that is supportive and meets their individualized needs (Zhang & Griffin, 2007).

Chapter 1: Review of the Literature

1.1 Children with Disabilities

1.1.1 Prevalence

It is estimated that approximately 273–313 million school-aged children globally have a disability (GEM, 2016). This number highlights the importance of pursing research in the field of disabilities. Statistics Canada (2013) has reported an increase in the incidence of disabilities among children. Data from The Participation and Activity Limitation Survey (PALS), a national survey that quantifies the number of Canadians whose daily activities are affected by disability, shows that in 2001 approximately 181,000 children, aged 0 to 14, were living with a disability (Statistics Canada, 2013). This number increased to approximately 200,000 in 2006 (Statistics Canada, 2013). The prevalence of disabilities among school-aged children aged 5–14 increased notably from 4.0% to 4.6% between iterations (Statistics Canada, 2013). Approximately 71,000 children with disabilities, roughly 41%, reside in the province of Ontario (Statistics Canada, 2013). A plethora of disabilities exists among school-aged children, which affect their hearing, seeing, speech, mobility, agility, learning, development, psychology, and long-term health. Learning disabilities (69.3%) and chronic health conditions (66.6%) are the most common (Statistics Canada, 2013). Current styles of reporting underscore the overlap and/or co-diagnoses often existing for individuals with disabilities, as well as highlights a need for a better breakdown and statistical analysis in order to better understand disability prevalence in Ontario. The growing number of children with disabilities, coupled with the high percentage of this population living in Ontario,

provides a unique opportunity to have a positive impact on many lives through effective interventions and environments that support children with disabilities.

1.1.2   Health and Physical Activity Among Individuals with Disabilities

Individuals with disabilities, including children, typically experience higher healthcare needs. Individuals with disabilities also experience a high risk of secondary or additional health complications, including heart disease and stroke, deteriorating functional capacity and quality of life, respiratory issues, and cognitive, emotional, and behavioral disorders (WHO, 2015). Engagement in physical activity during childhood is encouraged for the promotion of optimal health (Bloemen, Van Wely, Mollema, Dallmeijer, & de Groot, 2017; Murphy & Carbone, 2008), and for children with disabilities, additional benefits of physical activity participation have been realized. Participation in physical activity among children with disabilities has been positively associated with improvement in self-confidence and the completion of activities of daily living, increased social acceptance and opportunities to form friendships, the development of a sense purpose, decreased stigma associated with disability, as well as a decreased probability of acquiring secondary health complications (Bloemen et al., 2017; Murphy & Carbone, 2008). Moreover, children with disabilities who participate in aerobic physical activity in schools experience significant improvements in physical (e.g., improved mobility, fitness, and stamina) and psychosocial (e.g., increased happiness and social development) health (Cleary, Taylor, Dodd, & Shields, 2017).

Concerning disparities exist in physical activity participation between children with disabilities and their age-matched peers without disabilities (Bedell et al., 2013; Law, Petrenchik, King, & Hurley 2007; Woodmansee, Hahne, Imms, & Shields, 2016).

Although gaps in current monitoring and reporting of physical activity rates among children with disabilities make it difficult to compare and quantify these differences, a recent analysis of matched data comparing participation in physical recreation between children with and children without disabilities highlights disparities. For example, compared to children with disabilities, children without disabilities participate in a more diverse range of physical activities and are more likely to participate in both structured and unstructured physical activity as well as team and non-team sports (Woodmansee et al., 2016). Additionally, a national study that assesses the movement behaviors of Canadian children with disabilities aged 12–21 by monitoring their physical activity, found that children with disabilities only engage in approximately 40 minutes/day in sports or active play (Arbour-Nicitopoulos et al., 2017). Existing evidence suggests that many children with disabilities do not participate in sufficient physical activity to reap its physical and psychosocial benefits.

1.1.3 Barriers to Participation in Physical Activity

Children with disabilities commonly face barriers that impede their participation in broader society, including physical activity. Children with disabilities' participation in physical activity is often complex and multifactorial, affected by a variety of social, cultural, and environmental factors (Shields & Synnot, 2016; Shields, Synnot, & Barr, 2011). In order to increase the physical activity of children with disabilities, it is crucial to not only identify the multifactorial barriers that exist but envision and enact interventions to address them. Frequently cited barriers to physical activity include the child's disability or functional limitations, cost and availability of equipment and facilities, familial demands (e.g., lack of time and childcare), and inexperienced staff

within physical activity facilities (Shields & Synnot, 2016; Shields et al., 2011). Martin Ginis, Ma, Latimer-Cheung, and Rimmer (2016) in a study synthesizing research on the physical activity of individuals with disabilities (both children and adults), grouped the barriers by theme: intrapersonal (e.g., self-perceptions, attitudes), interpersonal (e.g., social support, role modeling), institutional (e.g., staff knowledge), community (e.g., availability of information and equipment), and policy (e.g., transportation, costs). Synthesizing the literature in this manner and organizing the barriers into broad themes is useful in identifying and targeting areas of high need. A major barrier that is unique to children with disabilities (i.e., not relevant to adults with disabilities) is inadequate access to Physical Education (PE) in schools (CDC, 2017). While disability-specific, or segregated physical activity, programs have been identified as a possible strategy to mitigate some of the barriers mentioned above (Braun, Yeargin-Allsopp, & Lollar, 2006; Heah, Case, McGuire, & Law, 2007), there has also been a call for inclusive physical activity programming, including PE, because of its demonstrated benefits (Arbour-Nicitopoulos et al., 2018).

1.2   Physical Activity Opportunities: School

1.2.1   School-Based Physical Activity

Schools have been recognized as an optimal and effective platform for increasing physical activity opportunities for SWD (Dudley, Okely, & Pearson, 2011; Pate et al., 2006). Not only do children, including SWD, spend a significant portion of their waking hours at school (Morningstar, Kurth, & Johnson, 2017), school also offers a multitude of physical activity opportunities (e.g., recess, daily physical activity, intermural sport teams, PE). School-based interventions have been considered an effective way to address

barriers to physical activity participation (e.g., harmful attitudes, insufficient support, inadequate equipment, untrained personnel; Qi & Ha, 2012; Porter, 2015). Of particular interest are physical activity opportunities within the PE context. In Canada, PE is a recognized school subject and is provincially and/or territorially mandated, although recommended time allocations for PE vary between jurisdictions (Kilborn, Lorusso, & Francis, 2016). Specific to SWD, PE provides an opportunity for *all* students to participate in physical activity within a structured environment (Porter, 2015). Together, these reasons situate PE as a critical component of physical activity interventions in schools (Ghassemi, & Kern, 2014).

1.2.2   Benefits of Physical Education for Students with Disabilities

The benefits of PE have been extensively researched. In addition to the aforementioned benefits associated with physical activity more broadly, a variety of recent reviews and meta-analyses of PE have identified a wide-range of outcomes related to well-being, including improved academic performance (Erwin, Fedewa, Beighle, & Ahn, 2012; Norris, Sheltoon, Dunsmuire, Duke-Williams, & Stamaktakis, 2015; Owen et al., 2016; Watson, Timperio, Brown, Best, & Hesketh, 2017), physical literacy (Edwards, Bryant, Keegan, Morgan, & Jones, 2017), and self-efficacy (Bertills, Granlund, Dahlström, & Augustine, 2018). Though it is apparent that PE and its associated outcomes have garnered much attention from academics, the samples included in PE research often exclude SWD. Although SWD comprise approximately 17% to 23% of the general education population in elementary and secondary school systems respectively (People for Education, 2015), they remain a tremendously underrepresented group in school-based intervention research. Disappointingly, many of the existing school-based

physical activity interventions that do exist for SWD, tend to be segregated (Bremer & Loyd, 2016; Healy, Msetfi, & Gallagher, 2013; Jansma & Decker, 1990; Zwinkels et al., 2018) and clinical or therapeutic in nature (Mccoy et al., 2018; Shields, Synnot, & Bar, 2011). Although limited, some literature on the health benefits of PE participation of SWD does exist. PE for SWD has been shown to improve motor skills, pro-social behaviors, and academic achievement (Hills, Dengel, & Lubans, 2015), as well as enhance metacognitive strategies that strengthen self-monitoring and self-instruction (Weiss & Giel, 2005), motor planning (Winnick & Porretta, 2016), recognition and modeling of verbal learning cues (Janelle, Champenooy, Coobes, & Mousseau, 2003), and a decrease in social stigma concerning disabilities (Tavares, 2011). Though a dearth of literature exists concerning the benefits of inclusive PE, it is critical that research evaluate this approach as inclusion is a philosophical underpinning of the Ontario education system.

1.3   Inclusive Education: A Brief History

1.3.1   Inclusive Education in Canada

Inclusive education is an equitable education practice whereby SWD are welcomed, accepted, supported, and encouraged to participate within a general education setting (Ontario Ministry of Education, 2014). In order to facilitate inclusive PE, it is important to understand the historical context from which inclusive education has emerged. By doing so, researchers and stakeholders alike can begin to reinforce positive ideals and practices to further advance the inclusive movement.

The pursuit of inclusion has been met with both notable challenges and triumphs. A marked evolution in societal thinking has greatly contributed to the advancement and

development of inclusive education in the Canadian education system over the last four decades (Forlin, Loreman, Sharma, & Earl, 2009; Gibbs, 2007; Sharma, Loreman, & Forlin, 2012). Segregation, institutionalization, mainstreaming, and integration have historically been used by Canadian education systems (Brown & Andrews, 2014) and as a result, many SWD have failed to reap the benefits of public education. Beginning in the late 1980s, a strong societal demand for the inclusion of *all* students in the general educational classroom arose, which began a major school reform movement and a restructuring of the general education system (Lupart & Webber, 2002). Internationally, the UNESCO conference held in Salamanca, Spain in 1994 was a pivotal moment in inclusive education. The resulting Salamanca Statement is considered to be one of the most influential pieces of legislature regarding the framework and action for special education (Lupart & Webber, 2002). Not only does the Salamanca Statement address students' leaning needs (i.e., safe environment, skilled personnel, programming, and planning; Belanger & Gougeon, 2009), but it also began to shift the focus of the education system to support SWD:

> The individual level is on abilities, rather than deficiencies. At the institutional level, the Salamanca Statement was unique for its time, going beyond issues of access and equal opportunity to address quality in the form of child-centered pedagogy and several other quality indicators of schooling. (Peters, 2007, p. 104)

Moreover, international treaties, such as the Convention on the Right of the Child (1989), and the United Nations' Declaration of the Rights of Persons with Disabilities (2006), along with international legislature, such as, Individuals with Disabilities Act

(IDEA, 2004), and No Child Left Behind (NCLB, 2001), provide a foundation concerning human dignity and respect. In Canada, the 1995 Eaton vs. Brant County Board of Education court case (Towle, 2015) and the more recent 2012 Moore vs. British Columbia (Education) case (Right to Education Project, 2017) are considered pivotal in Canada's inclusive movement. Additionally, Canadian legislation such as, Ontario's Bill 82 (Provincial Government of Ontario, 1980), and policy directives, such as British Columbia's Special Needs Students Order (British Columbia, 2006), Ontario's Equity and Inclusive Education guidelines (Ontario Ministry of Education, 2014), and New Brunswick's Policy 322 (New Brunswick, 2013), have worked to shape Canada's inclusive education landscape. Both international and national policies, newly enacted legislation, and government initiatives laid the foundation for current inclusive discourse and philosophy. From a utopian perspective, inclusive pedagogy should work to more positively impact and provide SWD the opportunity to learn alongside their peers.

1.3.2   Inclusive Education in Ontario

Ontario's inclusive education landscape can be viewed as progressive. As early as the 1950s, the Hamilton-Wentworth Catholic District School Board's Jim Hansen spearheaded change for SWD with his mission statement "Each Belongs" (Pearpoint & Bunch, n.d.). Hansen's uncompromising vision that "each belongs not because he or she can do something or cannot do something. Each belongs because he or she is" (Nolan, 2017) was the beginning of the revolutionization of inclusive education in Ontario. Provisions governing special education in Ontario were enacted in 1980 when significant amendments to the Education Act occurred, introducing Bill 82 (Provincial Government of Ontario, 1980). Bill 82 recognizes the rights of SWD to receive publicly funded and

appropriate education (Hutchinson, 2007) and allows for SWD to be included both in general education classrooms as well as in the school community. More recent education polices in Ontario have sought to accommodate the learning of SWD through the creation of positive and inclusive school climates that are senetive and responsive to students' needs (Ontario Ministry of Education, 2014). In 2009, the Minister of Education released Realizing the Promise of Diversity: Ontario's Equity and Inclusive Education Strategy (Ontario Ministry of Education, 2009), and in 2012, government legislature demanded that school boards promote student achievement and well-being through a "positive school climate that is inclusive and accepting of all pupils" (Ontario Ministry of Education, 2012, para. 20). In 2014, Ontario's Equity and Inclusive Education guidelines described inclusive education as being

> based on the principles of acceptance and inclusion of all students.
> Students see themselves reflected in their curriculum, their physical
> surroundings, and the broader environment, in which diversity is honoured
> and all individuals are respected. (p. 87)

Additionally, publicly funded Ontario school boards must comply with Ontario's Regulation 181/98, the Municipal Freedom of Information and Protection of Privacy Act, the Ontarians with Disabilities Act (2001), and the Accessibility for Ontarians with Disabilities Act (2005), as applicable. Despite the host of legislative policies and guidelines, many SWD continued to be placed in self-contained special education programs or classrooms for at least part of the day (Brown, Newton, Parekh, & Zaretsky, 2013; Parekh & Brown, 2019). Not only is this segregation within special education classrooms problematic for students, but it also raises fundamental issues concerning the

continued inability for full and effective inclusion. It is important therefore to challenge the current system and look for ways to better support inclusive PE and inclusive education within Ontario classrooms.

1.4   Inclusive Physical Education

1.4.1   The Benefits of Inclusive Physical Education

It has been suggested that inclusive PE has the potential to make distinctive contributions to the overall health and well-being of SWD. Inclusive PE has been identified as supporting three main area of development: cognitive, psychomotor, and affective (Klein & Hollingshead, 2015; Verret, Guay, Berthiaume, Gardiner, & Béliveau, 2012; Winnick & Poretta, 2017). From a cognitive development standpoint, inclusive PE has demonstrated the potential to improve language development, social and spatial understanding, and abstract and hypothetical thinking. Accrued psychomotor benefits through inclusive PE participation have been noted in SWD's ability to engage in organizational and co-operative play (Winnick & Poretta, 2017). Inclusive PE has also been credited with enhancing SWD's ability to address aggressive and/or self-harm behaviors (Tovin, 2013), improving their quality of life through enhanced gross- and fine motor skills (Winnick & Poretta, 2017), increasing their physical fitness and preventing illness (Klein & Hollingshead, 2015), and aiding in the development of friendships (Coates & Vickerman, 2010). The benefits of inclusive PE have also been shown to extend beyond SWD to students without disabilities; their attitudes towards and interaction with SWD improve, they learn non-competitive play, and their awareness of disability increases (Qi & Ha, 2012). These benefits are strong reasons for continued inclusive PE practices to benefit all students.

1.4.2   Challenges to Implementing Inclusive Physical Education

Past changes in legislation have allowed for the evolution of inclusion such that schools in Ontario are required to provide support services and programs, including PE, for all SWD (Ontario Ministry of Education, 2009). Implementing this legislation, however, has been met with challenges, and full inclusion has not always been successful (Barber, 2018; Haycock & Smith, 2011; Pudlas, 2001; Smith, 2004, Vickerman & Coates, 2009). The Ministry of Education report, *Special Education Transformation* (Bennett & Wynne, 2006) acknowledged the challenges that schools, teachers, and students face in relation to full inclusion. When it comes to inclusive PE, there are a host of barriers to realizing fully inclusive PE classrooms. Discussion concerning barriers and challenges to inclusive PE typically reference occupational stress (Fejgin, Talmor, & Erlich, 2005), teachers' attitudes (Avramidis & Norwich, 2002), lack of adequate teacher training and professional development (Qi & Ha, 2012), lack of ongoing training and teacher-training resources, and insufficient facilities and equipment (Morley, Bailey, Tan, & Cooke, 2005). As such, research is necessary to identify and address gaps and work to improve and/or facilitate the implementation of inclusive PE.

1.4.3   The Role of the Teacher

The inclusion of SWD in PE classes has provided a tremendous challenge to PE teachers. They must meet the PE and physical activity needs of SWD without neglecting the needs of students without disabilities (Combs, Elliott, & Whipple, 2010). Indeed, the successful implementation of inclusive education is heavily reliant upon the classroom teacher (Florian & Spratt, 2013). Teachers work to make educational philosophies, such as inclusive education, a reality within the classroom. Given their significant roles as

agents of change within the classroom (Sachs 2003), teachers' views and subsequent actions can greatly contribute to the affirmative position of inclusive education in the school system. There is a body of evidence that speaks to the success of inclusive PE solely based on teachers' attitudes (Block & Obrusnikova, 2007; Meegan & MacPhail, 2006; Obrusnikova, 2008; Qi & Ha, 2012). Much of the existing literature on the role of teachers in supporting inclusive PE has focused on the notion that teachers' positive attitudes about inclusion positively influence actions that embrace and foster inclusive opportunities (Block & Obrusnikova, 2007; Meegan & MacPhail, 2006; Obrusnikova, 2008; Qi & Ha, 2012). Interestingly, although many teachers report that inclusive education programs operate within their schools, they express an "overwhelmingly strong pattern of either a negative feelings or uncertainty toward inclusion" (Hammond & Ingalls, 2003, p. 3). The important role of the teacher, coupled with the challenges faced in successfully implementing inclusive PE, highlight the need for improved teacher training in this field.

1.5   Teacher Training for Inclusive Physical Education

1.5.1   Teacher Training

In the literature, teacher training is designated by a variety of terms, for example, teacher training, Physical Education Teacher Education (PETE), and professional development (Avramidis & Kalyva, 2007; Li, Wang, Block, Sum, & Wu, 2018; Melnychuk, Robinson, Lu, Chorney, & Randall, 2011; Sharma, Forlin, & Loreman, 2012) and takes on various forms, for example, workshops, courses, practicums/placements, and training resources (Allday et al., 2012; Rice, 2006; Sharma, Forlin, Loreman, & Earle, 2006; Tristani et al., under review). Moreover, teacher training

can be targeted at both pre-service and in-service teachers (Savolainen, Engelbrecht, Nel, & Malinen, 2012; Sharma et al., 2006). For the purposes of this dissertation, "teacher training" will be used as an all-inclusive term to describe the diverse approaches to teacher training discussed in the literature.

Classroom implementation of inclusive education is not possible without adequate teacher training (Hansen, 2012). The value of teacher training and its subsequent impact on teachers' attitudes, perceptions, and teaching behaviors related to inclusive practices have been documented (Loreman, Sharma, & Forlin, 2013). A recent systematic review of inclusive-education teacher-training interventions found that despite the heterogeneity of intervention designs, teacher training resulted in a positive effect in one or more of the following teacher level outcomes: attitudes and perceptions, knowledge, and strategy and skill development (Tristani & Bassett-Gunter, under review). Teachers' level of training has been shown to affect their inclusive pedagogy (Forlin & Chambers, 2011), improve self-efficacy, and raise awareness about inclusive education (Braksiek, Gröben, Rischke, & Heim, 2018). Teacher training is of great value in the implementation of inclusive PE practices.

Unfortunately, insufficient teacher training is often cited as a barrier to inclusive PE (Avramidis, Bayliss, & Burden, 2000), and there has been a call for improved teacher training in this field (Opertti & Brady, 2011). Both the need and demand for teachers to receive sufficient training in inclusive PE cannot be overstated. Deficits in teacher training have been linked to negative outcomes (Sharma, Forlin, Loreman, & Earle, 2006): teachers' inability to provide adapted instruction (Engsig & Johnstone, 2015), feelings of incompetence (De Boer, Pijl, & Minnaert, 2011), teachers' negative or neutral

attitudes about SWD (Hammond & Ingalls, 2003), teachers' low expectations, decreased

learning opportunities for SWD, and the potential segregation of SWD (Sharma, Forlin,

Loreman, & Earle, 2006). In line with these findings, some literature suggests that

teachers are aware of the shortfalls in their training and subsequent gaps in their ability to

successfully realize inclusive philosophy. As such, teachers express a readiness and a

need for teacher training in this area (Heiman, 2001).

1.5.2   Tools and Resources to Support Teacher Training for Inclusive PE

The use of teaching tools and resources is one strategy that facilitates teacher

training and supports them in their professional learning. Teaching resources come in a

variety of forms (e.g., textbooks, curriculum materials, guidelines, online resources/e-

resources; Zepeda, 2013). This dissertation will focus upon text-based materials, and I

will refer to them as teacher-training resources.

The use of teacher-training resources for the purposes of learning, training, and/or

professional development has been shown to have definite advantages. Beyond

facilitating teacher training through improved knowledge and teaching strategies, as well

as providing critical information for developing and enriching pedagogical practice,

teacher-training resources have been found to promote critical thinking and reflexive

practice (Davis & Krajcik, 2005). In particular, teacher-training resources may be

advantageous when considering complex subject matters (Davis & Krajcik, 2005).

Teacher-training resources provide teachers with information and strategies to help them

make their pedagogical practices flexible and modifiable (Davis & Krajcik, 2005).

Further support for the use of text-based teacher-training resources suggest that their use

is a particularly feasible strategy for reaching a large demographic (Annand, 2008).

1.5.3   Ophea and Teacher-Training Resources

Ontario Physical and Health Education Association (Ophea) is a renowned leader in the creation of tools and resources that support Ontario's Health and Physical Education curriculum and is dedicated to enhancing childhood health and physical activity through PE (Ophea, 2015). Acknowledging teachers' feelings of unpreparedness for inclusive PE (Vickerman & Coates, 2009) and its effects on SWD, Ophea has created a teacher-training resource to support teachers in creating inclusive PE classes, and ultimately physical activity opportunities for SWD. *Steps to Inclusion* is a 30-page online teacher-training resource written under the guidance of an advisory and review committee comprising stakeholders in the disability community (e.g., disability recreation leaders, teachers, coaches, parents, and community partners; Ophea, 2010). The document was created with the goal of supporting inclusion, while supplementing, enhancing, and enriching teachers' perceptions of SWD (Ophea, 2010). Given the potential reach and impact of a teacher-training resource like *Steps to Inclusion*, there is value in researching a) the content of *Steps to Inclusion*, b) how the content can impact teachers' motivation to use and implement inclusive PE practices, and c) the uptake and adoption of *Steps to Inclusion* by teachers. Though this dissertation focuses on *Steps to Inclusion*, the implications of my research are intended to extend the resource to inform the development, dissemination, and implementation of optimally effective teacher-training resources to support inclusive PE. Moreover, the pragmatic and systematic methodological design of my dissertation may be of value in informing future research of other teacher training resources.

The diversity of teacher training and teacher-training resources requires research to move beyond comparisons between interventions and to rather consider the mechanisms or factors that translate into enhanced inclusive practice. There is a need to identify specific theory-driven factors that are targeted by effective teacher-training resources. It would then be apt to consider how variations in intervention feature(s) elicit improved or sustained changes in teacher-level factors related to inclusive practice.

1.6   Theoretical Frameworks to Guide the Development, Evaluation, and Adoption of Teacher Training for Inclusive Physical Education

1.6.1   A Behavior-Change Approach

Teachers' inclusive PE practice is complex. An understanding of their motivation and behavior and the context in which they occur is critical for understanding the development of teacher-training resources that can facilitate inclusive PE. Applying a behavior-change approach or behavior-change theory can begin to elucidate targets for developing effective interventions (Davis, Campbell, Hildon, Hobbs, & Michie, 2015). A variety of behavior-change theories exist, for example, theory of planned behavior (TPB), goal-setting theory, theoretical domains framework (TDF), health action process approach, and health belief model (Ajzen, 1985; Cane, O'Connor, & Michie, 2012; Glanz, Rimer, & Viswanath, 2008; Locke & Latham, 1990; Schwarzer, 2008). Behavior-change theories may support explanations of a) individual's motivation (i.e., their intention to engage in a specific behavior), b) the relationship between motivation and subsequent behavior change, and/or c) the maintenance of behavior (Webb, Sniehotta, & Michie, 2010). Grounding research and interventions in a behavior-change theory or framework may allow for the identification of "critical cognitive, emotional, and

motivational states that precede behaviour" (Webb, Sniehotta, & Michie, 2010, p. 105) and inform the targeting of significant theoretical determinants of behavior change. The application of a behavior-change approach informs the research of this dissertation.

1.6.2   Theory-Driven Teacher-Training Resources

There has been a call for teacher-training research to move beyond best practices to practices rooted in theoretical evidence (Reid, Bouffard, & MacDonald, 2012). In the context of inclusive PE, an understanding of theory-driven factors related to teachers' inclusive practices may be advantageous to facilitate inclusive PE opportunities for SWD. There is little dispute concerning the complex role of the teacher along with the innumerable factors that influence their ability to implement inclusive PE practices. A comprehensive theoretical framework can be of value by capturing constructs related to the diverse barriers and facilitators that influence teachers' implementation of inclusive education, for example, cognitive, affective, social, environmental factors (Bower, Van Kraayenoord, & Carroll, 2015; Campbell, Gilmore, & Cuskelly, 2003; Lienert, Sherrill, Myers, 2001; Roh, 2002). Theoretical frameworks allow for the systematic design and evaluation of interventions, enhancing their scientific rigor (Michie, Atkins, & West, 2014). Moreover, incorporating theory into the development and evaluation of interventions may allow researchers to better understand mechanisms of change that facilitate changes in behavior (Michie, Van Stralen, & West, 2011). Accordingly, there is value in applying behavior-change theory to work on the development and evaluation of teacher-training resources that support inclusive PE.

A plethora of behavior-change theories with varying degrees of overlapping constructs exists, making it difficult for researchers to confidently choose a single theory

for their research program. Confusion surrounding the application of theory causes it to be underutilized in intervention design, evaluation, and development (Michie et al. 2011). I chose the theoretical-domains framework (TDF) developed by Cane et al. (2012) as the primary framework to guide my research. Using a multi-component investigation also provided me the opportunity to compliment the TDF with additional frameworks and theories, namely the COM-B model (Michie et al., 2011), Quality Participation Model (QPM; Martin Ginis, Evans, Mortenson, & Noreau, 2017), and diffusion of innovations theory (Rogers, 2003). Although the complimentary frameworks are not all directly related to behavior change per se, when used in combination with the TDF, they are helpful in informing the current state of teacher-training resources, identifying salient theoretical factors, and illustrating factors related to the adoption of teacher-training resources within an inclusive PE context.

1.6.3 Theoretical-Domains Framework

The TDF is a compilation of behavior-change theories and identifies 14 psychosocial domains (see Table 1 for a full list of domains) that include knowledge, skills, professional identity, self-efficacy, and environmental context that are predictive of various behaviors (Cane et al., 2012; Francis, O'Connor, & Curran, 2012). The TDF has been touted as a comprehensive approach to evaluating behavior as it is seen as an extensive, exploratory framework (Cane et al., 2012). It has been operationalized and applied in research conducted in healthcare settings, where it has been useful in understanding behavior change among practitioners with relation to the delivery of evidence-based practice (Curran et al., 2013; Dyson, Lawton, Jackson, & Cheater, 2011; McCluskey & Middleton, 2010; McKenzie et al., 2008; McKenzie et al., 2010; McSherry

et al., 2012). However, the TDF has not been applied to the educational realm to understand behavior change among teachers. In my application of this framework to the education domain, I draw parallels between healthcare practitioners and PE teachers, namely, the need to understand factors related to professional implementation behaviors. Within my current research, I use the TDF to examine and understand teachers' motivations and implementation behaviors regarding inclusive PE. Guided primarily by the TDF, I a) identify and categorize the theoretical content of the teacher-training resource *Steps to Inclusion*, b) identify significant theoretical factors related to teachers' intentions to implement inclusive PE, and c) examine the effects of a teacher-training resource on theoretical factors related to teachers' inclusive PE behavior.

Table 1. TDF domains, with descriptions

Domains	Brief Description
Knowledge	An awareness of the existence of something.
Skills	An ability or proficiency acquired through practice.
Social influences	Interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviors.
Memory, attention, and decision making processes	The ability to retain information, focus selectively on aspects of the environment, and choose between two or more alternatives.
Behavioral regulation	Anything aimed at managing or changing objectively observed or measured actions.
Social/professional role and identity	A coherent set of behaviors and displayed personal qualities of an individual in a social or work setting.
Beliefs about capabilities	Acceptance of the truth, reality, or validity of an ability, talent, or facility that a person can put to constructive use.
Optimism	The confidence that things will happen for the best or that desired goals will be attained.
Beliefs about consequences	Acceptance of the truth, reality, or validity about outcomes of a behavior in a given situation.
Intentions	A conscious decision to perform a behavior or a resolve to act in a certain way.
Goals	Mental representations of outcomes or end states that an individual wants to achieve.
Emotion	A complex reaction pattern, involving experiential, behavioral, and physiological elements, by which the

	individual attempts to deal with a personally significant matter or event.
Environmental context and resources	Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior.
Reinforcement	Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus.

Source: Brief description from Cane, O'Connor, & Michie (2012)

1.6.4 The COM-B Model

The TDF collapses into the COM-B model, which outlines three conditions required for behavior change: capability, motivation, and opportunity (see Figure 1; Michie et al., 2011). Consistent with the TDF, the COM-B model assumes that behavior is influenced by a variety of factors. Further, in the COM-B model, behavior is understood as the interaction between an individual's physical and psychological capabilities, opportunities present in one's physical and social environments, and motivation. The COM-B model provides direction for understanding behavior along with intervention strategies that are likely to be effective within a specific context (Michie et al., 2011). Within the context of this dissertation, the COM-B model supports my use of the TDF through consolidation of evidence to inform the development of pragmatic and parsimonious strategies and interventions.

Figure 1. TDF domains mapped onto the COM-B model

- Knowledge
- Skills
- Memory, attention and decision-making processes
- Behavioral regulation

- Social influences
- Environmental context and resources

Capability Opportunity

Motivation

- Emotion
- Professional/social role and identity
- Beliefs about capabilities
- Reinforcement
- Beliefs about consequences
- Intentions
- Goals
- Optimism
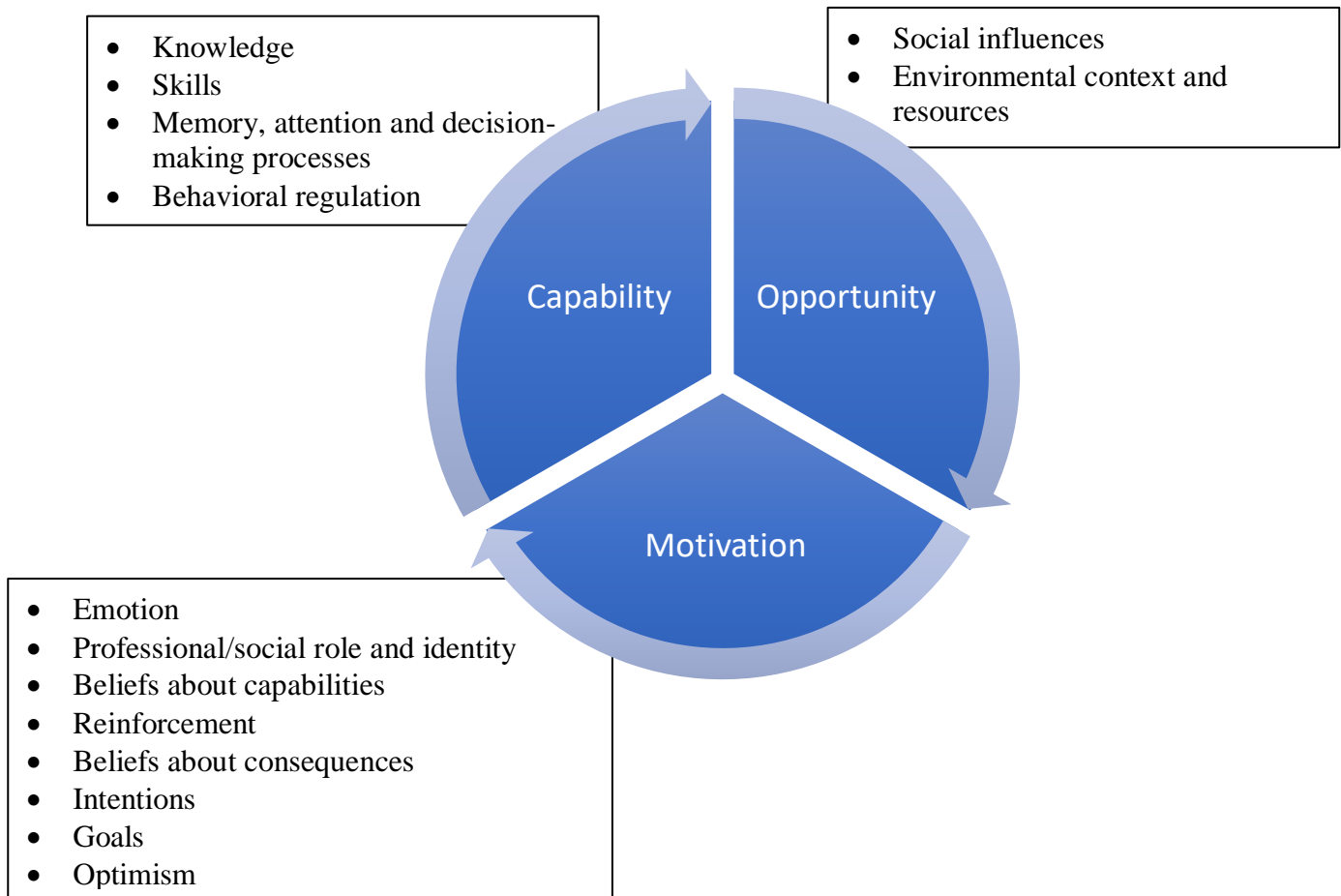
1.6.5   Quality-Participation Model

The Quality-Participation Model (QPM) was developed to better understand the

participation of individuals with disabilities in a broad societal context, including

physical activity. The model seeks to move beyond understanding participation from a

strictly quantitative perspective, to understanding the meaning and satisfaction

individuals derive from participation (Martin Ginis et al., 2017). The model identifies six

themes relevant to quality participation: autonomy, belongingness, challenge,

engagement, mastery, and meaning (Martin Ginis et al., 2017). Table 2 provides

descriptions of these themes.

Table 2. Quality-participation model themes, with descriptions

Theme	Description
Autonomy	Having independence, choice, control.
Belongingness	Experiencing a sense of belonging to a group; acceptance/respect from others; included at interpersonal or societal levels.
Challenge	Feeling appropriately challenged.
Engagement	Engaged in the activity, motivated, focused, involved, experiencing flow.
Mastery	Experiencing achievement, competence, sense of accomplishment; self-efficacy.
Meaning	Contributing to personal or socially meaningful goal; feeling a sense of responsibility for others.

The QPM (see Figure 2 below) "provides a descriptive and process-based account of how conditions support quality experiences and, in turn, quality participation" (Evans et al., 2018, p. 86). It highlights the conditions necessary to support quality physical activity opportunities for individuals with disabilities. Through consideration of an individual's experience in relation to the six themes, quality experiences can be promoted and facilitated. I include the QPM in my dissertation because the experience of SWD must be considered when addressing teachers' inclusive PE practice. As such, the QPM provides a secondary framework to guide my examination of teacher-training resources in order to identify content related to fostering quality PE experiences for SWD.

Figure 2. Interaction between components comprising the quality-participation framework
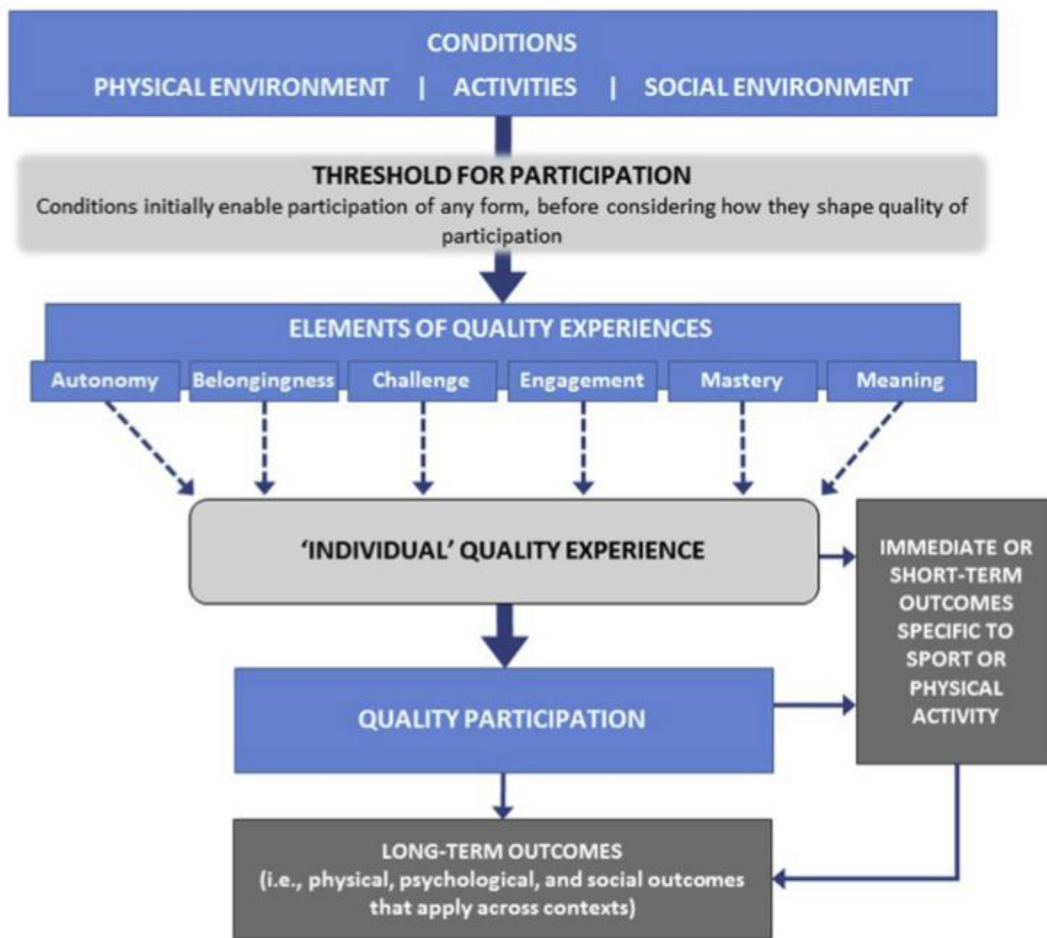
Source: Evans et al., 2018

1.6.6 Diffusion of Innovations Theory

The diffusion of innovations theory (DOI) describes the process by which an innovation is communicated over time and among members of a social system (Rogers, 2003). For this dissertation, the DOI provided a useful framework to contextualize and understand factors related to teachers' decisions regarding the adoption of teacher-training resources. Firstly, adoption is dependent on prior conditions that promote teachers' awareness and/or the need for teacher-training resources (Rogers, 2003). In

addition to taking into account these conditions, the DOI describes a five-stage

systematic process that an individual must move through when deciding whether to adopt

or reject a teacher-training resource. The five stages are knowledge, persuasion, decision,

implementation, and confirmation (see Figure 3). A teacher would first become aware of

a teacher-training resource and then gather additional information about it (knowledge

stage). They would then assess the teacher-training resource and formulate either a

positive or negative opinion about the resource (persuasion stage). The teacher must then

decide if they will adopt the teacher-training resource (decision stage). Should adoption

occur, the teacher will then implement the teacher-training resource into their inclusive

PE practice (implementation stage). Lastly, the teacher will seek approval or support for

their decision (confirmation stage).

In this dissertation, I will consider only the first two stages (knowledge and

persuasion) along with prior conditions, as these stages facilitate or directly precede

teachers' adoption of teacher-training resources. Specifically, I will use the DOI to

understand factors related to prior conditions, as well as the knowledge and persuasion

processes that affect teachers' decisions and can inform the development and

dissemination of teacher training resources for inclusive PE.

Figure 3. Rogers' diffusion of innovation model
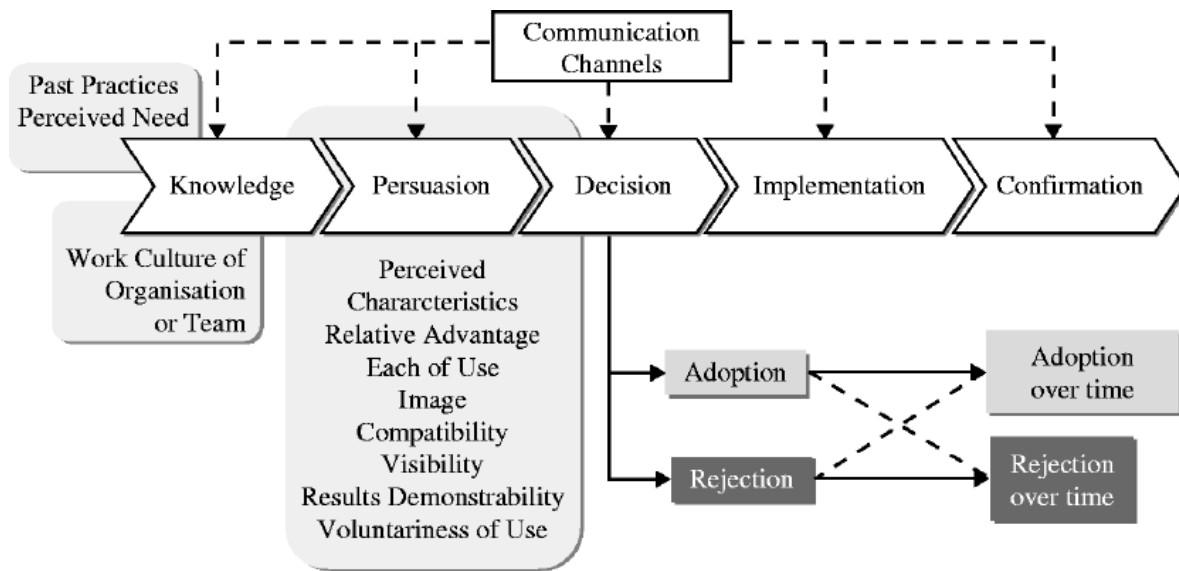
Source: Rogers (2003)

1.7   General Purpose of Dissertation

I wrote this dissertation as a way to examine teacher training from diverse perspectives and thereby gain an improved understanding of theoretical factors that facilitate inclusive PE practice. I use a variety of methodologies to investigate the content, effects, and adoption of teacher-training resources along with salient factors that facilitate teachers' inclusive PE practice. First, guided by the TDF, I analyzed a teacher-training resource in order to identify and categorize theoretical content to understand how the content aligns with a behavior-change approach (chapter 2). Second, I used the TDF to examine theoretical factors related to teachers' intentions to implement inclusive PE. Third, I assessed the impact of a teacher-training resource on theoretical factors related to teachers' inclusive PE practice. Lastly, I explored the factors related to the adoption of an inclusive PE teacher-training resource.

1.7.1 Study 1: Chapter 2

In Study 1, guided by the TDF (Cane et al., 2012) and the QPM (Martin Ginis et al., 2017), I analyzed the content of *Steps to Inclusion,* a teacher-training resource designed to support teachers' implementation of inclusive PE. Using both the TDF and the QPM, I established a coding manual and provided a framework to identify and categorize the resource content.

1.7.2 Study 2: Chapter 3

In Study 2, I applied the TDF (Michie et al., 2005) and the COM-B model (Michie et al., 2011) to examine theoretical factors related to teachers' intentions to implement inclusive PE. For this study, Ontario pre-service and in-service teachers (n=387) completed a modified Determinants of Implementation Behavior Questionnaire (Huijg et al., 2014) that aided me in assessing potential factors influencing teachers' intentions to implement inclusive PE. To examine factors related to teachers' intentions to implement inclusive PE, I conducted a series of multiple regression analyses. In addition, I used a regression to identify significant predictors of intentions to implement inclusive PE across all three COM-B factors.

1.7.3 Study 3a: Chapter 4

Guided by the TDF (Michie et al., 2005), Study 3a comprises a randomized controlled design. It allowed me to examine the impact of a teacher-training resource on theoretical predictors of teachers' intentions to implement inclusive PE. Following the completion of a baseline questionnaire, eligible Ontario teachers (n=62) were randomized into either the experimental or control condition. Teachers in the experimental condition received *Steps to Inclusion*, whereas those teachers in the control condition received a

control resource. Teachers were then given one week to read and interact with the resource as they saw fit. Following this, all teachers completed two follow-up questionnaires two weeks apart.

1.7.4   Study 3b: Chapter 5

Guided by the DOI, Study 3b identifies factors that teachers perceived to be important in facilitating teacher-training resource uptake and adoption. Participants included both elementary and secondary Ontario teachers (n=20). Prior to participating in semi-structured interviews, participants were given an electronic copy of a teacher-training resource and asked to read the document in full and interact with the document in any way they saw fit. I utilized a preexisting coding scheme based on the DOI to perform a deductive thematic analysis.

Works Cited

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckman (Eds.), *Action control: From cognition to behavior* (pp. 11–39). Berlin, Heidelberg: Springer.

Annand, D. (2008). Learning efficacy and cost-effectiveness of print versus e-book instructional material in an introductory financial accounting course. *Journal of Interactive Online Learning*, *7*(2), 152–164.

Arbour-Nicitopoulos, K. P., Grassmann, V., Orr, K., McPherson, A. C., Faulkner, G. E., & Wright, F. V. (2018). A scoping review of inclusive out-of-school time physical activity programs for children and youth with physical disabilities. *Adapted Physical Activity Quarterly*, *35*(1), 111–138.

Avramidis, E., Bayliss, P., & Burden, R. (2000). Student teachers' attitudes towards the inclusion of children with special educational needs in the ordinary school. *Teaching and Teacher Education*, *16*(3), 277-293.

Avramidis, E., & Kalyva, E. (2007). The influence of teaching experience and professional development on Greek teachers' attitudes towards inclusion. *European Journal of Special Needs Education*, *22*(4), 367–389.

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: A review of the literature. *European Journal of Special Needs Education*, *17*(2), 129–147.

Barber, W. (2018). Inclusive and accessible physical education: rethinking ability and disability in pre-service teacher education. *Sport, Education and Society*, *23*(6), 520-532.

Bedell, G., Coster, W., Law, M., Liljenquist, K., Kao, Y. C., Teplicky, R., ... & Khetani, M. A. (2013). Community participation, supports, and barriers of school-age children with and without disabilities. *Archives of Physical Medicine and Rehabilitation*, *94*(2), 315-323.

Belanger, N., & Gougeon, N. A. (2009). Inclusion on the agenda in four different school contexts in Canada (Ontario, Manitoba, New Brunswick and Québec). *Research in Comparative and International Education*, *4*(3), 289–304.

Bennett, S. M., & Wynne, K. (2006). Special education transformation: The report of the co-chairs with the recommendations of the Working Table on Special Education: Final report to the Minister of Education, the Honourable Sandra Pupatello. Retrieved from http://www.oafccd.com/documents/transformation.pdf

Bertills, K., Granlund, M., Dahlström, Ö., & Augustine, L. (2018). Relationships between physical education (PE) teaching and student self-efficacy, aptitude to participate in PE and functional skills: With a special focus on students with disabilities. *Physical Education and Sport Pedagogy*, *23*(4), 387–401.

Block, M. E., & Obrusnikova, I. 2007. Inclusion in physical education: A review of the literature from 1995–2005. *Adapted Physical Activity Quarterl*y, *24*(2): 103–124.

Bloemen, M., Van Wely, L., Mollema, J., Dallmeijer, A., & de Groot, J. (2017). Evidence for increasing physical activity in children with physical disabilities: A systematic review. *Developmental Medicine & Child Neurology*, *59*(10), 1004-1010.

Bower, J. M., Van Kraayenoord, C., & Carroll, A. (2015). Building social connectedness in schools: Australian teachers' perspectives. *International Journal of Educational Research*, *70*, 101–109.

Braksiek, M., Gröben, B., Rischke, A., & Heim, C. (2018). Teachers' attitude toward inclusive physical education and factors that influence it. *German Journal of Exercise and Sport Research*, *1,*1–10.

Braun, K. V. N., Yeargin-Allsopp, M., & Lollar, D. (2006). Factors associated with leisure activity among young adults with developmental disabilities. *Research in Developmental Disabilities*, *27*(5), 567–583.

Bremer, E., & Lloyd, M. (2016). School-based fundamental-motor-skill intervention for children with autism-like characteristics: an exploratory study. *Adapted Physical Activity Quarterly*, *33*(1), 66-88.

British Columbia. Revised July 1, 2006. Special Education. Retrieved from https://www2.gov.bc.ca/gov/content/education-training/administration/legislation-policy/public-schools/special-education

Brown, R. I., Andrews, J. (2014). The Canadian Encyclopedia: Special Education. Retrieved from https://www.thecanadianencyclopedia.ca/en/article/special-education

Brown, R. S., Newton, L., Parekh, G., & Zaretsky, H. (2013). Special education in the TDSB and Ontario: An overview, 2011-13. *Toronto District School Board*. Retrieved from https://www.academia.edu/6951072/Special_Education_in_the_TDSB_and_Ontario_An_Overview_2011-13

Campbell, J., Gilmore, L., & Cuskelly, M. (2003). Changing student teachers' attitudes towards disability and inclusion. *Journal of Intellectual and Developmental Disability*, *28*(4), 369-379.

Cane, J., O'Connor, D., & Michie, S. (2012). Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implementation Science*, *7*(37), 1- 17.

Cleary, S. L., Taylor, N. F., Dodd, K. J., & Shields, N. (2017). An aerobic exercise program for young people with cerebral palsy in specialist schools: A phase I randomized controlled trial. *Developmental Neurorehabilitation*, *20*(6), 331-338.

Coates, J., & Vickerman, P. (2010). Empowering children with special educational needs to speak up: experiences of inclusive physical education. *Disability and Rehabilitation*, *32*(18), 1517-1526.

Combs, S., Elliott, S., & Whipple, K. (2010). Elementary Physical Education Teachers' Attitudes towards the Inclusion of Children with Special Needs: A qualitative investigation. *International Journal of Special Education*, *25*(1), 114-125.

Curran, J. A., Brehaut, J., Patey, A. M., Osmond, M., Stiell, I., & Grimshaw, J. M. (2013). Understanding the Canadian adult CT head rule trial: Use of the theoretical domains framework for process evaluation. *Implementation Science*, *8*(25), 1-10.

Davis, E. A., & Krajcik, J. S. (2005). Designing educative curriculum materials to promote teacher learning. *Educational Researcher*, *34*(3), 3–14.

Davis, R., Campbell, R., Hildon, Z., Hobbs, L., & Michie, S. (2015). Theories of behaviour and behaviour change across the social and behavioural sciences: A scoping review. *Health Psychology Review*, *9*(3), 323–344.

De Boer, A., Pijl, S. J., & Minnaert, A. (2011). Regular primary schoolteachers' attitudes towards inclusive education: A review of the literature. *International Journal of Inclusive Education*, *15*(3), 331–353.

Dudley, D., Okely, A., Pearson, P., & Cotton, W. (2011). A systematic review of the effectiveness of physical education and school sport interventions targeting physical activity, movement skills and enjoyment of physical activity. *European Physical Education Review*, *17*(3), 353-378.

Dyson, J., Lawton, R., Jackson, C., & Cheater, F. (2011). Does the use of a theoretical approach tell us more about hand hygiene behaviour? The barriers and levers to hand hygiene. *Journal of Infection Prevention*, *12*(1), 17-24.

Edwards, L. C., Bryant, A. S., Keegan, R. J., Morgan, K., & Jones, A. M. (2017). Definitions, foundations and associations of physical literacy: A systematic review. *Sports Medicine*, *47*(1), 113-126.

Engsig, T. T., & Johnstone, C. J. (2015). Is there something rotten in the state of Denmark? The paradoxical policies of inclusive education: Lessons from Denmark. *International Journal of Inclusive Education*, *19*(5), 469–486.

Evans, M. B., Shirazipour, C. H., Allan, V., Zanhour, M., Sweet, S. N., Ginis, K. A. M., & Latimer-Cheung, A. E. (2018). Integrating insights from the parasport community to understand optimal Experiences: The Quality Parasport Participation Framework. *Psychology of Sport and Exercise*, *37*, 79-90.

Erwin H., Fedewa A., Beighle A., & Ahn S. (2012) A quantitative review of physical activity, health, and learning outcomes associated with classroom-based physical activity interventions. *Journal of Applied School Psychology, 28*(1), 14–36.

Fejgin, N., Talmor, R., & Erlich, I. (2005). Inclusion and burnout in physical education. *European Physical Education Review*, *11*(1), 29–50.

Florian, L., & Spratt, J. (2013). Enacting inclusion: A framework for interrogating inclusive practice. *European Journal of Special Needs Education, 28*(2), 119–135.

Forlin, C., & Chambers, D. (2011). Teacher preparation for inclusive education: Increasing knowledge but raising concerns. *Asia-Pacific Journal of Teacher Education*, *39*(1), 17–32.

Forlin, C., Loreman, T., Sharma, U., & Earle, C. (2009). Demographic differences in changing pre-service teachers' attitudes, sentiments and concerns about inclusive education. *International Journal of Inclusive Education*, *13*(2), 195-209.

Francis, J. J., O'Connor, D., & Curran, J. (2012). Theories of behaviour change synthesised into a set of theoretical groupings: introducing a thematic series on the theoretical domains framework. *Implementation Science*, *7*(35), 1-9.

Ghassemi, M., & Kern, D. (2014). Effectiveness of School-based Physical Activity Interventions in Children and Youth: Rapid Review of the Evidence. Retrieved from https://www.peelregion.ca/health/library/pdf/school-pa-interventions.pdf

Gibbs, S. (2007). Teachers' perceptions of efficacy: Beliefs that may support inclusion or segregation. *Educational and Child Psychology*, *24*(3), 47-53.

Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2008). *Health behavior and health education: Theory, research, and practice*. San Francisco: John Wiley & Sons.

Global Education Monitoring (GEM) Report. (2016). GEM report summary on disabilities and education. Retrieved from https://en.unesco.org/gem-report/sites/gem-report/files/GAW2014-Facts-Figures-gmr_0.pdf.pdf

Goodwin, D. L., Watkinson, E. J., & Fitzpatrick, D. A. (2003). Inclusive physical education: A conceptual framework. In R. D. Steadward, G. D. Wheeler, & E. J. Watkinson (Eds.), *Adapted physical activity* (pp. 189–209). Edmonton: University of Alberta Press.

Hammond, H., & Ingalls, L. (2003). Teachers' attitudes towards inclusion: Survey results from elementary school teachers in three south-western rural school districts. *Rural and Special Education Quarterly, 22*, 24–30.

Hansen, J. H. (2012). Limits to inclusion. *International Journal of Inclusive Education*, *16*(1), 89–98.

Haycock, D., & Smith, A. (2011). Still 'more of the same for the more able?' Including young disabled people and pupils with special educational needs in extra-curricular physical education. *Sport, Education and Society*, *16*(4), 507–526.

Heah, T., Case, T., McGuire, B., & Law, M. (2007). Successful participation: The lived experience among children with disabilities. *Canadian Journal of Occupational Therapy*, *74*(1), 38–47.

Healy, S., Msetfi, R., & Gallagher, S. (2013). 'Happy and a bit Nervous': the experiences of children with autism in physical education. *British Journal of Learning Disabilities*, *41*(3), 222-228.

Heiman, T. (2001). Inclusive schooling-middle school teachers' perceptions. *School Psychology International*, *22*(4), 451-462.

Hills, A. P., Dengel, D. R., & Lubans, D. R. (2015). Supporting public health priorities: Recommendations for physical education and physical activity promotion in schools. *Progress in Cardiovascular Diseases*, *57*(4), 368–374.

Huijg, J. M., Gebhardt, W. A., Dusseldorp, E., Verheijden, M. W., van der Zouwe, N., Middelkoop, B. J., & Crone, M. R. (2014). Measuring determinants of implementation behavior: Psychometric properties of a questionnaire based on the theoretical domains framework. *Implementation Science*, *9*(33), 1-15.

Hutchinson, N. L. (2007). Inclusion of exceptional learners in Canadian schools: A practical handbook for teachers. Toronto, ON: Pearson Canada Prentice Hall.

IDEA. (2004). Individuals With Disabilities Education Act. U.S. Department of Education. Retrieved from http://idea.ed.gov/download/statute.html

Jackson, C., Eliasson, L., Barber, N., & Weinman, J. (2014). Applying COM-B to medication adherence: A suggested framework for research and interventions. *European Health Psychologist*, *16*(1), 7–17.

Janelle, C. M., Champenoy, J. D., Coobes, S. A., & Mousseau, M. B. (2003). Mechanisms of attention cueing during observational learning to facilitate motor skill acquisition. *Journal of Sport Sciences, 21*, 825–839.

Jansma, P., & Decker, J. (1990). *Project LRE/PE: Least restrictive environment usage in physical education*. United States Department of Education, Office of Special Education and Rehabilitative Services. Retrieved from https://babel.hathitrust.org/cgi/pt?id=pst.000046155603;view=1up;seq=15

Kilborn, M., Lorusso, J., & Francis, N. (2016). An analysis of Canadian physical education curricula. *European Physical Education Review*, *22*(1), 23-46.

Klein, E., & Hollingshead, A. (2015). Collaboration between special and physical education: The benefits of a healthy lifestyle for all students. *Teaching Exceptional Children*, *47*(3), 163–171.

Law, M., Petrenchik, T., King, G., & Hurley, P. (2007). Perceived environmental barriers to recreational, community, and school participation for children and youth with physical disabilities. *Archives of Physical Medicine and Rehabilitation*, 88(12), 1636–1642.

Li, C., Wang, L., Block, M. E., Sum, R. K., & Wu, Y. (2018). Psychometric properties of the physical educators' self-efficacy toward including students with disabilities: Autism among Chinese preservice physical education teachers. *Adapted Physical Activity Quarterly*, *35*(2), 159–174.

Lienert, C., Sherrill, C., & Myers, B. (2001). Physical educators' concerns about integrating children with disabilities: A cross-cultural comparison. *Adapted Physical Activity Quarterly*, *18*(1), 1-17.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs: Prentice-Hall, Inc.

Loreman, T., Sharma, U., & Forlin, C. (2013). Do Pre-service Teachers Feel Ready to Teach in Inclusive Classrooms? A four country study of teaching self-efficacy. *Australian Journal of Teacher Education*, *38*(1), 3.

Lupart, J., & Webber, C. (2002). Canadian schools in transition: Moving from dual education systems to inclusive schools. *Exceptionality Education Canada*, *12*, 7–52.

Martin Ginis, K. A., Evans, M. B., Mortenson, W. B., & Noreau, L. (2017). Broadening the conceptualization of participation of persons with physical disabilities: A

configurative review and recommendations. *Archives of Physical Medicine and Rehabilitation*, *98*(2), 395–402.

Martin Ginis, K. A., Ma, J. K., Latimer-Cheung, A. E., & Rimmer, J. H. (2016). A systematic review of review articles addressing factors related to physical activity participation among children and adults with physical disabilities. *Health Psychology Review*, *10*(4), 478–494.

McCluskey, A., & Middleton, S. (2010). Delivering an evidence-based outdoor journey intervention to people with stroke: Barriers and enablers experienced by community rehabilitation teams. *BMC Health Services Research*, *10*(18), 1-15.

Mccoy, S. W., Effgen, S. K., Chiarello, L. A., Jeffries, L. M., & Villasante Tezanos, A. G. (2018). School-based physical therapy services and student functional performance at school. *Developmental Medicine & Child Neurology*, *60*(11), 1140-1148.

McKenzie, J. E., French, S. D., O'Connor, D. A., Grimshaw, J. M., Mortimer, D., Michie, S., ... & Buchbinder, R. (2008). IMPLEmenting a clinical practice guideline for acute low back pain evidence-based manageMENT in general practice (IMPLEMENT): Cluster randomised controlled trial study protocol. *Implementation Science*, *3*(11), 1-12.

McKenzie, J. E., O'Connor, D. A., Page, M. J., Mortimer, D. S., French, S. D., Walker, B. F., ... & Green, S. E. (2010). Improving the care for people with acute low-back pain by allied health professionals (the ALIGN trial): A cluster randomised trial protocol. *Implementation Science*, *5*(86), 1-17.

McSherry, L. A., Dombrowski, S. U., Francis, J. J., Murphy, J., Martin, C. M., O'Leary, J. J., & Sharp, L. (2012). 'It's a can of worms': understanding primary care practitioners' behaviours in relation to HPV using the theoretical domains framework. *Implementation Science*, *7*(73), 1-15.

Meegan, S., & MacPhail, A. (2006). Irish physical educators' attitude toward teaching students with special educational needs. *European Physical Education Review*, *12*(1), 75–97.

Melnychuk, N., Robinson, D. B., Lu, C., Chorney, D., & Randall, L. (2011). Physical education teacher education (PETE) in Canada. *Canadian Journal of Education*, *34*(2), 148-168.

Michie, S., Atkins, L., & West, R. (2014). *The behaviour change wheel. A guide to designing interventions.* Sutton, UK: Silverback Publishing.

Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: A consensus approach. *BMJ Quality & Safety*, *14*(1), 26-33.

Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, *6*(42), 1-11.

Morley, D., Bailey, R., Tan, J., & Cooke, B. (2005). Inclusive physical education: Teachers' views of including pupils with special educational needs and/or disabilities in physical education. *European Physical Education Review*, *11*(1), 84–107.

Morningstar, M. E., Kurth, J. A., & Johnson, P. E. (2017). Examining national trends in educational placements for students with significant disabilities. *Remedial and Special Education*, *38*(1), 3–12.

Murphy, N. A., & Carbone, P. S. (2008). Promoting the participation of children with disabilities in sports, recreation, and physical activities. *Pediatrics*, *121*(5), 1057–1061.

New Brunswick. (2013). Department of Education and Early Childhood Development: Policy 322, September 13. Retrieved from http://www2.gnb.ca/content/dam/gnb/Departments/ed/pdf/K12/policies-politiques/e/322A.pdf

No Child Left Behind Act of 2001, P.L. 107-110.

Nolan, D. (2017). Jim Hansen's "Each Belongs" changed education for children with special needs. Retrieved from https://www.thespec.com/news-story/7523222-jim-hansen-s-each-belongs-changed-education-for-children-with-special-needs/

Norris E., Shelton N., Dunsmuir S., Duke-Williams O., & Stamatakis, E. (2015). Physically active lessons as physical activity and educational interventions: A systematic review of methods and results. *Preventative Medicine*, *72*, 116–125.

Obrusnikova, I. (2008). Physical educators' beliefs about teaching children with disabilities. *Perceptual and Motor Skills*, *106*(2), 637–644.

Ontario Ministry of Education. (2009). Realizing the promise of diversity . . . Ontario's equity and inclusive education strategy. Toronto, ON: Queen's Printer for Ontario.

Ontario Ministry of Education. (2012). Accepting Schools Act, 2012, S.O. 2012, c. 5 – Bill 13. Retrieved from https://www.ontario.ca/laws/statute/S12005

Ontario Ministry of Education. (2014). Equity and inclusive education . . . Policy development implementation. Retrieved from http://www.edu.gov.on.ca/eng/policyfunding/inclusiveguide.pdf

Opertti, R., & Brady, J. (2011). Developing inclusive teachers from an inclusive curricular perspective. *Prospects*, *41*(3), 459-472.

Ophea, L. (2010). *Steps to inclusion: A resource to support inclusive physical activity for children and youth living with physical or intellectual disabilities.* Toronto, ON: Ophea.

Ophea. (2015). About us. Retrieved from https://www.ophea.net/about-us

Parekh, G., & Brown, R. S. (2019). Changing Lanes: The Relationship Between Special Education Placement and Students' Academic Futures. *Educational Policy*, *33*(1), 111-135.

Owen K. B., Parker P. D., Van Zanden B., Macmillan F., Astell-Burt T., & Lonsdale C. (2016). Physical activity and school engagement in youth: A systematic review and meta-analysis. *Educational Psychology, 51*(2), 129–145.

Pate, R. R., Davis, M. G., Robinson, T. N., Stone, E. J., McKenzie, T. L., & Young, J. C. (2006). Promoting physical activity in children and youth: a leadership role for schools: a scientific statement from the American Heart Association Council on Nutrition, Physical Activity, and Metabolism (Physical Activity Committee) in collaboration with the Councils on Cardiovascular Disease in the Young and Cardiovascular Nursing. *Circulation*, *114*(11), 1214-1224.

Pearpoint, J., & Bunch, G. (n.d.). Each belongs: 32 years of full inclusion. Retrieved from https://ici.umn.edu/products/impact/161/prof1.html

People for Education. (2015). Special education. [This report is an excerpt from the 2015 Annual Report on Ontario's Publicly Funded Schools.] Retrieved from https://peopleforeducation.ca/wp-content/uploads/2017/10/special-education-2015.pdf

Peters, S. J. (2007). Education for all? A historical analysis of international inclusive education policy and individuals with disabilities. *Journal of Disability Policy Studies*, *18*(2), 98–108.

Porter, L. (2015). The effects of non-specialist physical education promary school teachers' experiences of physical education during their school centred initail teacher training course on their confidence, knowledge, and ability to teach physical education. Retrieved from: https://repository.cardiffmet.ac.uk/dspace/handle/10369/6880

Provincial Government of Ontario. (1980). Ontario education amendment act, Revised statutes of Ontario, 1980, c. 129; RSO 1990, c. E2.

Pudlas, K.A. (2001). Educational provisions for children with exceptional needs in British Columbia. *Exceptionality Education Canada,* 11(2), 33–54.

Qi, J., & Ha, A. S. (2012). Inclusion in physical education: A review of literature. *International Journal of Disability, Development and Education*, *59*(3), 257–281.

Reid, G., Bouffard, M., & MacDonald, C. (2012). Creating evidence-based research in adapted physical activity. *Adapted Physical Activity Quarterly*, *29*(2), 115-131.

Rice, N. (2006). Promoting "epistemic fissures": Disability studies in teacher education. *Teaching Education*, *17*(3), 251–264.

Right to Education Project. (2017). Moore v. British Columbia. Retrieved from http://www.right-to-education.org/sites/right-to-education.org/files/resource-attachments/RTE_Moore_v_British_Columbia_2017_En.pdf

Rogers, E. M. (2003). *Diffusion of innovations*. (5th ed.). New York: Free Press.

Roh, H. K. (2002). The practical realities of inclusive physical education and cognition of physical education teachers toward inclusive physical education in Korea. *Journal of Korean Adapted Physical Activity & Exercise*, *10*(2), 13–26.

Sachs, J. (2003). *The activist teaching profession*. Buckingham, UK: Open University Press.

Savolainen, H., Engelbrecht, P., Nel, M., & Malinen, O. P. (2012). Understanding teachers' attitudes and self-efficacy in inclusive education: Implications for pre-service and in-service teacher education. *European Journal of Special Needs Education*, *27*(1), 51–68.

Schwarzer, R. (2008). Modeling health behavior change: How to predict and modify the adoption and maintenance of health behaviors. *Applied Psychology*, *57*(1), 1–29.

Sharma, U., Forlin, C., Loreman, T., & Earle, C. (2006). Pre-service teachers' attitudes, concerns and sentiments about inclusive education: An international comparison of novice pre-service teachers. *International Journal of Special Education*, *21*(2), 80–93.

Sharma, U., Loreman, T., & Forlin, C. (2012). Measuring teacher efficacy to implement inclusive practices. *Journal of Research in Special Educational Needs*, *12*(1), 12-21.

Shields, N., & Synnot, A. (2016). Perceived barriers and facilitators to participation in physical activity for children with disability: A qualitative study. *BMC Pediatrics*, *16*(9), 1-10.

Shields, N., Synnot, A. J., & Barr, M. (2011). Perceived barriers and facilitators to physical activity for children with disability: A systematic review. *British Journal of Sports Medicine, 46*(14), 989–997.

Smith, A. (2004). The inclusion of pupils with special educational needs in secondary school physical education. *Physical Education and Sport Pedagogy*, *9*(1), 37–54.

Statistics Canada. (2013) The 2012 Canadian Survey on Disability (CSD) and the 2006 Participation and Activity Limitation Survey (PALS). Retrieved from http://www23.statcan.gc.ca/imdb- bmdi/document/3251_D6_T9_V1-eng.htm.

Tavares, W. (2011). An evaluation of the Kids are Kids disability awareness program: Increasing social inclusion among children with physical disabilities. *Journal of Social Work in Disability & Rehabilitation*, *10*(1), 25–35.

Tovin, M. M. (2013). Children and teens with autism spectrum disorder: Considerations and basic guidelines for health and fitness professionals. *Strength & Conditioning Journal*, *35*(4), 31-37.

Towle, H. (2015). Disability and inclusion in Canadian education: Policy, procedure, and practice. Canadian Centre for Policy Alternatives. Retrieved from www.policyalternatives.ca

Tristani, L., & Bassett-Gunter, R. (under review). Making the grade: Teacher training for inclusive physical education. *Quest*.

United States Department of Health, Centers for Disease Control and Prevention (CDC). (2017). Healthy Schools: Physical Education. Retrieved from https://schoolspringboard.org/wp-content/uploads/2017/10/Springboard-PE-Data-Brief_FINALversion_170719.pdf

Verret, C., Guay, M. C., Berthiaume, C., Gardiner, P., & Béliveau, L. (2012). A physical activity program improves behavior and cognitive functions in children with ADHD: An exploratory study. *Journal of Attention Disorders*, *16*(1), 71–80.

Vickerman, P., & Coates, J. (2009). Trainee and recently qualified physical education teachers' perspectives on including children with special educational needs. *Physical Education and Sport Pedagogy*, *14*(2), 137–153.

Watson, A., Timperio, A., Brown, H., Best, K., & Hesketh, K. D. (2017). Effect of classroom-based physical activity interventions on academic and physical activity outcomes: A systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, *14*(1), 114-138.

Webb, T. L., Sniehotta, F. F., & Michie, S. (2010). Using theories of behaviour change to inform interventions for addictive behaviours. *Addiction*, *105*(11), 1879–1892.

Weiss, M. R., & Giel, D. L. (2005). What goes around comes around: Reemerging themes in sport and exercise psychology. *Research Quarterly for Exercise and Sport, 76*, 71–88.

Winnick, J., & Porretta, D. (Eds.). (2016). *Adapted physical education and sport.* Champagne, IL: Human Kinetics.

World Health Organization (WHO). (2011). World report on disability. Geneva: World Health Organization. Retrieved from https://www.who.int/disabilities/world_report/2011/report.pdf

World Health Organization (WHO). (2015). WHO global disability action plan 2014–2021: Better health for all people with disabilities. Retrieved from http://apps.who.int/iris/bitstream/handle/10665/199544/?sequence=1

Woodmansee, C., Hahne, A., Imms, C., & Shields, N. (2016). Comparing participation in physical recreation activities between children with disability and children with typical development: A secondary analysis of matched data. *Research in Developmental Disabilities*, *49*, 268–276.

Zepeda, S. J. (2013). *Professional development: What works*. Larchmont, NY: Routledge.

Zhang, J., & Griffin, A. J. (2007). Including children with autism in general physical education: Eight possible solutions. *Journal of Physical Education, Recreation & Dance*, *78*(3), 33–50.

Zwinkels, M., Verschuren, O., Balemans, A., Lankhorst, K., te Velde, S., van Gaalen, L., ... & Takken, T. (2018). Effects of a school-based sports program on physical fitness, physical activity, and cardiometabolic health in youth with physical disabilities: data from the Sport-2-Stay-Fit Study. *Frontiers in Pediatrics*, *6*(75). 1-11.

Chapter 2: Taking Steps to Inclusion: A Content Analysis of a Resource Aimed

to Support Teachers in Delivering Inclusive Physical Education

2.1   Inclusive Physical Activity and Physical Education

It has been shown that quality inclusive physical activity (PA) programs result in significant benefits for individuals with disabilities (Murphy & Carbone, 2008) and without (Black, Costello, Craft, & Katene, 2015; Johnson, 2009; Wilhite, Mushett, Goldenberg, & Trader, 1997). For example, among people with disabilities, PA enhances social inclusion, reduces the risk of secondary health conditions, optimizes physical functioning, and improves overall well-being (Murphy & Carbone, 2008). Although the benefits of PA are well documented, children and youth with disabilities are less likely to participate in PA those without disabilities (King, Shields, Imms, Black, & Ardern, 2013).

School-based PA interventions, including PE, have been identified as an effective means for increasing PA (Adamo et al., 2014). Unfortunately, full implementation of inclusive practices in PE is often hindered, which results in further reduced opportunities for PA among SWD. Numerous obstacles impede inclusive PE, including systemic barriers (insufficient funding), teacher-related barriers (insufficient teacher training; Sokal & Katz, 2015) and institutional barriers (inadequate facilities and equipment; Fletcher, Mandigo, & Kosnik, 2013). Although barriers that thwart inclusive PE practice exist in various facets of the education system (e.g., systemic barriers, teacher-related barriers, and institutional barriers), this chapter focuses specifically on teacher-related barriers because teachers "play a significant role in the successful implementation of

inclusive education" (Round, Subban, & Sharma, 2016, p. 186). The literature is replete with examples of barriers or predictors that affect how teachers implement inclusive practices. These factors include, but are not limited to, a) teacher self-efficacy—the belief a teacher holds regarding their capacity to teach SWD and/or deliver inclusive PE (Sharma & George, 2016), b) teaching efficacy—a teacher's perception about their capability to influence students' learning (Allinder, 1994), c) teacher confidence (Jung, 2007), d) teachers' knowledge (Hanline, Hatoum, & Riggie, 2012), e) teachers' experience and training (Batsiou, Bebetsos, Panteli, & Antoniou, 2008), f) subjective norms—to what extent other teachers and/or school administrators approve of their inclusive practices, g) perceived behavioral control with regard to the level of difficulty in carrying out inclusive practices and teachers' willingness to do so (MacFarlane & Woolfson, 2013), and h) teachers' attitudes and predispositions towards SWD (Jeong & Block, 2011; Kuyini & Mangope, 2011; Sharma, Forlin, & Loreman, 2008; Tant & Watelain, 2016). In order to optimize inclusive PE experiences for SWD, teacher-training resources should target these key factors that influence teachers' behavior. Indeed, using teacher-training resources is a recognized strategy to enhance teachers' support of SWD (Avramidis & Norwich, 2002; Loreman, Forlin, & Sharma, 2007; Sharma, Forlin, Loreman, & Earle, 2006). However, the content of teacher-training resources, especially as it pertains to the aforementioned factors, remains largely unknown.

A staggering number of Canadian school-aged children with disabilities reside within in the province of Ontario (i.e., 44% of the population of children and youth with disabilities; Statistics Canada, 2013), which demonstrates the importance of having adequately trained teachers and comprehensive training resources. Moreover,

approximately 17% of Ontario's student population is enrolled in special education programs and/or receives services (Ontario Ministry of Education, 2015). It is imperative that teachers in Ontario have quality and adequate training and the necessary teaching tools and resources to support *all* students within the PE environment. The Ontario Physical and Health Education Association (Ophea) (https://www.ophea.net) is a leading PA advocacy organization that creates teaching tools and resources to support quality PE teaching and learning efforts in Ontario schools. Ophea has recognized the need for inclusive teacher-training resources and has created a resource to support teachers in implementing quality inclusive PE. *Steps to Inclusion* is a 30-page online teacher-training resource that can be accessed through Ophea's website free of charge (https://www.ophea.net/product/steps-inclusion#.W-XHeC0ZNDU). The resource was written and reviewed by a team of community stakeholders (e.g., teachers, community advisors, disability organizations, safety consultant, parents, recreation and camp staff, and coaches) with the intent of providing support for inclusive PE programming. *Steps to Inclusion* differs from other adapted or inclusive resources (e.g., Winnick and Porretta's *Adapted Physical Education and Sport* [2016] and Sherrill's *Adapted Physical Activity, Recreation, and Sport: Crossdisciplinary and Lifespan* [2003]) in that it is not meant to provide comprehensive coverage of issues pertaining to adapted and inclusive PA. But rather, it is a simple and pragmatic resource designed to support inclusion, while supplementing, enhancing, and enriching teachers' understanding and perceptions of SWD (Ophea, 2010; see Figure 4). (See Appendix B for the table of contents of *Steps to Inclusion*).

Little is known about the content of *Steps to Inclusion* in relation to theory-based predictors of teachers' behavior regarding inclusive quality PE practices. It is imperative that *Steps to Inclusion* be critically evaluated; this evaluation could inform subsequent research on inclusive teacher-training resources and has the potential to act as the foundational underpinning for future inquiry and development of inclusive teacher-training resources both within Ontario and worldwide.

2.2   Content Analysis

A content analysis is useful for systematically analyzing information contained within various communication formats (Pope & Mays, 1995), and in my content analysis of *Steps to Inclusion,* I consider two fundamental issues: 1) behavior-change theory (BCT) and 2) quality participation.

2.2.1   Behavior-Change Theory

Resources that target theory-based predictors of behavior are likely to be more effective than resources that do not incorporate BCT (Estabrooks et al., 2011). BCTs identify and summarize mechanisms of action and theoretical constructs across various populations, behaviors, and contexts (Davis, Campbell, Hildon, Hobbs, & Michie, 2015). Findings from research rooted in BCT may allow for refinement and tailoring of future interventions (Davis et al., 2015). The use of BCT to inform the development, implementation, and evaluation of resources to support teachers in implementing inclusive PE is valuable, although no research employs it to evaluate teacher-training resources regarding inclusive PE. Drawing upon existing literature, theoretical content analyses concerning PA brochures (Gainforth et al., 2011) and websites targeting parents of SWD (Tristani, Bassett-Gunter, & Tanna, 2017) indicate a consistent lack of

theoretical content in many PA resources. Many of the factors known to be predictive of teachers' behavior (e.g., attitudes, efficacy, confidence, training and knowledge, subjective norms and perceived behavioral control) are components of behavior-change theories. However, little is known about either the presence or distribution of theoretical constructs within tools and teaching resources targeting teachers.

Previous teacher-training and professional-development interventions that have incorporated BCT have been guided by the theory of planned behavior (TPB; Jeong & Block, 2011; MacFarlane & Woolfson, 2013). The TPB identifies attention, social norms, and perceived behavioral control as predictors of intentions that in turn predict behavior (Ajzen, 1991). The TPB, however, fails to account for additional factors (Sniehotta, Presseau, & Araújo-Soares, 2014) such as the multitude of aforementioned teacher-related factors that influence teachers' intentions and behaviors with regards to inclusive practices. Utilizing a more comprehensive framework for the evaluation of *Steps to Inclusion* to support teachers in inclusive PE practices may prove to be valuable. The theoretical-domains framework (TDF; Cane, O'Connor, & Michie, 2012) encompasses a variety of theories and minimizes the risk of omitting important determinants of behavior that have been previously identified in the literature as significant factors related to teachers' inclusive practice. The TDF consolidates constructs from 33 behavioral theories (Michie et al., 2005) into 14 theoretical domains: Knowledge, Skills, Social/professional roles and responsibilities, Beliefs about capabilities, Optimism, Beliefs about consequences, Reinforcement, Intentions, Goals, Memory, Environmental context and resources, Social influences, Emotion, and Behavioral regulation (Cane et al., 2012). The TDF has been useful for scholars examining interventions across various behavioral

domains (Boscart, Fernie, Lee, & Jaglal, 2012; McSherry et al., 2012; Tavender et al., 2014), but it has yet to be extended into PE. Given its broad and comprehensive scope to elucidate behavior and theoretically informed interventions (French et al., 2012), I use the TDF as a framework for my examination of the content of *Steps to Inclusion*.

2.2.2   Quality Participation

In addition to considering the theoretical factors linked to teachers' inclusive PE behavior, it is also important to consider factors related to the *quality* of students' inclusive PE experience. The QPM (Martin Ginis, Evans, Mortenson, & Noreau, 2017) provides a framework for understanding quality PA experiences for persons with disabilities, including SWD within a PE setting. The framework identifies a quality PA experience as one that satisfactorily addresses the following themes: autonomy, belongingness, challenge, engagement, mastery, and meaning (Martin Ginis et al., 2017). Broadly, the conceptualization of the QPM exemplifies the multidimensionality of PA participation and seeks to encompass personal elements that are reflective of the individual (Martin Ginis et al., 2017). Moreover, the six aforementioned themes are necessary to delineate quality participation from mere integration (Martin Ginis et al., 2017). Teacher-training resources should aim to support teachers in fostering quality PE experiences for SWD. The QPM has not been used in research in a PE context, and there, I will use it as a second framework to guide my examination of *Steps to Inclusion*.

The purpose of this study is to conduct a content analysis of *Steps to Inclusion* in order to identify content aligned with the TDF (Cane et al., 2012) and QPM (Martin Ginis et al., 2017). This content analysis will inform our understanding of *Steps to*

Inclusion specifically and inform future research regarding teaching tools more generally to support teachers in creating quality, inclusive PE opportunities for SWD.

2.3   Method

2.3.1   Coding Manual and Coding Procedure

We developed a coding manual to enable us to identify and code text and determine the content that was consistent with the TDF and quality participation domains within *Steps to Inclusion*. We developed the coding manual using both the TDF (Cane et a., 2012) and the QPM (Martin Ginis et al., 2017). In total, 21 categories and several subcategories were identified (see below for a description). Fourteen categories were related to TDF domains and six categories pertained to the QPM with an additional "other" category to capture content that did not fit into any of the other categories. The "other" category included content such as titles and subheading (e.g., "What is an Inclusive Community?", "Myths and Facts about Cognitive Disabilities"), broad overarching statements (e.g., "What works for one child with ASD may not work for another") and directives to other resources (e.g., "Reference Card E").

We employed previously established methodologies for content analysis (Abraham, Southby, Quandte, Krahé, & Sluijs, 2007; Holsti, 1969). Two researchers followed a line-by-line coding procedure whereby each sentence was analyzed and coded separately into previously defined categories. Both researchers brought a unique lens to the coding process. One researcher was certified to teach PE by the Ontario College of Teachers. The other researcher had undergone extensive training in BCT and had previously worked with individuals with disabilities. The two researchers coded three pages of *Steps to Inclusion* independently and then compared coding results. After every

three pages, the researchers reconvened to assess the coded sentences for congruency. A randomly selected subsample of the coded text revealed a 72% inter-coder agreement prior to any discussions among the researchers, which is an acceptable agreement threshold for exploratory studies (Neundorf, 2002).[1] We discussed discrepancies and once they were resolved, we placed them in an agreed upon domain or category. Three pages, a blank page, the acknowledgements, and the table of contents were deemed irrelevant and excluded from coding. Following the full coding of *Steps to Inclusion*, we calculated frequencies and percentage scores for each category and subcategory.

2.3.2 TDF Categories

The following descriptions were modified from the work of Cane et al. (2012) and Huijg, Gebhardt, Crone, Dusseldorp, and Presseau (2014) to align with inclusive PE teaching practices. Subcategories within each TDF domain are noted where appropriate.[2]

Knowledge. Content regarding teaching information needs in order to successfully include a SWD in PE. Subcategories: knowledge, procedural knowledge, and knowledge of task environment.

Skill. Content regarding teacher proficiency, skill acquisition and development, and competencies to perform a task or set of tasks within the context of inclusive PE. Subcategories: skills, skill development, competence, ability, practice, and skill assessment.

Social/professional role and identity. Content regarding behaviors and qualities based on the ethical standards of practice set out by the Ontario College of Teachers.

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[1] Coefficients of 0.7 have been deemed appropriate for exploratory studies (Neundorf, 2002).

[2] Coding manual is attached in the supplementary files and provides greater details including definitions, examples, and coding notes (Appendix A).

Subcategories: professional identity/role, social identity, identity, professional boundaries, professional confidence, leadership, and organizational commitment.

Beliefs about capabilities. Content relating to self-efficacy and beliefs pertaining to the capacity to execute behaviors that promote inclusive PE. Subcategories: self -confidence, perceived confidence, self-efficacy, perceived behavioral control, beliefs, and self-esteem.

Optimism. Content regarding positive attitudes and disposition that particular goals and lesson plans could be successfully attained in an inclusive PE classroom.

Beliefs about Consequences. Content related to outcome expectancies, or an estimate that the creation of an inclusive PE environment would allow all students to fully and successfully participate. Subcategories: beliefs, outcome expectancies, characteristics of outcome expectancies.

Reinforcement. Content regarding the arrangement of one's environment in order to increase the probability and facilitation of inclusive PE and increase the probability of positive student development. Subcategories: incentives and consequences.

Intentions. Content that was associated with intentions or conscious feelings to perform inclusive PE. Subcategories: stability of intentions, stages of change model, and transtheoretical model and stages of change.

Goals. Content regarding internal aspirations translated through unit and lesson plans to promote PE and student development. In its broadest sense, a teacher's pursuit of an outcome or end state related to inclusive PE or SWD development. Subcategories: goals (distal/proximal), goal priority, goal/target setting, action planning, and implementation of intention.

Memory, attention, and decision processes. Content regarding teachers' ability to retain information as well as selectively focus on aspects of the classroom along with students' needs in order to promote inclusion (i.e., modify activities or use adaptive equipment). Subcategories: memory, attention, attention control, and decision making.

Environmental context and resources. Content regarding the school setting and available physical resources that are conducive to the creation of inclusive PE. Subcategories: environmental stressors, resources/material resources, organizational culture/climate, salient events/critical incidents, person x environmental interaction, and barrier and facilitators.

Social influences. Content regarding both macro- and micro relationships that work to affect a teacher in his/her pursuit of creating an inclusive PE classroom. Specifically, social processes that work to modify a teacher's thoughts, feelings, or behavior as they relate to inclusive PE. Subcategories: social pressures/norms, social support, group identity, and modeling.

Emotion. Content regarding positive and negative emotions about SWD within the context of inclusive PE. Subcategories: fear, anxiety, stress, and positive/negative affect.

Behavioral regulation. Content regarding behavioral regulation and associated techniques to manage teacher behavior directed towards the creation of inclusive PE. Subcategories: self-monitoring and action planning.

2.3.3 Quality Participation Model Categories[3]

The following descriptions have been adapted from the work of Martin Ginis et al., (2017) to reflect inclusive PE teaching behavior.[4]

Autonomy. Content regarding approaches or methods to promote an inclusive environment that fosters independence, choice, and control.

Belongingness. Content regarding strategies concerning how teachers can foster acceptance and respect within an inclusive PE setting along with information regarding how to facilitate open lines of communication.

Challenge. Content regarding techniques to encourage and promote student development through the scaffolding of increasingly difficult and demanding tasks.

Engagement. Content regarding how to engage and motivate students.

Mastery. Content regarding techniques and strategies to foster a student's sense of mastery and fulfillment from the successful execution of a task or skill.

Meaning. Content regarding the creation of feelings of importance and significance among all students.

2.4 Results

The results of the content analysis are presented through descriptive statistics. The following results are organized along the TDF and the QPM categories. Overall, the teacher training resource contained 379 coded units (including sentences, pictures, flow charts/diagrams, and text boxes), of which 78.6% were found to be theoretically relevant (coded in the TDF or QPM categories). Among the theoretically relevant content, 85.3%

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[3] Coding manual in Appendix A provides more information in regard to the QPM.
[4] Teaching behavior is operationalized as a given set of actions or conduct that relate to instructional, curricular, equipment/activity, or environmental modifications that have the potential to enhance quality PE participation among SWD.

aligned with the TDF categories, and the remaining 14.7% aligned with the QPM

categories (see Figure 4).

Figure 4. The distribution of content in *Steps to Inclusion*
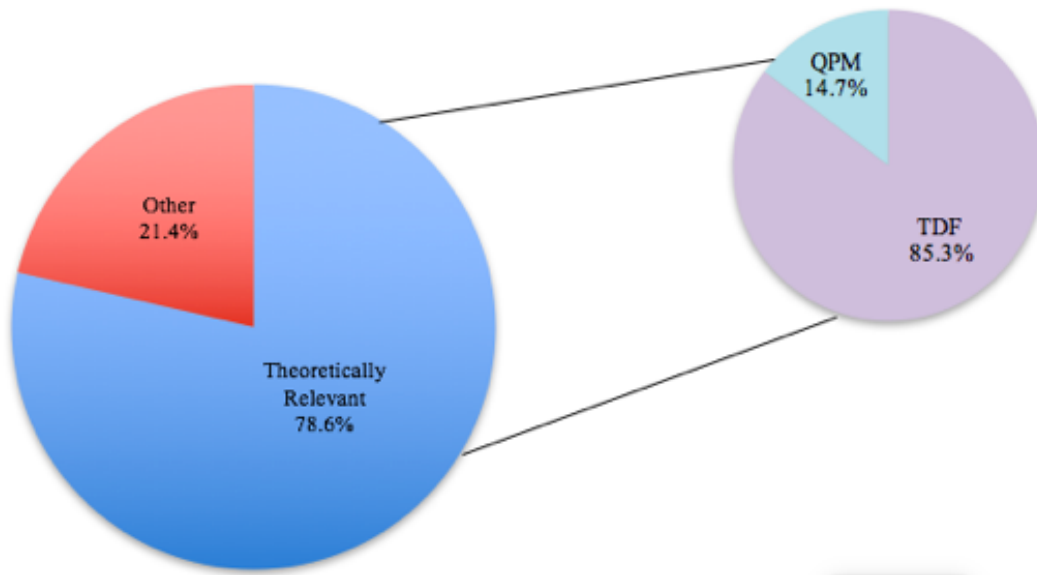
2.5   Between Category Comparison

2.5.1   Theoretical Domains Framework

Figure 5 demonstrates the frequency and percentage scores for each of the 14 major TDF domains. Just over half of the content was categorized in the domain of Knowledge (50.3%). Skill (10.9%) and Social influences (13.4%) also accounted for a significant proportion of the total content within the TDF categories. Together, Social/professional role and identity (3.2%), Goals (5.1%), and Environmental context and resources (8.2%) made up approximately 16.5% of the coded TDF content. Combined, the remaining categories accounted for less than 9% of the total content coded with the TDF categories.

Figure 5. Frequency of distribution between TDF domains[5]

Distribution between TDF Domains

	Kno	Ski	SPRI	BCap	Opt	BCon	Rei	Int	Goa	MAD	ECR	SI	Emo	BR
%	50.3	10.9	3.2	2.4	1.6	0.5	0.8	0.0	5.1	1.4	8.2	13.4	1.8	0.4
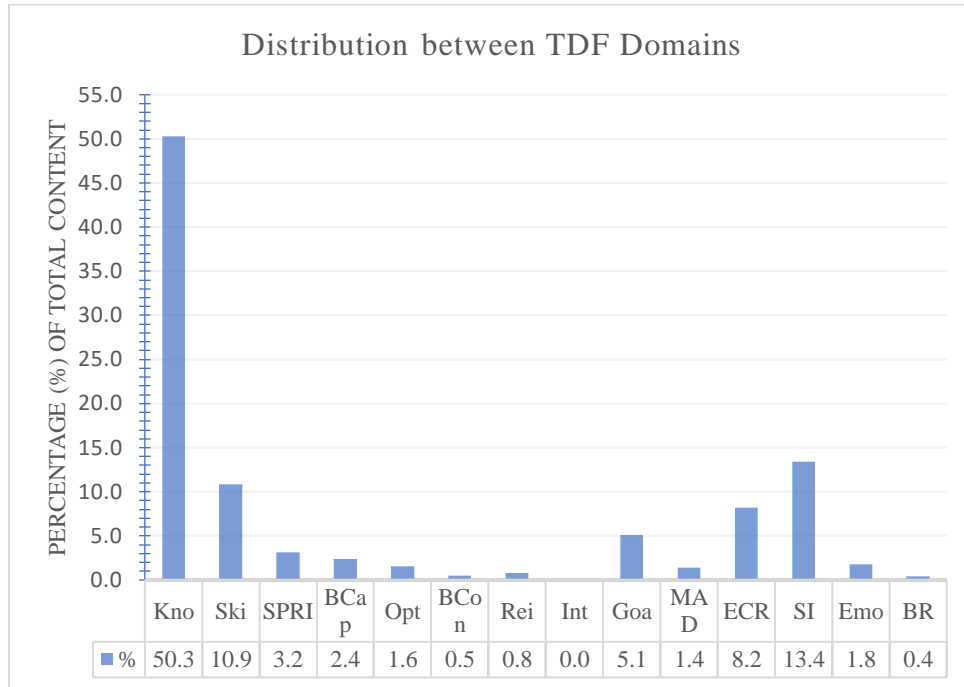
2.5.2 Quality Participation Model Categories

Figure 6 illustrates the frequency and percentage scores for each of the six categories within the QPM. A substantial portion of the content was related to Belongingness (31.6%) and Mastery (30.8%). Autonomy and Engagement occurred in similar frequencies (9.9% and 9.5% respectively). The remaining categories, Challenge (11.4%) and Meaning (6.9%), accounted for just over 18% combined.

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[5]TDF domains acronyms: Kno–Knowledge, Ski–Skill, SPRI–Social/professional role and identity, BCap–Beliefs about capabilities, Opt–Optimism, BCon–Beliefs about consequences, Rei–Reinforcement, Int–Intentions, Goal–Goals, MAD–Memory, attention, and decision processes, ECR–Environmental context and resources, SI–Social influences, Emo–Emotions, BR–Behavioral regulation.

Figure 6. Frequency of distribution between categories of the QPM[6]

Distribution between categories of Quality Participation Model

	Aut	Bel	Cha	Eng	Mea	Mas
%	9.9	31.6	11.4	9.5	6.9	30.8

Percentage (%) of total content
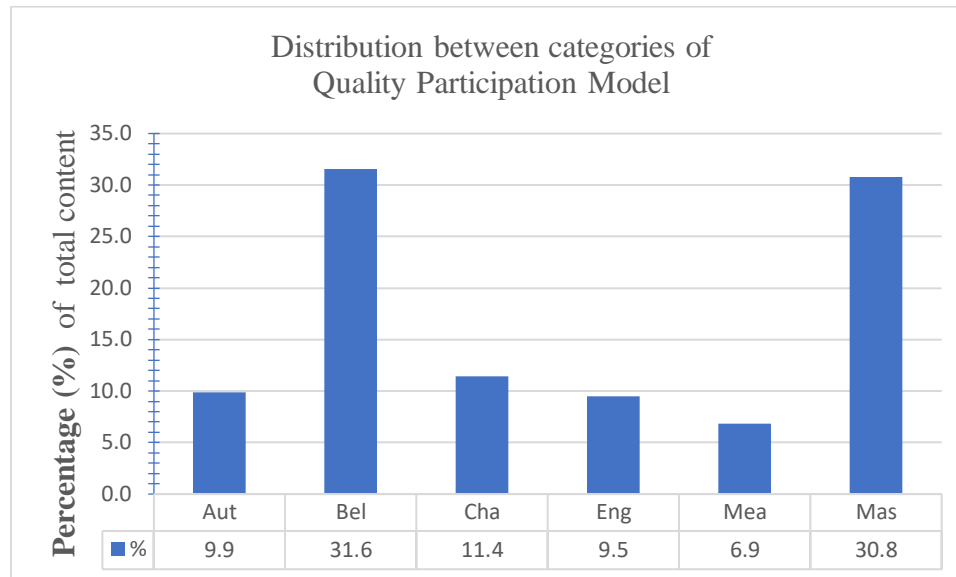
2.6   Discussion

Ours is the first content analysis of a teacher-training resource targeting inclusive PE. We identified *Steps to Inclusion* as an ideal resource for examination because of the breadth and scope of its content in the context of the call for quality teacher training to support PE in Ontario. We analyzed *Steps to Inclusion* from a theoretical perspective and categorized coded content based upon theoretical predictors of behavior change and factors related to quality participation. Overall, a large proportion of the content was coded under the TDF and little content aligned with aspects of quality PA participation. Although we considered a number of theoretical predictors of behavior change and factors related to quality participation, the discussion in the following section will be restricted to that content that occurred both in greatest and least proportion.

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[6] QPM acronyms: Aut–Autonomy, Bel–Belongingness, Cha–Challenge, Eng–Engagement, Mea–Meaning, Mas–Mastery.

2.6.1 Theoretical Domains Framework

Steps to Inclusion included a large amount of information targeting teachers'
basic knowledge of disabilities and procedural information on how to create an inclusive
PE classroom. This finding is similar to other content analyses of PA-targeted resources
whereby knowledge-based information accounts for the greatest proportion of the total
coded content (Gainforth et al., 2011, Tristani et al., 2017). Previous educational
literature suggests that increased teacher knowledge can lead to positive effects on
behavioral constructs such as attitudes towards SWD (Sari, 2007) and efficacy of the
implementation of inclusion (Engstrand & Roll-Pettersson, 2014). Further, improved
knowledge can decrease concerns about inclusive practices (Sharma et al., 2008). It is
suitable to consider that using *Steps to Inclusion* may act as a means to increase teachers'
knowledge of a) the philosophy of inclusion and b) the practice of adapting curriculum to
meet all students' needs, which could positively impact their motivation and behavior
regarding inclusive PE practice in the classroom. However, given that inclusive literature
identifies a host of additional factors that impact teachers' intentions and inclusive
practices (Hanline et al., 2012; Jeong & Block, 2011; Sharma & George, 2016), it may be
insufficient to provide knowledge-dense teacher-training resources. In other words, it is
precarious to assume that increasing teachers' knowledge on its own is adequate for
improving inclusive PE practices. Rather, an improved understanding of the interaction
between knowledge and other key behavioral constructs (e.g., Social influences and
Social/professional role and identity) would be valuable to inform the development of
optimally effective resources.

Content regarding Beliefs about capabilities in *Steps to Inclusion* was infrequently identified. This domain encompasses subcategories that are often cited as critical factors for behavior change, such as self-efficacy, perceived behavioral control, and self-confidence (Malinen et al., 2013; Mistry, Sweet, Latimer-Cheung, & Rhodes, 2015; West, 2005).Teachers' self-efficacy is important, given their influence (Lindsay, 2007), and the role of teacher self-efficacy has been highlighted in the effective implementation of quality inclusive practices (Jordan, Glenn, & McGhie-Richmond 2010; Woolfolk, Hoy, & Davis, 2009). Although there is a lack of content specifically targeting efficacy, content appearing within alternative constructs (i.e., Knowledge and Skills) may have an indirect impact on teacher self-efficacy. For example, teachers' efficacy may be improved if they are provided with knowledge about SWD and a modifiable skill set (Forlin, Sharma, & Loreman, 2014). However, it is not enough to infer the practicality of the teacher-training resource in impacting critical factors that influence inclusive practice (i.e., Knowledge positively impacting Belief about capabilities). An examination of how the content of a teacher-training resource impacts predictors of behavior (e.g., TDF domains) is an essential next step.

Behavioral regulation content was also limited in *Steps to Inclusion* (<1%). There was a significant lack of content supporting behavioral regulation practices and strategies, such as action planning. Action planning may be useful to improve practice (MacSuga & Simonsen, 2011) and, therefore, content that targets behavioral regulation practices such as action planning is likely essential in supporting teachers to deliver inclusive PE. It is important to note that Ophea does provide other teaching tools in conjunction with *Steps to Inclusion* to support inclusive PE (e.g., lesson planning resources for cooperative

games, and movement exploration) as well as additional health and PE resource not specific to inclusive practice. An examination of the interplay between these tools and how they work in conjunction may provide necessary insight into how to best influence and support the pedagogical practice of inclusion within a PE setting.

2.6.2   Quality Participation Framework

Within the QPM, the domain with the most content identified in the resource was Belongingness. The identification of content related to belongingness is valuable in the context of earlier literature that identified beneficial social factors as crucial elements of quality PA for individuals with disabilities (Martin Ginis et al., 2017; Martin Ginis, Latimer-Cheung, & Rimmer, 2016). The creation of an inclusive environment that reinforces group membership and companionship has been shown to enhance feelings of belongingness (Goodwin & Watkinson, 2000) and promote opportunities for participation (Knibbe, Biddiss, Gladstone, & McPherson, 2016). Teacher-training resources should seek to further include information on how to foster belongingness and social support in an attempt to enhance PE experiences for SWD. The remaining five categories (Autonomy, Challenge, Engagement, Meaning, and Mastery) related to quality participation were sparsely represented in *Steps to Inclusion*. In the context of PE for SWD, it is imperative to conceptualize participation from this vantage point (Martin Ginis et al., 2017). Subsequent installations of *Steps to Inclusion*, or other teacher tools and resources, should include information that guides teachers in providing safe and incremental challenges that work to minimize risk for all students, including those with disabilities. Moreover, in order to promote quality participation (Martin Ginis et al.,

2017), it is advisable to also include information that supports autonomy, challenge, engagement, meaning, and mastery.

2.7   Implications and Future Directions

This study has important practical and research implications. Pragmatically, our evaluation allows for a better understanding of the content of *Steps to Inclusion* and a consideration of how the content aligns with BCT. The TDF domains, or factors related to teacher behavior, that were identified with the most significant proportion of content in the resource were Knowledge, Skills, and Social influences. *Steps to Inclusion* is a knowledge-dense teaching tool, and this may be, in part, due to it being, print media. Although its content aligned with various TDF domains, the effectiveness and impact of *Steps to Inclusion* has yet to be determined. Moving forward, it is important to understand how teacher-training resources affect various theoretical factors of behavior change and how these factors work together to predict teachers' motivation and practices to support inclusive PE for SWD. Key stakeholders in teacher training (e.g., organizations such as Ophea) should work with researchers to evaluate the impact of teacher-training resources from an empirical perspective and create evidence-informed resources to specifically target theory-based predictors of teachers' motivation and behavior, while giving teachers tools and strategies to support high quality inclusive opportunities for SWD.

Although research regarding the effectiveness of teacher-training resources in an inclusive PE context has not been carried out, there is a plethora of literature regarding the use of teacher-training strategies to increase inclusive teaching practices broadly. For example, numerous studies have highlighted the effectiveness of teacher training to improve teachers' attitudes (Sharma et al., 2008) and self-efficacy (Lancaster & Bain,

2007; Miesera & Gebhardt, 2018), as well as perceptions, knowledge, and skill development (Tristani & Bassett-Gunter, under review). Complementary evaluations of teachers' classroom practices that support inclusion are necessary. Unfortunately, there is a lack of validated and reliable measures of teacher behavior in the realm of inclusive PE. As such, there is a call for a better understanding of how inclusive PE training resources impact behavior as well as for the development of a tool that can accurately measure teaching behavior in an inclusive PE context. Further, this information begins to establish the groundwork for future investigations into theoretical content identified as critical for behavior change in inclusive teaching and how best to incorporate it into teacher-training resources. Subsequent editions of *Steps to Inclusion*, and more broadly, general teacher-training resources, should increase behavior-change content such as Beliefs about capabilities, Emotion, and Behavioral regulation. This broader and more comprehensive content will more effectively target teachers' intentions vis-à-vis inclusive PE.

Future research should utilize a qualitative approach that explores and identifies teachers' specific informational needs. Results would allow researchers to assess whether *Steps to Inclusion* addresses the identified barriers and ensure that training resources appropriately target and alleviate the identified obstacles. Additionally, research is needed to empirically evaluate the effects of the knowledge-based information in *Steps to Inclusion* on teachers' inclusive PE behavior and its antecedents. Investigations into how or if teaching tools such as *Steps to Inclusion* can change teacher self-efficacy is warranted along with a deeper understanding of which constructs impact self-efficacy.

2.8   Strengths and Limitations

To our knowledge, the TDF has not yet been extended into disability and education research. Using the TDF to map the content of *Steps to Inclusion* allows for evidence to inform the extension of this framework into other PE related settings. However, because of the novelty of applying the TDF to an inclusive PE setting, we manipulated the definitions of the domains in an effort to target context-specific constructs. Future research is necessary to examine and operationalization these constructs within the context of inclusive PE. Any examination of the impact of *Steps to Inclusion* on teachers' motivation or inclusive PE practices was beyond the scope of this study. However, this research serves as a springboard for future studies to investigate the ability of the resource to influence teachers' motivation and behavior. Lastly, the authors recognize the varied and diverse needs of students who fall under different disability categories and subcategories (e.g., physical, cognitive/intellectual, sensory). Though *Steps to Inclusion* differentiates between physical and cognitive/intellectual disabilities, much of the resource is generic in nature. In this sense, *Steps to Inclusion* has taken an abilities-based approach to inclusive PE. Changing the way disability is defined is central to an abilities-based perspective. Rather than defining disability as a problem inherent to a student, the existence of the problem is central to the environment or setting (Hammond, 2010). As such, additional content regarding skills and practices teachers can use to recognize students' abilities, develop capacity building, and reduce labels and othering, would be of value.

2.9   Conclusion

To our knowledge, *Steps to Inclusion* is one of the leading inclusive PE teacher-training resources in Canada and addresses challenges concerning teacher training for inclusive PE. Understanding the content from a theoretical perspective acts as a stepping stone to inform the future development or refinement of supplementary resources in this field. Despite the high frequency of knowledge-based information, *Steps to Inclusion* touched upon many of the domains and categories outlined in the TDF and QPM, offering a broad appraisal of inclusive PE. It may be beneficial, however, for future resources to more frequently address quality participation. Though the limited amount of PA available for SWD is often identified as a barrier to participation (King et al., 2013), addressing and fostering quality PA through the more substantial integration of content that aligns with the QPM (autonomy, challenge, engagement, meaning, and mastery) would allow teachers to optimize the opportunities that do exist for SWD. This would enable teachers to better conceptualize and develop PE programming that encompasses all students' needs and provides optimal quality PA opportunities.

Works Cited

Abraham, C., Southby, L., Quandte, S., Krahé, B., & Sluijs, W. V. D. (2007). What's in a leaflet? Identifying research-based persuasive messages in European alcohol-education leaflets. *Psychology and Health*, *22*(1), 31–60.

Adamo, K. B., Barrowman, N., Naylor, P. J., Yaya, S., Harvey, A., Grattan, K. P., & Goldfield, G. S. (2014). Activity begins in childhood (ABC)—Inspiring healthy active behaviour in preschoolers: Study protocol for a cluster randomized controlled trial. *Trials*, *15*(1), 305-317.

Aguiar, L. T., Martins, J. C., Nadeau, S., Britto, R. R., Teixeira-Salmela, L. F., & Faria, C. D. (2017). Efficacy of interventions to improve physical activity levels in individuals with stroke: A systematic review protocol. *BMJ Open*, *7*(1), 1-5.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211.

Allinder, R. M. (1994). The relationship between efficacy and the instructional practices of special education teachers and consultants. *Teacher Education and Special Education*, *17*(2), 86–95.

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: A review of the literature. *European Journal of Special Needs Education, 17*(2): 129–147.

Batsiou, S., Bebetsos, E., Panteli, P., & Antoniou, P. (2008). Attitudes and intention of Greek and Cypriot primary education teachers towards teaching pupils with special educational needs in mainstream schools. *International Journal of Inclusive Education*, *12*(2), 201–219.

Black, A., Costello, R., Craft, A., & Katene, W. (2015). "It's all about developing the whole child": An examination of the "legacy" benefits of Youth Sport Trust's school-based inclusion initiatives. *European Physical Education Review*, *21*(3), 362–378.

Boscart, V. M., Fernie, G. R., Lee, J. H., & Jaglal, S. B. (2012). Using psychological theory to inform methods to optimize the implementation of a hand hygiene intervention. *Implementation Science*, *7*(1), 77-89.

Campbell, J., Gilmore, L., & Cuskelly, M. (2003). Changing student teachers' attitudes towards disability and inclusion. *Journal of Intellectual and Developmental Disability*, *28*(4), 369–379.

Cane, J., O'Connor, D., & Michie, S. (2012). Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implementation Science*, *7*(37), 1- 17.

Carroll, A., Forlin, C., & Jobling, A. (2003). The impact of teacher training in special education on the attitudes of Australian preservice general educators towards people with disabilities. *Teacher Education Quarterly*, *30*(3), 65–79.

Davis, R., Campbell, R., Hildon, Z., Hobbs, L., & Michie, S. (2015). Theories of behaviour and behaviour change across the social and behavioural sciences: A scoping review. *Health Psychology Review*, *9*(3), 323–344.

Eccles, M., Grimshaw, J., Walker, A., Johnston, M., & Pitts, N. (2005). Changing the behavior of healthcare professionals: The use of theory in promoting the uptake of research findings. *Journal of Clinical Epidemiology*, *58*(2), 107–112.

Estabrooks, P. A., Glasgow, R. E., Xu, S., Dzewaltowski, D. A., Lee, R. E., Thomas, D., . . . & Smith-Ray, R. L. (2011). Building a multiple modality, theory-based physical activity intervention: The development of CardiACTION. *Psychology of Sport and Exercise*, *12*(1), 46–53.

Engstrand, R. Z., & Roll-Pettersson, L. (2014). Inclusion of preschool children with autism in Sweden: Attitudes and perceived efficacy of preschool teachers. *Journal of Research in Special Educational Needs*, *14*, 170–179.

Fletcher, T., Mandigo, J., & Kosnik, C. (2013). Elementary classroom teachers and physical education: Change in teacher-related factors during pre-service teacher education. *Physical Education and Sport Pedagogy*, *18*(2), 169–183.

Forlin, C., Sharma, U., & Loreman, T. (2014). Predictors of improved teaching efficacy following basic training for inclusion in Hong Kong. *International Journal of Inclusive Education*, *18*(7), 718–730.

French, S. D., Green, S. E., O'Connor, D. A., McKenzie, J. E., Francis, J. J., Michie, S., . . . & Grimshaw, J. M. (2012). Developing theory-informed behaviour change interventions to implement evidence into practice: A systematic approach using the theoretical domains framework. *Implementation Science*, *7*(1), 38-46.

Gainforth, Barg, C. J., Latimer, A. E., Schmid, K. L., O'Malley, D., & Salovey, P. (2011). An investigation of the theoretical content of physical activity brochures. *Psychology of Sport and Exercise*, *12*(6), 615–620.

Goodwin, D. L., & Watkinson, E. J. (2000). Inclusive physical education from the perspective of students with physical disabilities. *Adapted Physical Activity Quarterly*, *17*(2), 144–160.

Hammond, W. (2010). Principles of strength-based practice. Retrieved from http://www.ayscbc.org/Principles%20of%20Strength-2.pdf

Hanline, M. F., Hatoum, R. J., & Riggie, J. (2012). Impact of online coursework for teachers of students with severe disabilities: Utilization of knowledge and its relationship to teacher perception of competence. *Research and Practice for Persons with Severe Disabilities*, *37*(4), 247–262.

Holsti, O. R. (1969). *Content analysis for the social sciences and humanities*. Reading, MA: Addison-Wesley.

Ophea. (2010). *Steps to inclusion: A resource to support inclusive physical activity for children and youth living with physical or intellectual disabilities.* Toronto, ON: Ophea.

Huijg, J. M., Gebhardt, W. A., Crone, M. R., Dusseldorp, E., & Presseau, J. (2014). Discriminant content validity of a theoretical domains framework questionnaire for use in implementation research. *Implementation Science*, *9*(11), 1-16

Jeong, M., & Block, M. E. (2011). Physical education teachers' beliefs and intentions toward teaching students with disabilities. *Research Quarterly for Exercise and Sport*, *82*(2), 239–246.

Johnson, C. C. (2009). The benefits of physical activity for youth with developmental disabilities: A systematic review. *American Journal of Health Promotion*, *23*(3), 157–167.

Jordan, A., Glenn, C., & McGhie-Richmond, D. 2010. The supporting effective teacher (SET) project: The relationship of inclusive teaching practice to teachers' beliefs about disability and ability and about their roles as teachers. *Teaching and Teacher Education, 26*(2), 259–266.

Jung, W. S. (2007). Preservice teacher training for successful inclusion. *Education*, *128*(1), 106–113.

King, M., Shields, N., Imms, C., Black, M., & Ardern, C. (2013). Participation of children with intellectual disability compared with typically developing children. *Research in Developmental Disabilities*, *34*(5), 1854–1862.

Knibbe, T. J., Biddiss, E., Gladstone, B., & McPherson, A. C. (2016). Characterizing socially supportive environments relating to physical activity participation for young people with physical disabilities. *Developmental Neurorehabilitation*, 5, 1–7.

Kuyini, A. B., & Mangope, B. (2011). Student teachers' attitudes and concerns about inclusive education in Ghana and Botswana. *International Journal of Wholeschooling, 7*(1), 1–18.

Lancaster, J., & Bain, A. (2007). The design of inclusive education courses and the self-efficacy of preservice teacher education students. *International Journal of Disability, Development and Education*, *54*(2), 245–256.

Lindsay, G. (2007). Educational psychology and the effectiveness of inclusive education/mainstreaming. *British Journal of Educational Psychology*, *77*(1), 1–24.

Loreman, T., Forlin, C., & Sharma, U. (2007). An international comparison of pre-service teacher attitudes towards inclusive education. *Disability Studies Quarterly*, *27*(4), 1-13.

MacFarlane, K., & Woolfson, L. M. (2013). Teacher attitudes and behavior toward the inclusion of children with social, emotional and behavioral difficulties in mainstream schools: An application of the theory of planned behavior. *Teaching and Teacher Education*, *29*, 46–52.

MacSuga, A. S., & Simonsen, B. (2011). Increasing teachers' use of evidence-based classroom management strategies through consultation: Overview and case studies. *Beyond Behavior*, *20*(2), 4–12.

Malinen, O. P., Savolainen, H., Engelbrecht, P., Xu, J., Nel, M., Nel, N., & Tlale, D. (2013). Exploring teacher self-efficacy for inclusive practices in three diverse countries. *Teaching and Teacher Education*, *33*, 34–44.

Martin Ginis, K. A., Evans, M. B., Mortenson, W. B., & Noreau, L. (2017). Broadening the conceptualization of participation of persons with physical disabilities: A configurative review and recommendations. *Archives of Physical Medicine and Rehabilitation*, *98*(2), 395–402.

Martin Ginis, K. A., Ma, J. K., Latimer-Cheung, A. E., & Rimmer, J. H. (2016). A systematic review of review articles addressing factors related to physical activity participation among children and adults with physical disabilities. *Health Psychology Review*, *10*(4), 478–494.

McSherry, L. A., Dombrowski, S. U., Francis, J. J., Murphy, J., Martin, C. M., O'Leary, J. J., & Sharp, L. (2012). "It's a can of worms": Understanding primary care practitioners' behaviours in relation to HPV using the theoretical domains framework. *Implementation Science*, *7*(1), 73-88

Michie S., Johnston M., Abraham C., Lawton R., Parker D., & Walker A. (2005). Making psychological theory useful for implementing evidence based practice: A consensus approach. *Quality Safety Health Care*, *14*, 26–33.

Miesera, S., & Gebhardt, M. (2018). Inclusive vocational schools in Canada and Germany: A comparison of vocational pre-service teachers' attitudes, self-efficacy and

experiences towards inclusive education. *European Journal of Special Needs Education, 33(5)*, 707-722.

Mistry, C. D., Sweet, S. N., Latimer-Cheung, A. E., & Rhodes, R. E. (2015). Predicting changes in planning behaviour and physical activity among adults. *Psychology of Sport and Exercise*, *17*, 1–6.

Murphy, N. A., & Carbone, P. S. (2008). Promoting the participation of children with disabilities in sports, recreation, and physical activities. *Pediatrics*, *121*(5), 1057–1061.

Neuendorf, K. A. (2002). *The content analysis guidebook*. Thousand Oaks, CA: Sage Publications.

Ontario Ministry of Education. (2015). Special education update. Ontario Ministry of Education. Retrieved from http://education.easterseals.org/wp-content/uploads/2015/09/Ministry-of-Education-Special-Education-Update-June-2015.pdf

Pope, C., & Mays, N. (1995). Reaching the parts other methods cannot reach: An introduction to qualitative methods in health and health services research. *British Medical Journal*, *311*(6996), 42-45.

Round, P. N., Subban, P. K., & Sharma, U. (2016). "I don't have time to be this busy": Exploring the concerns of secondary school teachers towards inclusive education. *International Journal of Inclusive Education*, *20*(2), 185–198.

Sari, H. (2007). The influence of an in-service teacher training (INSET) programme on attitudes towards inclusion by regular classroom teachers who teach deaf students in primary schools in Turkey. *Deafness & Education International*, *9*(3), 131–146.

Sharma, U., Forlin, C., & Loreman, T. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. *Disability & Society*, *23*(7), 773–785.

Sharma, U., Forlin, C., Loreman, T., & Earle, C. (2006). Pre-service teachers' attitudes, concerns and sentiments about inclusive education: An international comparison of the novice pre-service teacher. *International Journal of Special Education, 21*(2), 80–93.

Sharma, U., & George, S. (2016). Understanding teacher self-efficacy to teach in inclusive classrooms. In S. Garvis & D. Pendergast, *Asia-Pacific Perspectives on Teacher Self-Efficacy* (pp. 37–51). Rotterdam: SensePublishers.

Sherrill, C. (1998). *Adapted physical activity, recreation and sport: Crossdisciplinary and lifespan*. New York, NY: McGraw Hill.

Sniehotta, F. F., Presseau, J., & Araújo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychology Review*, *8*(1), 1–7.

Sokal, L., & Katz, J. (2015). Oh, Canada: Bridges and barriers to inclusion in Canadian schools. *Support for Learning*, *30*(1), 42–54.

Statistics Canada. (2013) The 2012 Canadian Survey on Disability (CSD) and the 2006 Participation and Activity Limitation Survey (PALS). Retrieved from http://www23.statcan.gc.ca/imdb- bmdi/document/3251_D6_T9_V1-eng.htm.

Tant, M., & Watelain, E. (2016). Forty years later, a systematic literature review on inclusion in physical education (1975–2015): A teacher perspective. *Educational Research Review*, *19*, 1–17.

Tavender, E. J., Bosch, M., Gruen, R. L., Green, S. E., Knott, J., Francis, J. J., . . . & O'Connor, D. A. (2014). Understanding practice: The factors that influence management of mild traumatic brain injury in the emergency department—A qualitative study using the theoretical domains framework. *Implementation Science*, *9*(1), 1-10.

Tristani, L., & Bassett-Gunter, R. (under review). Making the grade: Teacher training for inclusive physical education. *Quest*.

Tristani, L., Bassett-Gunter, R., & Tanna, S. (2017). Evaluating internet-based information in physical activity for children and youth with physical disabilities. *Adapted Physical Activity Quarterly*, *34*(1), 55–71.

West, R. (2005). Time for a change: Putting the transtheoretical (stages of change) model to rest. *Addiction*, *100*(8), 1036–1039.

Wilhite, B., Mushett, C. A., Goldenberg, L., & Trader, B. R. (1997). Promoting inclusive sport and leisure participation: Evaluation of the Paralympic Day in the schools model. *Adapted Physical Activity Quarterly*, *14*(2), 131–146.

Winnick, J., & Porretta, D. (Eds.). (2016). *Adapted physical education and sport*. Champagne, IL: Human Kinetics.

Woolfolk Hoy, A., Hoy, W. K., & Davis, H. (2009). Teachers' self-efficacy beliefs. In K. Wentzel & A. Wigfield (Eds.), *Handbook of motivation in school* (pp. 627–654). Mahwah, NJ: Erlbaum.

Chapter 3: Applying the Theoretical Domains Framework and COM-B Model to Theoretical Factors That Influence Teachers' Intentions to Implement Inclusive Physical Education

3.1   Introduction

Schools are optimal settings for increasing PA, through access to opportunities such as recess, daily PA, and PE (Dudley, Okely, Pearson, & Cotton, 2011). PE has been identified as particularly valuable for increasing PA (Rimmer & Rowland, 2008) as it has demonstrated positive outcomes such as; skill development, motor skills development, and improved overall health (Jin, Yun, & Agiovlasitis, 2017). PE programs are meant to reach a broad and diverse student demographic, including SWD (Avramidis & Norwich, 2002; Block 2007). Due to increasing numbers of SWD in the general education setting (Statistics Canada, 2013), inclusion has become both a cornerstone to teaching practice and expectation within many school settings, including PE (Ontario Ministry of Education, 2009).

Inclusive PE can provide SWD with an opportunity for increased PA (SPARK, 2016). Although inclusion is a leading objective in many schools, daily practice and full implementation of inclusion are often hindered: "The inclusion of students with disabilities into GPE [general physical education] classes has provided a tremendous challenge to physical educators who have planned to meet the physical education needs of children with disabilities without neglecting the physical education needs of the typical children" (Combs, Elliott, & Whipple, 2010, p. 114). Indeed, a notable gap exists between the policy and practice of inclusion (Winzer & Mazurek, 2011). Where inclusive PE is not effectively

practiced, it is unlikely that SWD will benefit fully from the PA opportunities typically experienced through PE (Rimmer & Rowland, 2008). There is a need to better understand effective strategies to support the implementation of inclusive PE.

Teachers play a critical role in the effective implementation of inclusive PE (Sallis et al., 2012). However, they often report insufficient training (DeSimone & Parmar, 2006; McCrimmon, 2015; Sokal & Sharma, 2014), lack of knowledge, support, and resources (Roh, 2002), and feelings of fear and uncertainty (Campbell, Gilmore & Cuskelly, 2003) as challenges to implementing effective inclusive PE (Morley, Dailey, Tan, & Cooke, 2005). There are various teacher-level factors to consider in understanding inclusive PE strategies. Teachers' motivation is a critical factor influencing the implementation of educational programs and policies (Avramidis, Bayliss, & Burden, 2000b). Further, teachers' motivation is related to factors such as adequate knowledge and training, skills, personal attributes (e.g., self-efficacy), and teaching environment and resources (Busby, Ingram, Bowron, Oliver, & Lyons, 2012), which have been identified as crucial for effective implementation of inclusive PE. Deficiencies in these areas can negatively impact teachers' motivation and subsequently their implementation of inclusive education (Busby et al., 2012). Effective strategies to support teachers' practice of inclusive PE must target and change theoretical predictors of teachers' motivation and behavior.

In previous research, various BCTs have been used to examine theoretical factors related to teachers' motivation to implement inclusive PE (Jeong & Block, 2011; Lee, 2014; Yan & Sin, 2014). Due to a variety of BCTs, it is often difficult to delineate which theory provides the most appropriate or comprehensive approach (Michie, Johnston, Francis, Hardeman, & Eccles, 2008). The Behaviour Change Wheel (BCW) offers a systematic

framework that works to facilitate the application of BCTs in a variety of interventions (Michie, Van Stralen, & West, 2011). The BCW is a parsimonious framework that integrates 19 BCTs and recognizes behavior as a part of interacting systems and components (Michie et al., 2011). At the center of the BCW, lies the COM-B model that captures three conditions required for behavior change: capability, motivation and opportunity (Michie et al., 2011). The COM-B model identifies behavior as the result of the interaction between an individual's physical and psychological capabilities, opportunities present in one's physical and social environments, and motivation (Michie et al,2011). The theoretical domains framework (TDF; Michie et al., 2005) extends the COM-B model (Michie et al., 2005). The TDF maps 12 theoretical domains[7] onto each of the three COM-B components (Cassidy et al., 2018; Flannery et al., 2018; Thompson, Diaz-Artiga, Weinstein, & Handley, 2018), which allows for a more detailed understanding of behavior change. The TDF domains identified within the component *capability* are Knowledge, Skill, Memory, attention and decision processes, and Behavioral Regulation. The TDF domains identified within the component *opportunity* are Social influences and Environmental context and resources. Lastly, the TDF domains identified within the domain *motivation* are Social/professional role and identity, Beliefs about capabilities, Beliefs about consequences, Nature of behaviors, Emotion, and Motivation and goals (intentions)[8] (Cassidy et al., 2018, Flannery et al., 2018).

The 12 TDF domains capture many of the relevant factors that have a relationship to teachers' intentions to implement inclusive PE. For example, teachers' have identified a lack

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[7] The researchers utilized Huijg and colleagues' (2014b) TDF 12-domain questionnaire.
[8] Though conceptualized as part of the COM-B model, Motivation and goals (intentions) will serve as the dependent variable.

of knowledge and skills (Sharma Forlin, & Loreman, 2008), the physical environment, and lack of resources as factors related to their intentions to implement inclusive PE (Avramidis & Norwich, 2002).

The TDF has been used to examine the intentions to implement various behaviors of other professional groups, such as healthcare providers (Boscart, Fernie, Lee, & Jaglal, 2012; McSherry et al., 2012; Mosavianpour, Sarmast, Kissoon & Collet, 2016). However, there is only one study that employs the TDF within an educational setting, a recent scoping review that examines factors related to teachers' implementation of daily PA (Weatherson, Gainforth, & Jung, 2017). Barriers to implementation were identified that aligned with TDF domains such as Environmental context and resources, Beliefs about consequences, and Social influences (Weatherson et al., 2017). Findings from this review underscore the utility of the TDF within an educational setting and provide a theoretical basis for a comprehensive examination of factors related to teachers' intentions to implement inclusive PE. An improved understanding of predictors of teachers' motivation can inform the development of strategies to train and support teachers in implementing inclusive PE, and ultimately support quality inclusive PE for SWD.

Utilizing both the COM-B model and TDF allows for a comprehensive understanding of factors (i.e., TDF domains) related to teachers' intentions to implement inclusive PE while also allowing for a consolidation of factors (i.e., via COM-B) to inform the development of pragmatic and parsimonious strategies and interventions. The purpose of the current study is to apply the TDF and COM-B models to examine theoretical predictors of teachers' intentions to implement inclusive PE.

3.2   Method

3.2.1   Participants

Participants (n=383) included a) teachers previously trained (in-service) or currently being trained (pre-service) at an accredited Ontario teacher education program, and b) teachers trained as PE specialists or qualified to teach elementary divisions (primary, junior, and/or intermediate) or PE at the secondary level. The study protocol was approved by York University's Research and Ethics Board, all participants provided informed consent, and received a $5 honorarium in recognition of their involvement and contributions to this study.

3.2.2.   Procedure

Participants were recruited from the GTA using online advertisements through various social media platforms (e.g., Facebook). Recruitment was also supported by the Canadian Disability Participation Project, a national research initiative that supports PA for individuals with disabilities (www.cdpp.ca). Inclusion criteria were limited to; in-service and/or pre-service teachers, who had undergone teacher training at an accredited Ontario teacher education program, and were trained to teach PE, or were required to teach PE at the elementary school level. Participants were excluded if they a) taught at a segregated institution targeting only SWD, b) had retired in 2010 or earlier, and/or c) were not proficient in English. Following recruitment, each participant completed an online questionnaire that included demographic information (see Table 3) and measured each of the TDF domains (see Table 4).

Table 3. Participant demographics

Variable	Frequency	Percent
Sex		
Male	48	13%
Female	331	86%
Prefer not to disclose	4	1%
Teaching contract (years)		
Supply teacher or long-term occasional	215	56%
Full-time	168	44%
Subject level*		
Primary	292	76%
Junior	279	73%
Intermediate	137	36%
Senior	70	18%
PE Qualification		
Yes	252	66%
No	131	34%
Experience teaching students with disabilities		
Yes	383	100%

3.2.3   Measures

3.2.3.1 TDF Domains: Independent Variables

The Determinants of Implementation Behavior Questionnaire was developed to measure behavioral determinants outlined in the TDF (Huijg, Gebhardt, Dusseldorp et al., 2014; Huijg, Gebhardt, Crone et al., 2014b). This questionnaire provided the foundation on which we developed a questionnaire to assess each of the TDF domains in relation to teachers' intentions to implement inclusive PE and their current practice regarding inclusive PE. The original questionnaire was revised to make it relevant to teachers in an inclusive PE context.[9] The modified questionnaire was reviewed by a leading Canadian or provincial PE teachers' association and further modified based on recommendations from the association

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[9] Example of modified item:
Original Item: It is my responsibility as a [*professional*] to [*action*] in [*context, time*] with [*target population*]
Modified Item: It is my responsibility as a *teacher* to *teach inclusive physical education* to *students with disabilities*.

(e.g., question wording, relevancy, redundancy, and length of questionnaire). A panel of

teachers then reviewed the questionnaire for language, relevance, and length. Minor

revisions were made based on the teachers' feedback. The final questionnaire contained 45

questions nested within 12 subscales (one subscale for each of the TDF domains). A 7-point

Likert scale (1=strongly disagree to 7=strongly agree) was used for 41 of 45 items. The

remaining four items were measured through the use of a 7-point scale with appropriate

anchors (1=very difficult to 7=very easy.) Table 4 provides information regarding each

subscale.

Table 4. Sample questions of independent variables and Cronbach's alpha

COM-B Component	TDF Domain	Sample Question	Number of items per subscale	Cronbach's alpha
Capability	Knowledge	I am aware of how to teach inclusive physical education for students with disabilities.	7	.80
	Skills	I have been trained to teach inclusive physical education to students with disabilities.	3	.78
	Memory, attention, and decision processes	I believe I would often forget to teach inclusive physical education for students with disabilities.*	3	.65
	Behavioral regulation	I have a clear plan with regards to delivering inclusive physical education.	4	.89
Opportunity	Environmental context and resources	Within our school's physical education department there is sufficient financial support for teaching resources and equipment to facilitate inclusive physical education	4	.87
	Social influences	Most people who are professionally important to me think that I should practice inclusive physical education to students with disabilities.	3	.78
***Motivation	Emotion	When I work with students with disabilities I feel nervous*	4	.92

Social/ professional role and identity	Teaching inclusive physical education is part of my work as a teacher.	4	.87
Beliefs about capabilities	I am confident that I can teach inclusive physical education for students with disabilities even if there is little time.	5	.83
Beliefs about consequences	For me, delivering inclusive physical education following the guidelines is: (e.g., Not useful – useful)	3	.69
Nature of Behaviors	Whenever I teach inclusive physical education I receive recognition from my colleagues.	3	.80

*reverse coding
**correlation rather than alpha
*** The TDF domain Motivation and goals (intentions) has been removed as it was used as the dependent variable.

3.2.4   Intentions: Dependent Variable

Participants responded to two items assessing the strength of their intentions to

implement inclusive PE. These items were measured in a 7-point Likert scale (1=strongly

disagree to 7=strongly agree). One item assessed the strength of teachers' intentions to teach

inclusive physical education (e.g., If I have a student in my class with a disability, I would

strongly intend to teach inclusive physical education) and the second item assessed

frequency of intentions (e.g. I strongly intend to teach inclusive physical education

following the guidelines over the next three months). The items were then averaged to create

an overall intention score (r .59).

3.2.5   Statistical Analysis Approach

3.2.5.1 Data Cleaning

All data were analyzed using SPSS (version 23.0). Item analysis and questionnaire

properties, including domain characteristics, were evaluated using basic statistics and

internal consistency. Data were cleaned and tested for violations of assumptions including

tests for normality (Kolmogorov-Smirnov Test). Overall, residuals were normally

distributed. Given the potential for high correlations between TDF domains (Phillips et al.,

2015) and the risk of multicollinearity, variance inflation factors (VIF) were examined and

Pearson's correlations were calculated (Table 5). The recommended cut off, $r = .80$

(Bamics2, 2011; Berry & Feldman, 1985), was applied as a benchmark for concerns

regarding multicollinearity. Moreover, the recommended cut off of 10 was applied to the

VIF scores (Hair, Anderson, Tatham, & Black, 1995).

3.2.5.2 Regression Analysis

Given indications from previous research concerning the preponderance of

collinearity between domains (e.g., Huijg et al., 2014; Sexton, 2015) the researchers limited

their analytic approach; specifically, the use of more powerful techniques such as structural

equation modeling. Therefore, to examine predictors of teachers' intentions to implement

inclusive PE, a series of multiple regression analyses were conducted. First, three separate

exploratory models were run with each model capturing one of the COM-B components

such that intentions to implement inclusive PE were regressed onto the appropriate TDF

domains for Capability, Opportunity, and Motivation of the COM-B model (Table 6).

Within any given model, independent variables that predicted significant variance in

intentions were carried forward to a final regression model that collapsed COM-B

components.

We used a block approach in the final model to identify significant predictors of

intentions to implement inclusive PE across all three COM-B factors. Block order was

determined based on the variance explained in each of the exploratory regression models

such that the COM-B component that explained the greatest amount of variance in intentions to implement inclusive PE was entered first.

3.3   Results

3.3.1 Preliminary Data Analyses

Bivariate correlations were examined to explore the possibility of multicollinearity (Table 5). None of correlations between TDF domains exceeded the threshold. Table 5 presents the VIF scores that were calculated using a linear regression analysis that included all TDF domains as independent variables and Intentions to implement inclusive PE as the dependent variable. VIF scores ranged between 1.56 and 3.49, suggesting that no further statistical manipulations were necessary to adjust for multicollinearity (Hair et al., 1995).

Table 5. Pearson correlation for all TDF domains

	1	2	3	4	5	6	7	8	9	10	11	12
Intentions	-	.61*	.18*	.77*	.41*	.51*	.58*	.02	.79*	-.38*	.33*	-.00
Knowledge	-	-	.46*	.59*	.49*	.41*	.63*	.21*	.64*	-.07	.52*	.19*
Skills	-	-	-	.18*	.72*	.28*	.56*	.58*	.21*	.37*	.71*	.54*
Social/professional role and identity	-	-	-	-	.37*	.53*	.53*	-.06	.79*	-.38*	.27*	-.02
Beliefs about capabilities	-	-	-	-	-	.44*	.64*	.38*	.37*	.08	.64*	.35*
Beliefs about consequences	-	-	-	-	-	-	.63*	.23	.48*	-.12*	.30*	.10
Memory, attention, and decision processes	-	-	-	-	-	-	-	.43*	.63*	.18*	.68*	.35*
Environmental context and resources	-	-	-	-	-	-	-	-	.09	.66*	.59*	.69*
Social influences	-	-	-	-	-	-	-	-	-	-.25*	.37*	.07
Emotion	-	-	-	-	-	-	-	-	-	-	.35*	.61*
Behavioral regulation	-	-	-	-	-	-	-	-	-	-	-	.55*
Nature of behaviors	-	-	-	-	-	-	-	-	-	-	-	-

*Correlation is significant at the 0.01 level.

3.3.2 Exploratory Regression Analyses

Exploratory regression models (Tables 6–9) were calculated with the intention to implement inclusive PE as the dependent variable for each model. One model was calculated for each of the three COM-B components with the appropriate TDF variables serving as the independent variables.

3.3.2.1 Model 1: Capability

The first regression model considered the COM-B component Capability (Table 6, Model 1a). In the initial model, the researchers recognized the presence of suppressor

variables (Skills and Behavioral regulation). A correlation between two independent

variables (Skills and Behavioral regulation) suppressed the real effects of other independent

variables under examination and consequently reduced the weight of their regression

coefficients (Lancaster, 1999). Moreover, these suppressor variables correlated with each

other and one or more of the other independent variables (Knowledge and Memory,

attention, and decision processes). It was necessary to contend with the suppressor variables

at this stage as they were likely to skew the predictive validity of the analysis, which would,

in turn, skew the estimates and statistical association with other variables (Lancaster, 1999).

Accordingly, a second regression model was calculated with both suppressor variables

(Skills and Behavioral regulation) removed (Table 6, Model 1b). Knowledge and Memory,

attention and decision processes served as independent variables (Table 7). This second

model explained approximately 43% of the variance in intentions to implement inclusive

PE. Knowledge ($\beta =.40$, $p = .05$) and Memory, attention and decision processes ($\beta =.33$, $p = .05$) were both significant predictors in the model.

Table 6. Capability with *all* corresponding TDF domains: Model 1a

	R	R^2	Adjusted R^2	F Δ	*P* value
1	.70	.49	.48	79.31	<.0001

	Unstandardized B	SE B	Standardized Coefficients β	*P* value	VIF
Constant	1.72	.23		.00	
Knowledge	.44	.05	.45	.00*	1.73
**Skills	-.23	.05	-.27	.00*	2.08
**Behavioral regulation	-.04	.06	-.04	.51	2.65
Memory, attention and decision processes	.55	.07	.47	.00*	2.36

*$p < 0.05$.
**Suppressor variables

Table 7. Capability with suppressor variables removed: Model 1b

	R	R^2	Adjusted R^2	F Δ	*P* value
1	.66	.44	.43	127.49	.0001

	Unstandardized B	SE B	Standardized Coefficients β	*P* value	VIF
Constant**	1.50	.23		.00	
Knowledge	.39	.05	.40	.00*	1.70
Memory, attention, and decision processes	.38	.06	.33	.00*	1.70

*p < 0.05.
**Skill and Behavioral regulation removed.

3.3.2.2 Model 2: Opportunity

A regression model concerning the COM-B component Opportunity was calculated

(Table 8). The model explained 62% of the variance in Intentions to implement inclusive

PE. Social influences (β =.79, p = .05) was the only significant predictor in the model.

Table 8. Opportunity with corresponding TDF domains

	R	R^2	Adjusted R^2	F Δ	*P* value
1	.79	.62	.62	274.94	.0001

	Unstandardized B	SE B	Standardized Coefficients β	*P* value	VIF
Constant	1.98	.18		.00	
Social influences	.65	.03	.79	.00*	1.01
Environmental context and resources	-.04	.03	-.05	.11	1.01

*p < 0.05

3.3.2.3 Model 3: Motivation

A regression model was calculated to consider the COM-B component Motivation

(Table 9). The model explained 63% of the variance in Intentions to implement inclusive

PE. Social/professional role and identity (β =.60, p = .05), Beliefs about capabilities (β =.01,

p = .05), Beliefs about consequences (β =.14, p = .05), and Emotion (β = -.18, p = .05) were

significant predictors of Intentions to implement inclusive PE.

Table 9. Motivation with corresponding TDF domains

	R	R^2	Adjusted R^2	F Δ	P value
1	.80	.63	.63	113.32	.0001

	Unstandardized B	SE B	Standardized Coefficients β	P value	VIF
Constant	.77	.29		.01	
Social/professional role and identity	.57	.04	.60	.00*	1.72
Beliefs about capabilities	.09	.05	.07	.02*	1.55
Beliefs about consequences	.38	.07	.27	.00*	1.48
Nature of behaviors	.06	.04	.06	.17	1.90
Emotion	-.13	.04	-.18	.00*	2.04

*$p < 0.05$

3.3.3 Final Regression Model to Identify Predictors of Intentions to Implement Inclusive PE Across All COM-B Components

A final regression model using significant TDF predictors from the previous regression analyses was calculated to identify predictors of Intentions to implement inclusive PE (Table 10). Each block included a COM-B component along with the associated TDF predictors identified as significant in the above regression models. Motivation factors were entered as Block 1 and included the following variables: Beliefs about consequence, Emotion, and Social/professional role and identity. Opportunity factors were entered as Block 2 and included Social influences. Capability factors were entered as Block 3 and included the following variables: Knowledge and Memory, attention and decision processes.

The first block (Motivation) explained 63% of the variance in intention to implement inclusive PE. The second (Motivation and opportunity) and third (Motivation, opportunity, and capability) blocks explained an additional 7% and 2% of variance in Intentions to

implement inclusive PE, respectively. The final model (Table 10) explained 72% of the variance in Intentions to implement inclusive PE with the following variables identified as significant ($p < .05$) predictors: Social influences ($\beta = .36$), Social/professional role and identity ($\beta = .22$), Memory, attention, and decision processes ($\beta = .14$), Emotion ($\beta = -.20$), Knowledge ($\beta = .09$), and Beliefs about capabilities ($\beta = .07$).

Table 10. Block regression analysis predicting intentions to implement inclusive PE across all COM-B components

	R	R^2	Adj. R^2	$R^2 \Delta$	F Δ	*P* value	Unst. B	SE B	St. β	*P* value
Block 1 COM-B Motivation	.78	.61	.63	.63	140.80	0.00	.76	.29		.00
Beliefs about capabilities							.13	.05	.10	.01
Beliefs about consequence							.19	.05	.15	.00
Emotion							-.10	.03	-.14	.00
Social/profes sional role & identity							.58	.04	.60	.00
Block 2 COM-B Motivation & opportunity	.84	.71	.71	.081	92.07	0.00	1.26	.26		.00
Beliefs about capabilities							.09	.05	.07	.06
Beliefs about consequences							.16	.04	.13	.00
Emotion							-1.09	.02	-.16	.00
Social/profes sional role & identity							.25	.05	.26	.00
Social influences							.38	.05	.47	.00
Block 3 COM-B Motivation, opportunity, & capability	.85	.73	.72	.01	8.15	0.00	1.12	.26		.00
Beliefs about capabilities							.09	.04	.07	.06
Beliefs about consequence							.05	.05	.04	.28
Emotion							-.14	.02	-.20	.00
Social/profes sional role & identity							.21	.05	.22	.00
Social influences							.30	.04	.37	.00
Knowledge							.084	.04	.09	.03
Memory,							.17	.06	.14	.00

	attention, & decision processes

Dependent variable: Intentions to implement inclusive PE

3.4 Discussion

The purpose of the current study is to apply the TDF and COM-B model to a comprehensive examination of theoretical predictors of teachers' intentions to implement inclusive PE. To our knowledge, this is the first study that applies these frameworks to an inclusive PE context. These findings identify key factors that influence teachers' inclusive PE behaviors and can be targeted in future interventions.

3.4.1 TDF Variables Predicting Intentions to Implement Inclusive PE

3.4.1.1 Social Influences

Reflecting social norms, group conformity, and social pressures, social influences emerged as the strongest predictor of intentions to implement inclusive PE. Social influence is said to facilitate or attenuate behavior (Turner, 1991). The idea of social influence has seldom been discussed in the inclusive-PE literature. Subjective norms (i.e., perceived social pressure to perform a behavior) may be strongly related to social influence and have been identified as the strongest predictor of intentions to implement inclusive education in other research (MacFarlane & Woolfson, 2013). However, the notion that social influence is the strongest predictor of teachers' intentions to implement inclusive PE is in contrast with other literature suggesting that teachers' attitudes are the strongest predictor of their motivation to implement inclusive PE (Jeong & Block, 2011). Yan and Sin (2014) postulate that "teachers' intentions towards inclusive education are more likely to be triggered by external factors (e.g. social pressure and external conditions) rather than their intrinsic momentum (e.g. their own attitudes)" (p. 81). In other words, when teachers recognize the endorsement

of inclusive education by important others (e.g., principals, administration, parents, colleagues, and community members), their intention to implement this pedagogical practice increases (Yan & Sin, 2014). The results from the current study support the notion that social influence, in the form of professionally significant individuals, is a significant factor that has the potential to influence teachers' motivation to implement inclusive PE.

3.4.1.2 Social/professional Role and Identity

Findings from this research indicated that there is a strong relationship between teachers' Social/professional role and identity and motivation to practice inclusive PE. Teachers' professional identities are influenced by and are highly susceptible to a variety of macro, micro, individual and group factors (e.g., core beliefs, previous experiences, and norms and values; Sachs, 2001; Tangen & Beutel, 2017). However, tensions arise when these factors conflict with new and/or different ways of thinking, and subsequently they may stunt teachers' integration of new concepts into their pedagogy (Tangen & Beutel, 2017). For example, the tenets of inclusive PE may be discordant with a teacher's previous experience and thus inhibit the teacher's adoption of related pedagogical practices to facilitate inclusive PE. Incongruences remain between teachers' professional identity and their self-imposed identities (Sachs, 2001), which can negatively influence motivation to implement inclusive PE. Therefore, the need for teachers to accept inclusive PE as a part of their professional identity is critical in order to positively affect their motivation, as "a strong professional identity is what distinguishes the expertise of teachers" (Sachs, 2001 p. 155). Social identity theory proposes that when individuals identify as part of a group their behavior is given a distinct meaning (Haslam, 2004). If teachers feel as though it is their professional responsibility to practice inclusive PE, then there is an increased likelihood that

they will be motivated to incorporate inclusive pedagogy into their daily PE practice. As such, it would be beneficial to ensure that teachers believe inclusive practice is a part of their professional role and identity. When incorporating ideas related to social influence, it is likely teachers' social environment or key people in their social system that impact their feelings of professional responsibility. Moving forward, social identity theory may inform effective interventions to strengthen teachers' sense of professional identity and better align personal and professional identities as a means to bolster their intentions to implement inclusive PE.

3.4.1.3 Attention, Memory, and Decision Processes

Teachers who indicated that they often focused their attention on inclusive PE, had stronger intentions to carry out inclusive PE practice. Educational literature has identified a connection between teachers' cognitions and subsequent execution of teaching methodologies. Wenger (1998) describes a complementary process whereby practice is developed and solidified within schools and communities of practice. He suggests that this process involves both reification (the production of tools, documents, and policies) and participation, which work together to entrench and guide practices such as inclusive PE. Participation allows for social learning to occur whereby the reified resources function as a memory of practice, further solidifying new pedagogy (Wenger, 1998). Complementing this idea, (Tristani & Bassett-Gunter, under review) in a recent systematic review recommended a workshop style approach in order to improve inclusive practice among teachers. Similar to Wenger's process, a workshop incorporates both theoretical and pragmatic components within an intensive format. Taken together, there is evidence to suggest that in order to increase the attention teachers pay to inclusive practice, schools must present learning and

professional development opportunities in various formats in order to ensure learning. Providing learning tools, resources, and policy documents in a stagnant format when rehearsal or participation are not present, rather than in conjunction with opportunities for interactive learning (e.g., workshops), appears to be insufficient to illicit changes in pedagogical practice.

3.4.1.4 Knowledge

A lack of knowledge is often cited as a major factor related to the poor implementation and realization of inclusive teaching practices (Morely et al., 2005). Congruent with previous literature (Roh, 2002; Sharma, Forlin, & Loreman, 2008), our findings support the meaningful role knowledge plays with regards to teachers' intentions to implement inclusive PE. However, enhancing knowledge alone is not "sufficient to increase teachers' advocacy of inclusive education" (Lee, Tracey, Barker, & Fan, 2014, p. 60). This notion is supported by our identification of other important predicators of teachers' intentions. A notable gap has been evidenced between teachers' knowledge and its application in the classroom setting (Rouse, 2006). Through the application of the TDF, other factors (e.g., Social/professional role and identity and Social influences) have been identified as a means to bridge the gap between teachers' knowledge and inclusive practices. Knowledge in itself is not likely to motivate teachers to practice inclusive PE. For example, clarifying teachers' professional identity and strengthening the role of professionally significant others concurrently would mediate the gap between knowledge and motivation to practice inclusive PE. Though the important role of knowledge should not be minimized, it may be optimally effective to explore the role and interplay of knowledge with other factors.

3.4.2   Theoretical Implications

This study was guided by the TDF and COM-B model, which have yet to be used to explore teachers' motivation for implementing inclusive PE. The use of quantitative assessment tools to measure TDF domains remains in its infancy as researchers continue to grapple with challenges around the distinctiveness or high correlations between each of the domains (Rekaa, Hanisch, & Ytterhus, 2018; Seward et al., 2017; Taylor, Lawton, & Conner, 2013). In the current study, the presence of suppressor variables demonstrated the challenges in using the TDF as a framework for a quantitative study. Although not ideal, two variables (Skills and Behavioral regulation) had to be removed from analyses. The role of Skills and Behavioral regulation should be further investigated, as a relationship has been evidenced between these domains and teachers' implementation of inclusive education (Giangreco, Suter, & Doyle, 2010; Smith & Tyler, 2011). Although there is significant value in a quantitative tool to measure TDF domains within the context of inclusive PE, there remains a need to further refine distinctions between domains both conceptually and psychometrically. Despite the challenges with suppressor effects, the TDF framework allowed for a unique exploration of teachers' motivation to engage in inclusive PE practices. Continued use of this comprehensive framework would be advantageous over more traditional theories because of the framework's ability to explain 72% of variance in Intentions to implement inclusive PE. Previous research utilizing the TPB has explained only 23–65% of the variance in Intentions within the realm of inclusive education (Conatser, Block, & Gansneder, 2002; Jeong & Block, 2011; Kudláèek, Válková, Sherrill, Myers, & French, 2002). Moreover, findings from this study highlight the significance of unique domains, such as Social/professional role and identity and Memory, attention and decision

processes, which were not captured in other theories. This study underscores the relevance of the TDF for explaining teachers' intentions to implement inclusive PE and capturing a breadth of salient factors for consideration in intervention strategies (e.g., Social influences, Knowledge, and Social/professional role and identity).

3.4.3 Practical Implications

The results of this study provide direction to inform strategies to support teachers' intentions to implement inclusive PE. Although various teacher-level factors have been examined in previous literature, the existing research has applied a limited theoretical lens through which teachers' intentions has been considered (e.g., TPB; Ajzen, 1991; Jeong & Block, 2011; Macdonald, Gringart & Gray, 2016; Sadaf & Johnson, 2017). The comprehensive theoretical approach employed in the current study has informed the identification of various predictors of teachers' intentions to implement inclusive PE (Social influences, Memory, attention, decision processes, and Social/professional role and identity), which provides novel insight into teachers' intentions. From its broadest perspective, there appears to be value in interventions that purposefully target TDF domains (e.g., Social/professional role and identity, Beliefs about capabilities, and Emotion). Due to the integrated nature of the BCW, these findings can be extrapolated in order to highlight important COM-B components. It is through the identification of significant TDF domains that researchers can begin to underscore significant COM-B components. Subsequently, this understanding can be applied to determine which intervention strategies are best suited according to the BCW.

Although the factors related to the Motivation component of COM-B explained the greatest amount of variance in Intention to implement inclusive PE, factors outside this

component also proved to be significant. Together, the findings of this research indicate a need for multidimensional intervention strategies. The TDF works to "imply a systems approach" (Nilsen, 2015, p. 5) and recognizes connections "across levels and different types of determinants" (p. 5), while the COM-B model identifies factors that are influential for or predictive of behavior (Nilsen, 2015). It is evident that teaching practices that support inclusive PE are multifaceted and complex. As such, interventions to support teachers' motivation to implement inclusive PE practices will also require multifaceted and complex approaches. Utilizing more holistic theories (e.g., TDF) along with interdisciplinary approaches can affect long-term and sustainable change to teachers' intentions to implement inclusive PE. Using the BCW (i.e., TDF and the COM-B model) to frame these results, furthers the practical application of this study as the framework provides a theory-based, systematic approach to intervention design and should be explored as a viable starting point to establish interdisciplinary intervention design.

3.4.4 Limitations

Despite the numerous strengths of this study, including the theoretical framework and large sample size, the findings must be considered in the light of certain limitations. The questionnaire developed for the study was based on existing questionnaires (Huijg, Gebhardt, Crone, 2014; Huijg, Gebhardt, Dusseldorp et al., 2014b). Additional research concerning the psychometric properties of the tool would be of value. We used the 12-domain iteration of the TDF (Michie et al., 2005) for the current study, though an updated version with 14 domains exists (Cane, O'Connor, & Michie, 2012). The researchers believe that the original TDF is more parsimonious, and the original questionnaire (12 domains) has not been proven less valid than the more recent questionnaire (Huijg, Gebhardt, Crone et al.,

2014). The possibility of selection bias, self-report, and social desirability bias cannot be excluded. Data regarding teachers' inclusive PE behavior were not collected. Although there is tremendous value in understanding teachers' intentions, there is a need for future research to examine teachers' behavioral practices regarding inclusive PE. Though the sample was female dominant, this gender discrepancy is representative of teacher demographics in Ontario (Ontario College of Teachers, 2017). However, the underrepresentation of male teachers in this sample may have influenced the data. Lastly, these data were collected using only teachers from Ontario, therefore, differences in educational policies both within Canada (e.g., between provinces) and between countries (e.g., Canada and the United States) may play a central role in predicting individuals' values.

3.5   Conclusions

The TDF and COM-B model show promise in their utility in understanding predictors of teachers' intentions to implement inclusive PE. This research extends the current literature by highlighting numerous factors related to teachers' intentions to implement inclusive PE, which can inform future research and intervention development. Targeting and fostering factors such as Social influences, Social/professional role and identity, and Knowledge may improve teachers' intentions to implement inclusive PE. Moreover, teacher training strategies should take into consideration multidimensional approaches to support teachers' motivations to implement inclusive PE.

Works Cited

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211.

Avramidis, E., Bayliss, P., & Burden, R. (2000a). A survey into mainstream teachers' attitudes towards the inclusion of children with special educational needs in the ordinary school in one local education authority. *Educational Psychology*, *20*(2), 191–211.

Avramidis, E., Bayliss, P., & Burden, R. (2000b). Student teachers' attitudes towards the inclusion of children with special educational needs in the ordinary school. *Teaching and Teacher Education*, *16*(3), 277–293.

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: A review of the literature. *European Journal of Special Needs Education*, *17*(2), 129-147.

Bamics2. (2011). Threshold guide. Retrieved from http://bamics2.cmbi.ru.nl/websoftware/phenolink/doc/ThresholdGuide_21Dec2011.pdf

Berry, W. D., & Feldman, S. (1985). *Multiple regression in practice* (No. 50), Thousand Oaks, CA: Sage.

Block, M. E. (2007). A teachers' guide to including students with disabilities in general physical education (3rd ed.), Baltimore, MD: Paul H. Brookesrun.

Boscart, V. M., Fernie, G. R., Lee, J. H., & Jaglal, S. B. (2012). Using psychological theory to inform methods to optimize the implementation of a hand hygiene intervention. *Implementation Science*, *7*(1), 77-89.

Busby, R., Ingram, R., Bowron, R., Oliver, J., & Lyons, B. (2012). Teaching elementary children with autism: Addressing teacher challenges and preparation needs. *The Rural Educator*, *33*(2), 27-35.

Campbell, J., Gilmore, L., & Cuskelly, M. (2003). Changing student teachers' attitudes towards disability and inclusion. *Journal of Intellectual and Developmental Disability*, *28*(4), 369-379.

Cane, J., O'Connor, D., & Michie, S. (2012). Validation of the theoretical domains framework for use in behavior change and implementation research. *Implementation Science*, *7*(37), 1- 17.

Cassidy, C., Bishop, A., Steenbeek, A., Langille, D., Martin-Misener, R., & Curran, J. (2018). Barriers and enablers to sexual health service use among university students:

A qualitative descriptive study using the theoretical domains framework and COM-B model. *BMC Health services Research*, *18*(1), 581-593.

Centers for Disease Control and Prevention (CDC). (2018). *Inclusion strategies*. August 9. Retrieved from https://www.cdc.gov/ncbddd/disabilityandhealth/disability-strategies.html

Combs, S., Elliott, S., & Whipple, K. (2010). Elementary physical education teachers' attitudes towards the inclusion of children with special needs: A qualitative investigation. *International Journal of Special Education*, *25*(1), 114-125

Conatser, P., Block, M., & Gansneder, B. (2002). Aquatic instructors' beliefs toward inclusion: The theory of planned behavior. *Adapted Physical Activity Quarterly*, *19*(2), 172-187.

DeSimone, J. R., & Parmar, R. S. (2006). Issues and challenges for middle school mathematics teachers in inclusion classrooms. *School Science and Mathematics*, *106*(8), 338–348.

Dudley, D., Okely, A., Pearson, P., & Cotton, W. (2011). A systematic review of the effectiveness of physical education and school sport interventions targeting physical activity, movement skills and enjoyment of physical activity. *European Physical Education Review*, *17*(3), 353–378.

Flannery, C., McHugh, S., Anaba, A. E., Clifford, E., O'Riordan, M., Kenny, L.C., . . . & Byrne, M. (2018). Enablers and barriers to physical activity in overweight and obese pregnant women: An analysis informed by the theoretical domains framework and COM-B model. *BMC Pregnancy and Childbirth*, *18*(1), 178-191.

Giangreco, M. F., Suter, J. C., & Doyle, M. B. (2010). Paraprofessionals in inclusive schools: A review of recent research. *Journal of Educational and Psychological Consultation*, *20*(1), 41–57.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate data analyses with readings*. Englewood Cliffs, NJ: Pearson College.

Haslam, S. A. (2004). *Psychology in organizations*, London, Sage.

Huijg, J. M., Gebhardt, W. A., Crone, M. R., Dusseldorp, E., & Presseau, J. (2014). Discriminant content validity of a theoretical domains framework questionnaire for use in implementation research. *Implementation Science*, *9*(11), 1-16.

Huijg, J. M., Gebhardt, W. A., Dusseldorp, E., Verheijden, M. W., Van der Zouwe, N., Middelkoop, B. J., & Crone, M. R. (2014). Measuring determinants of implementation behavior: Psychometric properties of a questionnaire based on the theoretical domains framework. *Implementation Science*, *9*(33), 1-15.

Jeong, M., & Block, M. E. (2011). Physical education teachers' beliefs and intentions toward teaching students with disabilities. *Research Quarterly for Exercise and Sport*, *82*(2), 239–246.

Jin, J., Yun, J., & Agiovlasitis, S. (2018). Impact of enjoyment on physical activity and health among children with disabilities in schools. *Disability and Health Journal*, *11*(1), 14–19.

Kudláèek, M., Válková, H., Sherrill, C., Myers, B., & French, R. (2002). An inclusion instrument based on planned behavior theory for prospective physical educators. *Adapted Physical Activity Quarterly*, *19*(3), 280–299.

Lancaster, B. P. (1999). Defining and interpreting suppressor effects: Advantages and limitations. Retrieved from https://files.eric.ed.gov/fulltext/ED426097.pdf

Lee, F. L. M., Tracey, D., Barker, K., & Fan, J. (2014). What predicts teachers' acceptance of students with special educational needs in kindergarten? *Australian Journal of Educational & Developmental Psychology*, *14*, 60–70.

Lee, J. Y. (2014). Predictors of teachers' intention to refer students with ADHD to mental health professionals: Comparison of US and South Korea. *School Psychology Quarterly*, *29*(4), 385-394.

Macdonald, M., Gringart, E., & Gray, J. (2016). Creating shared norms in schools—A theoretical approach. *The Australian Journal of Indigenous Education*, *45*(1), 56–69.

MacFarlane, K., & Woolfson, L. M. (2013). Teacher attitudes and behavior toward the inclusion of children with social, emotional and behavioral difficulties in mainstream schools: An application of the theory of planned behavior. *Teaching and Teacher Education*, *29*, 46–52.

McCrimmon, A. W. (2015). Inclusive education in Canada: Issues in teacher preparation. *Intervention in School and Clinic*, *50*(4), 234–237.

McSherry, L. A., Dombrowski, S. U., Francis, J. J., Murphy, J., Martin, C. M., O'Leary, J. J., & Sharp, L. (2012). "It's a can of worms": Understanding primary care practitioners' behaviours in relation to HPV using the theoretical domains framework. *Implementation Science*, *7*(1), 73-88.

Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: A consensus approach. *BMJ Quality & Safety*, *14*(1), 26–33.

Michie, S., Johnston, M., Francis, J., Hardeman, W., & Eccles, M. (2008). From theory to intervention: Mapping theoretically derived behavioural determinants to behaviour change techniques. *Applied Psychology*, *57*(4), 660–680.

Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, *6*(1), 42-53.

Morley, D., Bailey, R., Tan, J., & Cooke, B. (2005). Inclusive physical education: Teachers' views of including pupils with special educational needs and/or disabilities in physical education. *European Physical Education Review*, *11*(1), 84–107.

Mosavianpour, M., Sarmast, H. H., Kissoon, N., & Collet, J. P. (2016). Theoretical domains framework to assess barriers to change for planning health care quality interventions: A systematic literature review. *Journal of Multidisciplinary Healthcare*, *9*, 303-310.

Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation Science*, *10*(1), 53-66.

Ontario College of Teachers. (2017). 2017 Annual Report. Retrieved from https://www.oct.ca//media/pdfs/annualreport/Full_2017_Annual_Report_for%20MoE_EN_web.pdf

Ontario Ministry of Education. (2009). Ontario's equity and inclusive education strategy. Retrieved from http://www.edu.gov.on.ca/eng/policyfunding/equity.pdf

Phillips, C. J., Marshall, A. P., Chaves, N. J., Jankelowitz, S. K., Lin, I. B., Loy, C. T., . . . & Wilkinson, S. A. (2015). Experiences of using the theoretical domains framework across diverse clinical environments: A qualitative study. *Journal of Multidisciplinary Healthcare*, *8*, 139-146.

Rekaa, H., Hanisch, H., & Ytterhus, B. (2018). Inclusion in physical education: Teacher attitudes and student experiences: A systematic review. *International Journal of Disability, Development and Education, 66(1),* 36-55.

Rimmer, J. A., & Rowland, J. L. (2008). Physical activity for youth with disabilities: A critical need in an underserved population. *Developmental Neurorehabilitation*, *11*(2), 141–148.

Roh, H. K. (2002). The practical realities of inclusive physical education and cognition of physical education teachers toward inclusive physical education in Korea. *Journal of Korean Adapted Physical Activity & Exercise*, *10*(2), 13–26.

Rouse, M. (2006). Enhancing effective inclusive practice: Knowing, doing and believing. *Kairaranga, 7,* 8–13.

Sachs, J. (2001). Teacher professional identity: Competing discourses, competing outcomes. *Journal of Education Policy*, *16*(2), 149–161.

Sadaf, A., & Johnson, B. L. (2017). Teachers' beliefs about integrating digital literacy into classroom practice: An investigation based on the theory of planned behavior. *Journal of Digital Learning in Teacher Education*, *33*(4), 129–137.

Sallis, J. F., McKenzie, T. L., Beets, M. W., Beighle, A., Erwin, H., & Lee, S. (2012). Physical education's role in public health: Steps forward and backward over 20 years and HOPE for the future. *Research Quarterly for Exercise and Sport*, *83*(2), 125–135.

Seward, K., Wolfenden, L., Wiggers, J., Finch, M., Wyse, R., Oldmeadow, C., . . . & Yoong, S. L. (2017). Measuring implementation behaviour of menu guidelines in the childcare setting: Confirmatory factor analysis of a theoretical domains framework questionnaire (TDFQ). *International Journal of Behavioral Nutrition and Physical Activity*, *14*(1), 45-56.

Sexton, D. W. (2015). Implementation of Evidence-based Practice Within a Physician-led Quality Improvement Collaborative: A Multimethod Analysis of Facilitators and Barriers to Implementation (PhD. Dissertation). Retrieved from https://deepblue.lib.umich.edu/bitstream/handle/2027.42/116751/dwsexton_1.pdf?sequence=1&isAllowed=y

Sharma, U., Forlin, C., & Loreman, T. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. *Disability & Society*, *23*(7), 773–785.

Smith, D. D., & Tyler, N. C. (2011). Effective inclusive education: Equipping education professionals with necessary skills and knowledge. *Prospects*, *41*(3), 323-339.

Sokal, L., & Sharma, U. (2014). Canadian in-service teachers' concerns, efficacy, and attitudes about inclusive teaching. *Exceptionality Education International*, *23*(1), 59–71.

SPARK. (2016). The benefits of physical education for children with special needs. Retrieved from https://blog.schoolspecialty.com/category/physical-education/

Statistics Canada. (2013) The 2012 Canadian Survey on Disability (CSD) and the 2006 Participation and Activity Limitation Survey (PALS). Retrieved from http://www23.statcan.gc.ca/imdb- bmdi/document/3251_D6_T9_V1-eng.htm.

Tangen, D., & Beutel, D. (2017). Pre-service teachers' perceptions of self as inclusive educators. *International Journal of Inclusive Education*, *21*(1), 63–72.

Taylor, N., Lawton, R., & Conner, M. (2013). Development and initial validation of the determinants of physical activity questionnaire. *International Journal of Behavioral Nutrition and Physical Activity*, *10*(1), 74-85.

Thompson, L. M., Diaz-Artiga, A., Weinstein, J. R., & Handley, M. A. (2018). Designing a behavioral intervention using the COM-B model and the theoretical domains framework to promote gas stove use in rural Guatemala: A formative research study. *BMC Public Health*, *18*(1), 253-270.

Turner, J. C. (1991). *Social influence*. Belmont, CA: Thomson Brooks/Cole Publishing Co.

Weatherson, K.A., Gainforth, H. L., & Jung, M. E. (2017). A theoretical analysis of the barriers and facilitators to the implementation of school-based physical activity policies in Canada: A mixed methods scoping review. *Implementation Science*, *12*(1), 41-56.

Winzer, M., & Mazurek, K. (2011). Canadian teachers' associations and the inclusive *movement for students with special needs.* Retrieved from https://files.eric.ed.gov/fulltext/EJ913808.pdf

Wenger, E. (1998). Communities of practice: Learning, meaning and identity. Cambridge: Cambridge University Press.

Yan, Z., & Sin, K. F. (2014). Inclusive education: Teachers' intentions and behaviour analysed from the viewpoint of the theory of planned behaviour. *International Journal of Inclusive Education*, *18*(1), 72–85.

Chapter 4: Examining the Effects of a Teacher-Training Resource on Theoretical Factors Related to Teachers' Inclusive PE Behavior. A Randomized Controlled Trial

4.1 Introduction

The inclusive PE classroom is a dynamic and evolving space, and translating inclusive philosophy into practice has often proven difficult (Combs, Elliott, & Whipple, 2010; Petrie, Devcich, & Fitzgerald, 2018). Teachers have been given the responsibility of successfully facilitating inclusive PE (Coombs et al., 2010), yet for many teachers, limited or insufficient training impedes their effective delivery of appropriate and quality PE for all students (Coates & Vickerman, 2013). Teachers identify factors such as a lack of knowledge (Roh, 2002), an inability to modify and/or adapt the physical space or activity (Hodge, Ammah, Casebolt, Lamaster, & O'Sullivan, 2004), and feelings of fear and uncertainty (Campbell, Gilmore, & Cuskelly, 2003) as barriers to inclusive PE practices.

Teacher training has been suggested as a strategy to support teachers to improve inclusive education (Loreman, Sharma, & Forlin, 2013). Teacher training has proven effective in positively impacting teachers' knowledge of, perceptions of, and abilities to enhance skills and strategies related to inclusive teaching practices (Loreman et al., 2013; Tristani & Bassett-Gunter, under review). Tremendous variability in duration, frequency, and methods of teacher training has been highlighted, and as such, recommendations for best practices have been restrained (Tristani & Bassett-Gunter, under review). However, one conclusive recommendation has been that teacher training be conducted in the most feasible and practical manner possible (Tristani & Bassett-Gunter, under review). This

recommendation stems from identified barriers concerning budgets, timing, workload, and access to resources (Campbell, 2017).

Specific recommendations regarding the feasibility and practicality of various teacher training strategies are lacking. However, in borrowing from the literature regarding feasible and practical training strategies for healthcare professionals, we suggest that the use of text-based resources (e.g., booklets, pamphlets, online/e-resources) is advantageous (Coleman, 2011; Giguère et al., 2012). Within the education literature more broadly, text-based resources have been proven to improve teachers' knowledge, provide teaching strategies as well as critical information to improve pedagogical practice, and promote critical thinking and reflexive practice (Davis & Krajcik, 2005). The use of text-based resources has also been identified as an effective strategy to reach a large demographic in a cost-effective manner (Annand, 2008) and may be a feasible and practical strategy to support teacher training for inclusive PE. A host of text-based training resources exist targeting teachers delivering inclusive PE practices (e.g., *Inclusive Physical Activity*, 2nd ed.; Kasser & Lytle, 2013, and *Strategies for Inclusion: Physical Education for Everyone*, 3rd ed; Liberman & Houston-Wilson, 2017). However, it remains largely unknown if or how teacher-training resources impact factors related to teachers' inclusive PE behaviors. Research examining the effectiveness of teacher-training resources to positively impact and support teachers in delivering quality inclusive PE for SWD is necessary.

The BCT is valuable in examining the effects of teacher-training resources on factors related to inclusive PE practice. An optimally effective teacher-training resource could target and affect factors that are important in predicting teachers' motivation and behavior. BCTs have been previously applied to understand teachers' intentions (i.e., motivation) and

behavior that fosters inclusive PE (Jeong & Block, 2011; Pedersen, Cooley, & Hernandez, 2014; Wang, Wang, & Wen, 2015). The complex nature of the inclusive PE classroom calls for a comprehensive behavior-change framework that assesses cognitive (e.g., knowledge, skills; Forlin & Chambers, 2011), affective (e.g., attitudes, concerns, self-efficacy; Sharma, Forlin, & Loreman, 2008; Tristani & Bassett-Gunter, under review), social (e.g., principals, peers; Tristani & Bassett-Gunter, under review), and environmental (e.g., use of assistive technology; Westwood, 2018) factors that influence teachers' intentions and inclusive PE behavior.

The TDF is a comprehensive behavior-change framework comprising 12 domains.[10] It has been touted as a comprehensive approach for assessing context-specific factors that influence motivation and behavior (e.g., factors related to teachers' inclusive PE behavior; Michie et al., 2005). The TDF was recently applied to examine theoretical factors related to teachers' intentions to implement inclusive PE. Key theoretical factors were identified (Social influences, Social/professional role and identity, Memory, attention, and decision processes, and Knowledge) and suggested as potential targets for future teacher-training interventions (Tristani, Sweet, Tomasone, & Bassett-Gunter, under review). In line with this work, we suggest that optimally effective teacher-training resources should target and change these theoretical constructs among teachers in order to optimize their motivation and inclusive PE practices.

Few studies have examined the effects of teacher-training resources on these or other outcomes that are captured within a TDF, such as instructional strategies (Knowledge and

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[10] 12 TDF domains: Knowledge, Skills, Memory, attention, and decision processes, Action plans, Social/professional role and identity, Beliefs about capabilities, Beliefs about consequences, Motivation and goals, Emotions, Social influences, Environmental context and resources, Nature of behaviors (Michie et al., 2005).

Skills), ensuring safety (Environmental context and resources), overcoming unsupportive administration (Social influences; McCaughtry, Martin, Hodges Kulinna, & Cothran, 2006) and promoting critical thinking and reflexive practice (Nature of behaviors; Davis & Krajcik, 2005), although there is evidence to suggest that teacher-training resources have the potential to influence a broader range of theoretical factors. Moreover, typical investigations tend to be narrowly focused on small complementary groups (Golmic & Hansen, 2012) or in isolation (Forlin & Chambers, 2011; Lancaster & Bain, 2010). Due to the complex nature of teacher training, there is added value in a more comprehensive examination where a wider spectrum of theoretical factors are evaluated concurrently. Guided by the TDF, the current study examines the effects of a teacher-training resource on theoretical factors related to teachers' inclusive PE behavior.

4.2   Method

4.2.1   Participants

Participants included elementary and secondary school teachers (n=65) from Ontario, Canada. They had a) received (in-service) or were currently undergoing (pre-service) teacher training at an accredited Ontario teacher education program, b) were trained to teach PE or were required to teach PE at the elementary school level (i.e., generalists), and c) had no previous experience with the teacher-training resource used in the experimental condition. The inclusion of generalist teachers was imperative, as PE programming at the elementary level is most often delivered by generalists (Lu & De Lisio, 2017); 63% of elementary-level PE in Ontario is delivered by a generalist teacher (Faulkner et al., 2008). Participants were excluded if they a) taught at a segregated institution targeting

only SWD, b) had retired in 2010 or earlier[11], and c) were not proficient in English. A total

of 87 participants were screened for eligibility. Three were not eligible to participate and an

additional 19 declined further participation (See Table 11 for additional details regarding

particpant demographics). A final sample of 65 were randomized to either a control or

experimental condition. Figure 7 presents a flow chart of participants. Based on power

calculations, a total sample size of approximately 66 (i.e., 33 per condition) was needed for

80% power to detect a large effect size at $p < .05$.

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[11] *Steps to Inclusion* was published in 2010. Therefore, those teachers whose retirement was prior to the publication date were assumed to have not come into professional contact with the resource nor would have the opportunity to apply/conceptualize its usefulness from a pragmatic standpoint.

Figure 7. CONSORT flow diagram of participants' progress through randomized controlled trial

Recruited
(n=87)

Provided consent and were assessed for eligibility
- completed demographic questionnaire

Not eligible to participate (n=3)

Completed TDF questionnaire (baseline)
(n=84)

Declined further participation
(n=19)

Randomized
(n=65)

Experimental Group
(n=33)

Control Group
(n=32)

Received teacher-training resource

Received control resource

Lost to follow-up
(n=5)

Completed TDF questionnaire
(Time one)
(n=54)

Lost to follow-up
(n=6)

Lost to follow-up
(n=3)

Completed TDF questionnaire
(Time two)
(n=47)

Lost to follow-up
(n=4)

4.2.2 Study Protocol and Procedure

A three-week, single blind randomized controlled trial (RCT) was employed to investigate the effects of a teacher-training resource on factors related to teachers' inclusive PE practice. Teachers were recruited from a database and through the social media outlets of community partners (i.e., Canadian Disability Participation Project). Teachers who expressed interest in the study completed a preliminary demographic questionnaire, which screened for eligibility. Eligible individuals completed a baseline assessment of factors related to teachers' inclusive PE behavior. A random numbers table was then used to randomize participants to one of two study conditions, experimental or control. Each participant received a designated teacher-training resource in PDF format via email. Participants in the experimental condition received a teacher-training resource that pertained directly to supporting teachers within an inclusive PE environment,[12] and participants in the control condition received a a teacher-training resource that was unrelated to inclusive PE.[13] All participants were instructed to read and interact with the assigned document over the course of the following week. After one week, participants completed a reading recall task and a questionnaire that assessed factors related to teachers' inclusive PE behavior (time one). Two weeks later, factors related to teachers' inclusive PE behavior were reassessed (time two; see Figure 7). The study protocol was approved by the York University's Research and Ethics Board. All participants provided informed consent and received a $20 honorarium.

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[12] Experimental Group: https://www.ophea.net/system/files/products/INC_Resource_English_FINAL.pdf
[13] Control Group: https://www.ophea.net/sites/default/files/pdfs/HSC/hscertification_guidebook_2018-2019.pdf

4.2.3   Materials

4.2.3.1 Experimental Reading (*Steps to Inclusion*)

In the experimental condition, participants received *Steps to Inclusion*, a teacher-training resource specifically designed to support teachers in facilitating inclusive PE, developed in 2010 by Ophea and an advisory committee including community stakeholders (e.g., teachers, recreation staff, coaches, and parents). Ophea is "the best-known organization for supporting the implementation of health and wellness initiatives in Ontario schools" (Ophea, n.d., para. 2). *Steps to Inclusion* is an "easy to use, simplified resource" that promotes "the message that children everywhere can benefit from a physical activity program that ensures inclusion" (*Steps to Inclusion*, p. 4). *Steps to Inclusion* was chosen for the current study to serve as a case study to examine the effects of teacher-training resources on factors related to teachers' inclusive PE practice. Although other training resources exist that support inclusive PE (e.g., Fit Kids Health Kids, Paralympic Adapted Lesson Plans),[14] *Steps to Inclusion* was identified as an ideal resource to examine among Ontario teachers given Ophea's well-established position among Ontario teachers in all 5,000 publically funded schools (Ophea, n.d., para. 3).

4.2.3.2 Control Reading

In the control condition, participants received a resource that was designed to engage the school community and improve the well-being of students, staff, and community members. This resource speaks generally to the integration of health policies, programs, and initiatives in schools but does not mention SWD. The control reading was also created by Ophea and was similar in length and readability to the experimental reading.

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[14] https://fitkidshealthykids.ca/games-database; http://paralympic.ca/activities/teaching-adapted-physical-education-and-activity-lesson-plans

4.2.4 Measures

4.2.4.1 Demographic Information

Participants completed a self-report demographic questionnaire regarding age, gender, teaching contract, teaching level qualification(s), PE qualification, and experience teaching SWD. Table 10 provides an overview of participant demographics.

Table 11. Participant demographics

Variable	Control		Experimental	
	Frequency	Percent	Frequency	Percent
Sex				
Male	3	9.4%	5	15.2%
Female	29	90.6%	28	84.8%
Age (SD)	33		33	
Teaching contract (years)				
Pre-service	4	12.5%	3	9.1%
Supply teacher or long-term occasional	7	21.9%	9	27.3%
Full-time	21	65.6%	21	63.6%
Subject Level*				
Primary/Junior	25	78.1%	22	66.7%
Junior/Intermediate	24	75%	27	81.8%
Intermediate/Senior	17	53.1%	19	57.6%
PE qualification				
Yes	13	40.6%	12	36.4%
No	19	59.4%	21	63.6%
Experience teaching SWD				
Yes	32	100%	33	100%

*Ontario teachers are initially qualified to teach two consecutive divisions (i.e., Primary/Junior, Junior/Intermediate, Intermediate/Senior) but have the option to later become certified in other divisions (OCT, 2018). Teachers holding qualifications in the aforementioned divisions are authorized to teach the following:
Primary: kindergarten to grade 4
Junior: grades 4–6
Intermediate: grades 7–10
Senior: grades 11–12
As such, the numbers in this category add up to more than 20.

4.2.4.2 Factors Related to Teachers' Inclusive PE Behavior

Factors related to teachers' inclusive PE behaviors were measured using an adapted version of the Determinants of Implementation Questionnaire (Huijg et al., 2014). The

questionnaire had been previously adapted and used to examine theoretical factors related to inclusive PE practices among teachers (Tristani, Sweet, Tomasone, & Bassett-Gunter, under review).[15] The adapted questionnaire examines the 12 TDF domains (Knowledge, Skills, Memory, attention and decision processes, Behavioral regulation, Social/professional role and identity, Beliefs about capabilities, Beliefs about consequences, Motivation and goals, Emotions, Social influences, Environmental context and resources, and Nature of behaviors; Michie et al., 2005) in relation to teachers' inclusive PE practice. The questionnaire contained 45 questions nested within 12 subscales relating to each of the TDF domains. A 7-point Likert scale (1 = strongly disagree to 7 = strongly agree) was used to respond to 41 of 45 items. The remaining four items were ranked on a 7-point scale with appropriate anchors (e.g., 1 = very difficult to 7 = very easy).

4.2.4.3 Manipulation Check

A recall task was used to assess participants' condition assignment and recall of the material in the assigned document (see Appendix F). This manipulation check included six statements, three captured verbatim from both the control and experimental resource. The participants were asked to correctly identify statement(s) that they believed they had read during exposure to the study materials. The results of the reading recall task demonstrated substantial agreement (91%).

4.3   Statistical Analysis

4.3.1   Data Cleaning

Statistical analyses were performed using SPSS (version 24). Data were cleaned and tested for violations of assumptions including tests for normality (Kolmogorov-Smirnov

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[15] A list of sample questions can be found on pages 85-86 of this dissertation (Study 2).

Test). Data were screened for missing values and outliers. A missing data pattern analysis was run to identify missing data patterns, and Little's MCAR test was run to determine if data were missing at random (Little, 1988). Findings indicated that all data were missing at random. Missing data ranged from 0%–4.3% for all continuous variables. Due to low percentages of missing data, all missing values were replaced using the last observation carried forward (LOCF) method (Shao & Zhong, 2003). Additionally, a total of nine outliers (values >3 SDs above the mean) were identified (one outlier score for each Social/professional role & identity, Motivation and goals, and Belief about consequences, and three outlier scores for each Memory, attention, and decision making, and Belief about capabilities) and adjusted to represent the next highest or lowest acceptable score (Osborne & Overbay, 2004). Further, baseline scores (i.e., factors related to teachers' inclusive PE behaviors) for participants in the control and experimental conditions were compared using independent sample t-tests. No significant differences between groups were observed.

4.3.2   Multivariate Analysis

A three x two repeated measures multivariate analysis of variance (MANOVA) was conducted to examine changes in factors related to teachers' inclusive PE behavior (i.e., TDF domains) across time (baseline, time one, time two) and between conditions (experimental, control) at the multivariate level.

4.3.3   Univariate Analysis

Following the multivariate analysis, a series of repeated measures analyses of variance (ANOVA) were conducted at the univariate level for each of the 12 TDF variables across time (baseline, time one, and time two) and between conditions (experimental, control). A Bonferroni adjustment was applied to adjust the *p*-value for identifying

significant differences to $p < 0.004$ while reducing the risk of Type 1 error. Effect sizes (partial η^2) were calculated to estimate the magnitude of the effects with $\eta^2 \geq .02$, $\geq .13$, and $\geq .26$ constituting small, medium, and large effects, respectively (Cohen, 1992). When examining time x condition interaction effects, exploratory post-hoc analyses (i.e., paired-samples t-tests) were performed to further explore differences between the control and experimental conditions in the presence of an effect size of a small magnitude or larger.

4.4 Results

4.4.1 Multivariate Analysis

Results of the repeated measures MANOVA demonstrated a significant main effect for time, (F (24, 22) = 2.20, $p = .002$, partial $\eta^2 = .25$), indicating significant differences across time points (i.e., baseline, time one, and time two) at the multivariate level. However, the main effect for time was superseded by a significant time x condition interaction effect, (F(24, 22) = 1.66, $p = .034$ partial $\eta^2 = .20$), indicating that significant differences exist between the control and experimental conditions across time. The results of the multivariate analysis suggested further exploration was warranted.

4.4.2 Univariate Analyses

At the univariate level, significant main effects for time were observed for two of the 12 TDF domains: Knowledge (F(1, 45) = 6.00, $p < .0001$ partial $\eta^2 = .12$) and Skills (F(1, 45) = 9.50, $p = .003$ partial $\eta^2 = .17$). A significant time x condition interaction was detected for the following two TDF domains: Knowledge (F(1, 45) = 4.48, $p = .004$ partial $\eta^2 = .09$) and Beliefs about capabilities (F(1, 45) = 3.50, $p < .0001$ partial $\eta^2 = .07$). No other significant effects were found for time, condition, or time x condition.

In order to further explore possible interaction effects not detected as significant at the $p <.004$ level, subsequent statistical investigations were calculated. It has been suggested that merely considering statistical significance in the presence of small samples, as in this study, can distort interpretations of important findings (Weilg-Crow, 1990). In the absence of significant interaction effects, effect sizes were explored using recognized predetermined cut-offs for partial η^2 (small .02, medium .13, and large .26).

Small to large (non-significant) effect sizes were observed for time x condition interactions for the following domains: Skills ($F(1, 45) = 1.46$, $p = .23$ partial $\eta^2 = .03$); Behavioral regulation ($F(1, 45) = 2.90$, $p = .09$ partial $\eta^2 = .06$); Environmental context and resources ($F(1, 45) = .76$, $p = .39$ partial $\eta^2 = .02$); Social influences ($F(1, 45) = 3.45$, $p = .07$ partial $\eta^2 = .07$); and Memory, attention and decision processes ($F(1, 45) = 1.56$, $p = .22$ partial $\eta^2 = .03$). Interaction effects were not observed for the remaining four TDF domains: Social/professional role and identity ($F(1, 45) = .00$, $p = 1.00$; partial $\eta^2 = .00$); Beliefs about consequences ($F(1, 45) = .31$, $p = .59$; partial $\eta^2 = .01$); Motivation and goals ($F(1, 45) = .14$, $p =.71$; partial $\eta^2 = .00$); Emotion ($F(1, 45) = .09$, $p = .77$; partial $\eta^2 = .00$); and Nature of behaviors ($F(1, 45) = .60$, $p =.44$; partial $\eta^2 = .01$). Table 12 displays the results of the univariate analysis.

4.4.3 Post-Hoc Analyses

In the presence of a significant interaction effect or an effect size of at least a small magnitude ($\eta^2 \geq .02$), post-hoc analyses were calculated. Bonferroni adjustments ($p <.006$) were used for all post-hoc tests to account for multiple comparisons.

Table 12. Univariate analysis of TDF domains

| | Descriptive Statistics | | | Repeated measures ANOVA | | |
| | | | | *F*-values | | |
	Baseline M (SD)	Time one M (SD)	Time two M (SD)	Time F (partial η^2)	Condition F (partial η^2)	Time x Condition F (partial η^2)
TDF Domains						
Knowledge				6.00 (.12)*	1.31 (.03)	4.48 (.09)*
Experimental (n=25)	4.30(.89)	5.19 (1.07)	4.86 (1.10)			
Control (n=22)	4.35 (1.1)	4.57 (1.18)	4.39 (1.37)			
Skills				9.5 (.17)*	.39 (.01)	1.46 (.03)
Experimental (n=25)	3.56 (1.00)	4.21 (1.02)	4.22 (1.29)			
Control (n=22)	4.01 (1.37)	4.26 (1.02)	4.30 (1.29)			
Memory, attention, and decision processes				3.02 (.06)	.97 (.02)	1.56 (.03)
Experimental (n=25)	4.53 (1.16)	4.85 (1.12)	4.97 (1.08)			
Control (n=22)	4.50 (.82)	4.50 (.98)	4.57 (1.04)			
Behavioral regulation				3.86 (.08)	1.57 (.03)	2.90 (.06)
Experimental (n=25)	3.50 (1.24)	4.17 (1.41)	4.20 (1.27)			
Control (n=22)	4.32 (1.49)	4.32 (1.54)	4.38 (1.60)			
Social/professional role & identity				.39 (.01)	.56 (.01)	0.00 (.00)

Experimental (n=25)	6.12 (.89)	6.19 (.70)	6.18 (.86)			
Control (n=22)	5.91 (1.08)	6.06 (.97)	5.97 (.98)			
Beliefs about capabilities				.02 (.00)	.42 (.01)	3.50 (.07)*
Experimental (n=25)	4.50 (1.08)	5.04 (1.05)	4.24 (1.19)			
Control (n=22)	4.63 (1.18)	4.77 (1.15)	4.95 (1.06)			
Beliefs about consequences				.02 (.00)	1.11 (.02)	.31 (.01)
Experimental (n=25)	6.03 (.81)	6.12 (.91)	6.12 (.96)			
Control (n=22)	6.0 (.56)	5.76 (1.01)	5.91 (.65)			
Motivation and goals				1.33 (.03)	.32 (.01)	.14 (.00)
Experimental (n=25)	5.60 (.95)	5.77 (1.00)	5.73 (.91)			
Control (n=22)	5.53 (.90)	5.52 (.88)	5.60 (.94)			
Environmental context and resources				.86 (.02)	.27 (.01)	.79 (.02)
Experimental (n=25)	3.32 (1.18)	3.76 (.79)	3.68 (.82)			
Control (n=22)	3.47 (1.47)	3.38 (1.48)	3.48 (1.54)			
Emotion				1.80 (.04)	.05 (.00)	.09 (.00)
Experimental (n=25)	5.37 (1.07)	5.62 (.99)	5.49 (.86)			
Control (n=22)	5.33 (1.13)	5.42 (1.19)	5.52 (1.23)			

Social influences				.00 (.00)	4.00 (.08)	3.45 (.07)
Experimental (n=25)	5.68 (1.19)	5.89 (1.18)	6.05 (.84)			
Control (n=22)	5.52 (1.24)	5.16 (1.37)	5.16 (1.42)			
Nature of behaviors				5.28 (.11)	.82 (.02)	.60 (.01)
Experimental (n=25)	3.50 (1.25)	3.98 (1.10)	4.14 (1.53)			
Control (n=22)	3.45 (1.48)	3.54 (1.41)	3.77 (1.35)			

*indicates test value reached statistical significance at $p \leq 0.004$.

For participants in the experimental condition, significant changes in the following TDF domains were observed based on calculated paired-samples t-tests comparing baseline to time one data: Knowledge ($t(30) = 5.49$, $p = 0.001$ Cohen's $d = .90$); Skills ($t(30) = 4.04$, $p = 0.001$, Cohen's $d = .64$); and Behavioral regulation ($t(30) = 4.33$, $p = 0.001$, Cohen's $d = .50$). A significant change in the TDF domain of Knowledge was observed from baseline to time two ($t(30) = 3.17$, $p = 0.004$, Cohen's $d = .56$). Moreover, a significant change in the TDF domain of Beliefs about capabilities was observed from time one to time two ($t(30) = -3.22$, $p = 0.003$, Cohen's $d = .71$). For participants in the control condition, there were no significant changes observed for paired-samples t-test calculated for any variable at any time point.

In the absence of a significant change in the TDF domains, effect sizes were explored using predetermined cutoffs for Cohen's d (small d $\geq$ .2, medium d $\geq$ .5, large d $\geq$ .8). Results regarding effect size analyses are organized by time and condition below.

4.4.4   Experimental Condition

Baseline to Time One

Small to large (non-significant) effect sizes for the following TDF domains: Memory, attention, and decision processes ($t(30) = 2.85$, $p = .008$, Cohen's $d = .28$); Beliefs about capabilities ($t(30) = 3.01$, $p = .01$, Cohen's $d = .51$); Environmental context and resources ($t(30) = 2.36$, $p = .03$, Cohen's $d = .44$); and Nature of behaviors ($t(30) = 2.29$, $p = .03$, Cohen's $d = .41$).

Baseline to Time Two

Small to large (non-significant) effect sizes for the following TDF domains: Skills ($t(30) = 2.58$, $p = .02$, Cohen's $d = .57$); Memory, attention, and decision processes ($t(30) = 2.45$, $p = .02$, Cohen's $d = .35$); Behavioral regulation ($t(30) = 2.99$, $p = .01$, Cohen's $d = .56$); Beliefs about capabilities ($t(30) = -1.08$, $p = .29$, Cohen's $d = .23$); Environmental context and resources ($t(30) = 1.04$, $p = .31$, Cohen's $d = .35$); Social influences ($t(30) = 1.76$, $p = .09$, Cohen's $d = .36$); and Nature of behaviors ($t(30) = 2.11$ $p = .05$, Cohen's $d = .46$).

Time One to Time Two

Small to large (non-significant) effect sizes for the TDF domain Knowledge ($t(30) = -2.05$ $p = .05$, Cohen's $d = .30$)

4.4.5   Control Condition

Baseline to Time One

Small to large (non-significant) effect sizes for the following TDF domains: Skills ($t(30) = 2.10$, $p = .05$, Cohen's $d = .21$) and Social influences ($t(30) = -1.00$, $p = .33$, Cohen's $d = .28$).

Baseline to Time Two

Small to large (non-significant) effect sizes for the following TDF domains: Skills ($t(30) = 1.11$ $p = .28$, Cohen's $d = .22$); Beliefs about capabilities ($t(30) = 1.54$ $p = .14$, Cohen's $d = .29$); Social influences ($t(30) = -.97$ $p = .34$, Cohen's $d = .27$); and Nature of behaviors ($t(30) = .85$ $p = .41$, Cohen's $d = .23$).

Time One to Time Two

No effect sizes with a magnitude that approached the predetermined cutoffs. Table 13 displays the results of the post-hoc analyses.

Table 13. Post-hoc analysis of TDF domains identified as having an effect size of $\eta^2 \geq$ .02

| | Descriptive Statistics | | | Paired samples *t*-test | | |
| | | | | Cohen's *d* | | |
	Baseline M (SD)	Times one M (SD)	Times two M (SD)	Baseline-Time one	Baseline – Time two	Time one-Time two
TDF Domains						
Knowledge						
Experimental (n=25)	4.30 (.89)	5.19 (1.07)	4.86 (1.10)	5.49 (.90)*	3.17 (.56)*	-2.05 (.30)
Control (n=22)	4.35 (1.1)	4.57 (1.18)	4.39 (1.37)	2.58 (.19)	.19 (.03)	-1.80 (.14)
Skills						
Experimental (n=25)	3.56 (1.00)	4.21 (1.02)	4.22 (1.29)	4.04 (.64)*	2.58 (.57)	-.36 (.01)
Control (n=22)	4.01 (1.37)	4.26 (1.02)	4.30 (1.29)	2.10 (.21)	1.11 (.22)	-.64 (.03)
Memory, attention, and decision processes						

Experimental (n=25)	4.53 (1.16)	4.85 (1.12)	4.97 (1.08)	2.85 (.28)	2.45 (.35)	.84 (.10)
Control (n=22)	4.50 (.82)	4.50 (.98)	4.57 (1.04)	-.09 (.06)	.29 (.01)	1.67 (.01)
Behavioral regulation						
Experimental (n=25)	3.50 (1.24)	4.17 (1.41)	4.20 (1.27)	4.33 (.50)*	2.99 (.56)	.10 (.02)
Control (n=22)	4.32 (1.49)	4.32 (1.54)	4.38 (1.60)	.15 (.00)	.16 (.00)	.67 (.04)
Beliefs about capabilities						
Experimental (n=25)	4.50 (1.08)	5.04 (1.05)	4.24 (1.19)	3.01 (.51)	-1.08 (.23)	-3.22 (.71)*
Control (n=22)	4.63 (1.18)	4.77 (1.15)	4.95 (1.06)	1.86 (.12)	1.54 (.29)	.45 (.16)
Environmental context and resources						
Experimental (n=25)	3.32 (1.18)	3.76 (.79)	3.68 (.82)	2.36 (.44)	1.04 (.35)	-.84 (.10)
Control (n=22)	3.47 (1.47)	3.38 (1.48)	3.48 (1.54)	.49 (.06)	-.07 (.01)	-.28 (.01)
Social influences						
Experimental (n=25)	5.68 (1.19)	5.89 (1.18)	6.05 (.84)	1.61 (.18)	1.76 (.36)	.60 (.16)
Control (n=22)	5.52 (1.24)	5.16 (1.37)	5.16 (1.42)	-1.00 (.28)	-.97 (.27)	.52 (.00)
Nature of behaviors						
Experimental (n=25)	3.50 (1.25)	3.98 (1.10)	4.14 (1.53)	2.29 (.41)	2.11 (.46)	-.57 (.12)
Control (n=22)	3.45 (1.48)	3.54 (1.41)	3.77 (1.35)	.73 (.06)	.85 (.23)	.60 (.17)

*indicates test value reached statistical significance at $p \leq 0.006$.

4.5   Discussion

The purpose of this study is to evaluate the effects of a teacher-training resource on a comprehensive set of theoretical factors related to teachers' inclusive PE practice. Given that teachers can ultimately facilitate or hinder inclusive PE opportunities for SWD (Morley, Bailey, Tan, & Cooke, 2005), it is critical that teacher-training resources optimally support teachers' motivations and inclusive PE behaviors. The following discussion will speak to each of the significant findings independently, explore the implications of those domains that demonstrated small to large effect sizes, and consider pragmatic implications.

4.5.1   Significant Findings

Among teachers exposed to the teacher-training resource (i.e., experimental condition), a significant and positive change in knowledge was observed at both time one and at the two-week follow up (time two). Knowledge has been identified as a prerequisite for inclusive education (De Boer, Pijl, & Minnaert, 2011; Forlin & Chambers, 2011; Sharma et al., 2008) and as such, teacher training has traditionally emphasized the improvement in teachers' knowledge (Lancaster & Bain, 2010). A recent content analysis examining *Steps to Inclusion* found that approximately half its content targeted the TDF domain Knowledge (Tristani, Tomasone, Gainforth, & Bassett-Gunter, in press). The positive changes in knowledge observed following exposure to the teacher-training resource (i.e., experimental group) are consistent with the content of the resource. Improvements in teachers' knowledge have been positively associated with improved attitudes towards SWD and decreased concerns regarding inclusive education practice (Batsiou et al., 2008; Ghanizadeh, Bahredar, & Moeini, 2006; Sharma et al., 2008). Knowledge has been found to be a significant

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predictor of teachers' intentions to implement inclusive PE (Tristani et al., under review). There is little dispute concerning the role of teachers' knowledge as an important factor in facilitating effective inclusive PE for SWD. In discussing the domain of Knowledge, it is important to recognize that the control condition also had an effect size trending towards a small effect from baseline to time one. Changes in the domain of Knowledge for the control condition may be a reflection of a "mere measurement effect," a phenomenon identified in the behavior change literature whereby being asked about health behaviors has the potential to result in behavior change (Godin, Sheeran, Conner, & Germain, 2008). The researchers however believe it is plausible that the observed changes in the experimental condition were a result of exposure to the teacher-training resource. This is the first known empirical demonstration of the effects of exposure to an inclusive PE teacher-training resource on knowledge, and the positive changes observed are encouraging in understanding the value of teacher-training resources. Findings from this study are highly supportive of the use of teacher-training resources to improve teachers' knowledge.

Though the importance of providing teachers with knowledge-based information concerning inclusive practice cannot be disputed (Forlin & Chambers, 2011; Pivik, McComas, & LaFlamme, 2002; Segall & Campbell, 2012), in order to more effectively impact behavior, teacher-training resources should include content beyond this domain. A significant and positive change in skills was also observed among teachers exposed to the teacher-training resource. In line with the importance of knowledge, teachers' skills have also been identified as important in facilitating inclusive practice (Roh, 2002; Sharma et al., 2008). Indeed, teachers must have a strong foundational knowledge in order to understand a student's disability, and have the skills to adapt and/or modify the activities or space

(Sharma et al., 2008) in order to provide the least restrictive environment for the student. The content of *Steps to Inclusion* was targeted at supporting teachers' skills (the third largest category of content coding following Knowledge and Social influences; Tristani et al., in press). The effects of exposure to the teacher-training resource on perceived skills are also consistent with the content of the resource and suggest that teacher-training resources are effective when targeted content is available. It would be deleterious, however, not to discuss the fact that similar trends were demonstrated for skills among teachers in the control condition. Small effects sizes were observed at both time one and at the two-week follow up (time two). However, upon closer examination, the means for the control condition were higher at both time points, yet the experimental condition demonstrated larger effect sizes as well as statistically significant changes. The researchers argue that the effect of the teacher-training resource was greater than any changes observed by the teachers in the control group. Highly skilled teachers are essential for providing optimal and effective PE opportunities for SWD. This study provides evidence that teacher-training resources can be leveraged strategically to positively impact teachers' skills. However, further research is warranted with regards to identifying and optimizing content in order to facilitate improvement in teachers' skill.

Moreover, a positive change in Behavioral regulation was observed among teachers exposed to the teacher-training resource. The domain Behavioral regulation is encompassing of action planning, which has been identified as a strategy to support behavior initiation and facilitate behavior change (Rhodes et al., 2016; Rhodes & Yao, 2015). Broadly, action planning has been utilized for building and maintaining inclusive practices within schools (Avramidis, Bayliss, & Burden, 2002; Giangreco, Suter, & Doyle, 2010; McMaster, 2013),

that is, appropriately planning and detailing a course of action has led to improved inclusive

practice. Considering PE more closely, action planning has been recognized as an important

factor in facilitating PA support behaviors (Rhodes, Naylor, & McKay, 2010). Namely,

interventions utilizing PA action planning from the perspective of the supportive other (e.g.,

parents, teachers, caregivers) have demonstrated the utility of action planning as a tool to

facilitate supportive PA behaviors (Rhodes et al., 2010). Given previous research on the

utility of action planning, improvements in the domain Behavioral regulation demonstrate

the value of teacher-training resources as a means to support inclusive PE practice.

Haug (2017) observed that there is a discordance between intentions when it comes

to inclusive education and its implementation. Though many teachers report positive

intentions when it comes to inclusive pedagogy, the inclusion of SWD can be challenging

(Combs et al., 2010). Barriers to the implementation of inclusive PE can lead to

incongruences between teachers' intentions and behavior. Engaging in action planning

bridges the intention-behavior gap (Rhodes et al., 2010) and increases the likelihood of

behavioral enactment (i.e., implementation of inclusive PE). It has been hypothesized that if

action planning, teachers will be more likely to implement inclusive PE. It is unknown,

however, how using *Steps to Inclusion* could result in a significant change in this domain

because of the negligible content pertaining to this idea (Tristani et al., in press). The

researchers hypothesize that globally the accessibility of the teacher-training resource along

with the salience of its contents may have prompted a cue to action. It would be efficacious

for future research to uncover components of Behavioral regulation (i.e., action planning) in

order to more consistently elucidate the mechanisms and processes involved.

4.5.2   Considering Effect Size

Small to large effect sizes were also observed across various TDF domains for teachers in the experimental condition, suggesting that teacher-training resources have the potential to impact theoretical factors related to teachers' inclusive PE practice. Similar results were not noted for the control condition. It seems that exposure to the teacher-training resource had an effect (albeit non-significant for some variables) on TDF domains pertinent to behavior change. Particularly, Beliefs about capabilities, Environmental context and resources, and Nature of behaviors demonstrated medium effect sizes. There appears to be value in interventions that purposefully target Beliefs about capabilities (Tristani et al., under review). Moreover, the call for resources cannot be overlooked within inclusive literature (Morley et al., 2005). Though trends for these interactions proved to be non-significant, they might have been significant with a larger sample or a more intensive intervention (i.e., greater interaction with the teacher-training resource). The outcomes from this study, however, support the potential utility of teacher-training resources to positively impact pertinent factors identified in the literature. Moreover, small effects were found for Social influences and Memory, attention, and decision processes. This is notable, considering these TDF domains have been found to be significant predictors of teachers' intentions to implement inclusive PE (Tristani et al., under review). In general, it is highly encouraging to consider the possibility that exposure to a teacher-training resource would positively impact these meaningful constructs. Though Social influences was identified in a significant proportion of *Steps to Inclusion*, it is somewhat curious to note the effect size for Memory, attention, and decision processes when considering the lack of content pertaining to this domain (Tristani et al., in press). There may be incongruences in how content was

theoretically understood versus how it was interpreted by the end user (i.e., the teacher). Research concerning the limitations of content analyses highlights this issue and suggests that meaning is situated with the intended reader, and a theoretical analysis of text may not accurately depict the meaning (Ahuvia, 2001). For example, it has been argued that there may be ambiguity between constructs like Motivation and Behavioral regulation, thus creating problems with measurement (Rhodes, Blanchard, Matheson, & Cobble, 2006). As such, there may be value in further investigating teachers' understanding of the content of the teacher-training resource. The content of the teacher-training resource seemed to facilitate changes in TDF constructs. High correlations between TDF constructs have also been revealed (Tristani et al., under review), making it difficult to tease apart the effects of the contents of the teacher-training resource on the various outcome variables. We suggest that the mechanisms behind these identified changes be the focus of future study.

4.5.3   Pragmatic Implications and Future Directions

This study demonstrates the potential for a teacher-training resource to positively impact theoretical factors related to teachers' inclusive PE behavior. The findings of this study provide pertinent information that informs the development of effective teacher-training resources. It is also worth noting that statistically significant and sustained changes following exposure to the teacher-training resource were only observed for Knowledge. It is not uncommon for the effects of exposure to informational resources (e.g., teacher-training resources) to decrease in the time following exposure (Wakefield, Loken, & Hornik, 2010). Therefore, we highly recommend providing teachers with ongoing content and learning opportunities related to inclusive PE in order to sustain positive effects. Interventions using teacher-training resources may benefit from incorporating "booster" strategies to enhance

and sustain outcomes. The use of a booster session has shown to be effective in maintaining behavior as well as improving self-directed behaviors (Fleig, Pomp, Schwarzer, & Lippke, 2013). Barriers concerning financial resources and cost of teacher training have also been noted (Campbell, 2017). Therefore, teacher training should proceed in a feasible and optimally effective manner. Tristani and Bassett-Gunter (under review), in their systematic evaluation of teacher-training practices for inclusive education suggest the use of a workshop style approach as a best practice. However, this may be a resource intensive strategy. The use of teacher-training resources as "boosters" may facilitate sustained change in theoretical factors identified to support inclusive PE practice. Therefore, there may be enhanced value to coupling workshops with teacher-training resources in order to attain sustained positive changes in TDF domains.

4.5.4 Limitations

In order to fully consider the findings and generalizability of the current work, there are several limitations that must be considered. First, the study did not measure teachers' inclusive PE behavior. It remains largely unknown how or if changes in the TDF domains translate into improved PE practice. Although TDF domains are known to be related to behavior, they have not been identified as a proxy for behavior (Michie et al., 2005). It is difficult to measure teachers' behavior as there is an absence of validated measures of teachers' inclusive PE practice. Developing a psychometrically sound measure of teachers' behaviors within an inclusive PE setting would be of great value. Second, the possibility of selection bias cannot be overlooked. All participants in the study had worked with SWD and expressed favorable baseline variables. As such, the generalizability and broad applicability of these findings to teachers with less experience or who express less favorable baseline

variables is in question. Third, the study was underpowered to detect small or medium effects. Although an examination of effect sizes was included in the analysis strategy to further consider group differences, future research would benefit from larger and more homogenous samples of teachers. Fourth, while participants in both groups (experimental and control condition) were provided with the same instructions and time allocation to interact with teacher-training resources, the extent of engagement with the resource is unknown. It is important to consider participants' interactions with the teaching support resource as it would lend additional insight to the current findings. Lastly, though the researchers feel that the sample demographic (i.e., male/female) was indicative of Ontario teachers (Ontario College of Teachers, 2017), the underrepresentation in this sample may have influenced the data.

4.6   Conclusion

The outcomes of this study demonstrate that teacher-training resources may have the potential to positively impact theoretical factors related to teachers' inclusive PE practice. More specifically, teachers in the experimental condition demonstrated significant changes in the TDF domains Knowledge, Skills, and Behavioral regulation. We noted positive trends in other TDF domains as well. Future research should identify underlying mechanisms and how to optimally impact TDF domains. Further, there is value in moving beyond measuring theoretical factors that support inclusive PE practice and measuring teachers' inclusive PE behavior(s). The positive outcomes of this study, coupled with the suggested practicality and feasibility of teacher-training resources, call for an understanding of teachers' adoption of teacher-training resources. Though teacher-training resources have demonstrated utility, it is

necessary for teachers to engage with and adopt them into practice in order to reap their full

benefit.

Works Cited

Ahuvia, A. (2001). Traditional, interpretive, and reception based content analyses: Improving the ability of content analysis to address issues of pragmatic and theoretical concern. *Social Indicators Research*, *54*(2), 139–172.

Annand, D. (2008). Learning efficacy and cost-effectiveness of print versus e-book instructional material in an introductory financial accounting course. *Journal of Interactive Online Learning*, *7*(2), 152–164.

Avramidis, E., Bayliss, P., & Burden, R. (2002). Inclusion in action: An in-depth case study of an effective inclusive secondary school in the south-west of England. *International Journal of Inclusive Education*, *6*(2), 143–163.

Batsiou, S., Bebetsos, E., Panteli, P., & Antoniou, P. (2008). Attitudes and intention of Greek and Cypriot primary education teachers towards teaching pupils with special educational needs in mainstream schools. *International Journal of Inclusive Education*, *12*(2), 201–219.

Campbell, C. (2017). Developing teachers' professional learning: Canadian evidence and experiences in a world of educational improvement. *Canadian Journal of Education*, *40*(2), 1-33.

Campbell, J., Gilmore, L., & Cuskelly, M. (2003). Changing student teachers' attitudes towards disability and inclusion. *Journal of Intellectual and Developmental Disability*, *28*(4), 369–379.

Coates, J., & Vickerman, P. (2013). A review of methodological strategies for consulting children with special educational needs in physical education. *European Journal of Special Needs Education*, *28*(3), 333–347.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155-159.

Coleman, C. (2011). Teaching health care professionals about health literacy: A review of the literature. *Nursing Outlook*, *59*(2), 70–78.

Combs, S., Elliott, S., & Whipple, K. (2010). Elementary physical education teachers' attitudes towards the inclusion of children with special needs: A qualitative investigation. *International Journal of Special Education*, 25(1), 114–125.

Davis, E. A., & Krajcik, J. S. (2005). Designing educative curriculum materials to promote teacher learning. *Educational Researcher*, *34*(3), 3–14.

De Boer, A., Pijl, S. J., & Minnaert, A. (2011). Regular primary schoolteachers' attitudes towards inclusive education: A review of the literature. *International Journal of Inclusive Education*, *15*(3), 331–353.

Fleig, L., Pomp, S., Schwarzer, R., & Lippke, S. (2013). Promoting exercise maintenance: How interventions with booster sessions improve long-term rehabilitation outcomes. *Rehabilitation Psychology*, *58*(4), 323-333.

Forlin, C., & Chambers, D. (2011). Teacher preparation for inclusive education: Increasing knowledge but raising concerns. *Asia-Pacific Journal of Teacher Education*, *39*(1), 17–32.

Ghanizadeh, A., Bahredar, M. J., & Moeini, S. R. (2006). Knowledge and attitudes towards attention deficit hyperactivity disorder among elementary school teachers. *Patient Education and Counseling*, *63*(1–2), 84–88.

Giangreco, M. F., Suter, J. C., & Doyle, M. B. (2010). Paraprofessionals in inclusive schools: A review of recent research. *Journal of Educational and Psychological Consultation*, *20*(1), 41–57.

Giguère, A., Légaré, F., Grimshaw, J., Turcotte, S., Fiander, M., Grudniewicz, A., . . . & Gagnon, M. P. (2012). Printed educational materials: Effects on professional practice and healthcare outcomes. *Retrieved from* https://www.ncbi.nlm.nih.gov/pubmed/23076904

Godin, G., Sheeran, P., Conner, M., & Germain, M. (2008). Asking questions changes behavior: Mere measurement effects on frequency of blood donation. *Health Psychology*, *27*(2), 179-184.

Golmic, B. A., & Hansen, M. A. (2012). Attitudes, sentiments, and concerns of pre-service teachers after their included experience. *International Journal of Special Education*, *27*(1), 27–36.

Haug, P. (2017). Understanding inclusive education: Ideals and reality. *Scandinavian Journal of Disability Research*, *19*(3), 206–217.

Hodge, S., Ammah, J., Casebolt, K., Lamaster, K., & O'Sullivan, M. (2004). High school general physical education teachers' behaviors and beliefs associated with inclusion. *Sport, Education and Society*, *9*(3), 395–419.

Huijg, J. M., Gebhardt, W. A., Dusseldorp, E., Verheijden, M. W., Van der Zouwe, N., Middelkoop, B. J., & Crone, M. R. (2014). Measuring determinants of implementation behavior: Psychometric properties of a questionnaire based on the theoretical domains framework. *Implementation Science*, *9*(33), 1-15.

Jeong, M., & Block, M. E. (2011). Physical education teachers' beliefs and intentions toward teaching students with disabilities. *Research Quarterly for Exercise and Sport*, *82*(2), 239–246.

Kasser, S., & Lytle, R. (2013). *Inclusive physical activity* (2nd ed.). Champagne, IL: Human Kinetics.

Lancaster, J., & Bain, A. (2010). The design of pre-service inclusive education courses and their effects on self-efficacy: A comparative study. *Asia-Pacific Journal of Teacher Education*, *38*(2), 117–128.

Lieberman, L. J., & Houston-Wilson, C. (2017). *Strategies for inclusion: Physical education for everyone*. Champagne, IL: Human Kinetics.

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*(404), 1198–1202.

Loreman, T., Sharma, U., & Forlin, C. (2013). Do pre-service teachers feel ready to teach in inclusive classrooms? A four country study of teaching self-efficacy. *Australian Journal of Teacher Education (Online)*, *38*(1), 27-44.

Lu, C., & De Lisio, A. (2017). Specifics for generalists: Teaching elementary physical education. *International Electronic Journal of Elementary Education*, *1*(3), 170–187.

McCaughtry, N., Martin, J., Hodges Kulinna, P., & Cothran, D. (2006). What makes teacher professional development work? The influence of instructional resources on change in physical education. *Journal of In-Service Education*, *32*(2), 221–235.

McMaster, C. (2013). Building inclusion from the ground up: A review of whole school re-culturing programmes for sustaining inclusive change. *International Journal of Whole Schooling*, *9*(2), 1–24.

Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: A consensus approach. *BMJ Quality & Safety*, *14*(1), 26–33.

Morley, D., Bailey, R., Tan, J., & Cooke, B. (2005). Inclusive physical education: Teachers' views of including pupils with special educational needs and/or disabilities in physical education. *European Physical Education Review*, *11*(1), 84–107.

Ontario College of Teachers (OCT). (2017). 2017 Annual Report. Retrieved from https://www.oct.ca//media/pdfs/annualreport/Full_2017_Annual_Report_for%20MoE_EN_web.pdf

Ontario College of Teachers (OCT). (2018). Teaching Divisions. Retrieved from https://www.oct.ca/public/professional-standards/how-teachers-are-certified/initial-teacher-education/teaching-divisions

Ophea. (n.d.). About us. Retrieved from https://www.ophea.net/about-us

Osborne, J. W., & Overbay, A. (2004). The power of outliers (and why researchers should always check for them). *Practical Assessment, Research & Evaluation*, *9*(6), 1–12.

Pedersen, S. J., Cooley, P. D., & Hernandez, K. (2014). Are Australian pre-service physical education teachers prepared to teach inclusive physical education? *Australian Journal of Teacher Education*, *39*(8), 53-62.

Petrie, K., Devcich, J., & Fitzgerald, H. (2018). Working towards inclusive physical education in a primary school: "Some days I just don't get it right." *Physical Education and Sport Pedagogy*, *23*(4), 345–357.

Pivik, J., McComas, J., & Laflamme, M. (2002). Barriers and facilitators to inclusive education. *Exceptional Children*, *69*(1), 97-107.

Rhodes, R. E., Blanchard, C. M., Matheson, D. H., & Coble, J. (2006). Disentangling motivation, intention, and planning in the physical activity domain. *Psychology of Sport and Exercise*, *7*(1), 15–27.

Rhodes, R. E., Naylor, P. J., & McKay, H. A. (2010). Pilot study of a family physical activity planning intervention among parents and their children. *Journal of Behavioral Medicine*, *33*(2), 91–100.

Rhodes, R. E., Spence, J. C., Berry, T., Deshpande, S., Faulkner, G., Latimer-Cheung, A. E., . . . & Tremblay, M. S. (2016). Understanding action control of parental support behavior for child physical activity. *Health Psychology*, 35(2), 131-140.

Rhodes, R. E., & Yao, C. (2015). Models accounting for intention-behaviour discordance in the physical activity domain: A user's guide, content overview, and review of current evidence. *International Journal of Behavioural Nutrition and Physical Activity, 12*(9), 1–15.

Roh, H. K. (2002). The practical realities of inclusive physical education and cognition of physical education teachers toward inclusive physical education in Korea. *Journal of Korean Adapted Physical Activity & Exercise*, *10*(2), 13–26.

Segall, M. J., & Campbell, J. M. (2012). Factors relating to education professionals' classroom practices for the inclusion of students with autism spectrum disorders. *Research in Autism Spectrum Disorders*, *6*(3), 1156-1167.

Shao, J., & Zhong, B. (2003). Last observation carry-forward and last observation analysis. *Statistics in Medicine*, *22*(15), 2429–2441.

Sharma, U., Forlin, C., & Loreman, T. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. *Disability & Society*, *23*(7), 773–785.

Tristani, L., & Bassett-Gunter, R. (under review). Making the grade: Teacher training for inclusive physical education. *Quest*.

Tristani, L., Sweet, S., Tomasone, J., & Bassett-Gunter, R. (under review). Applying the theoretical domains framework and COM-B to examine theoretical factors related to teachers' intentions to implement inclusive physical education. *European Physical Education Review*.

Tristani, L., Tomasone, J., Gainforth, H., & Bassett-Gunter, R. (in press). Taking steps to inclusion: A content analysis of a resource aimed to support teachers in delivering inclusive physical education. *International Journal of Disability, Development and Education*.

Wakefield, M. A., Loken, B., & Hornik, R. C. (2010). Use of mass media campaigns to change health behaviour. *The Lancet*, *376*(9748), 1261–1271.

Wang, L., Wang, M., & Wen, H. (2015). Teaching practice of physical education teachers for students with special needs: An application of the theory of planned behaviour. *International Journal of Disability, Development and Education*, *62*(6), 590–607.

Westwood, P. (2018). *Inclusive and adaptive teaching: Meeting the challenge of diversity in the classroom*. New York, NY: Routledge.

Chapter 5: Examining Factors Related to Teachers' Decision to Adopt Teacher-Training Resources for Inclusive PE

5.1   Background

Teachers play a critical role in the effective inclusion of SWD in PE classrooms. They are tasked with the creation of effective inclusion strategies that facilitate a safe PE environment and accommodate all students' needs (Belley-Ranger et al., 2016), while enhancing overall PA (Sallis et al., 2012). However, teachers widely communicate feelings of insufficient training or unpreparedness in delivering PE for SWD (Vickerman & Coates, 2009). Evidence-based professional development, including training tools and resources, are essential in supporting teachers to facilitate inclusive PE (Sokal & Sharma, 2014). Training resources have been shown to be effective in expanding teachers' knowledge and providing opportunities to learn about optimal pedagogical practice (DeCorby, Halas, Dixon, Wintrup, & Janzen, 2005). Indeed, awareness, acquisition, and implementation of effective training resources support teachers in creating a plan of action to optimally facilitate PE for students with disabilities (Danielson, 2011, p. 57). Conversely, when teachers are not provided with adequate training resources, negative or neutral attitudes about inclusion are often present along with a lack of commitment to create an inclusive classroom (Avramidis, Bayliss, & Burden, 2000).

Acknowledging the value of teacher training, various PE focused organizations (e.g., Ophea, NCHPAD, SPARK)[16] have created training resources to help teachers facilitate inclusive PE. Despite these efforts to support teachers with inclusive PE training resources,

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[16] Ontario Physical and Health Education Association; National Center on Health, Physical Activity and Disability Sports; and Play & Active Recreation for Kids, respectively.

effective inclusive PE practices are often thwarted, in large part due to teachers' perceptions regarding a lack of resources (Sharma, Forlin, & Loreman, 2008). Inclusive PE training resources can only be effective when teachers are aware of them and adopt them for their practice. Having a comprehensive understanding of barriers and facilitators of resource uptake and adoption can inform strategies to develop and disseminate optimally effective resources (Tomasone, Ginis, Estabrooks, & Domenicucci, 2015) for improved inclusive PE practice.

There is little extant research on factors related to teachers' decisions to adopt inclusive PE training resources. The Diffusion of Innovations theory (DOI; Rogers, 2003) provides a useful framework to contextualize and understand factors related to teachers' decision to adopt inclusive PE training resources. The DOI seeks to explain the systematic process of how a new idea, object, or innovation (e.g., inclusive PE training resource) is adopted (e.g., in a PE classroom) by stakeholders (e.g., teachers). Teachers must move through a process whereby they a) initially become aware of and interested in an inclusive PE training resource, b) understand how the inclusive PE training resource works and where/how it fits within their practice, and c) adopt and/or reject the use of the inclusive PE training resource in regular practice.

Their adoption depends on prior conditions that foster their awareness of a resource and a perceived need for additional knowledge or resources (Rogers, 2003). There are four prior conditions considered to be antecedents of the adoption process and are, therefore, important to consider in the design and dissemination of a resource. Within the context of the current study, the prior conditions that affect teachers' adoption of an inclusive PE training resource are: a) teachers' previous practice or experience with teaching strategies

for inclusive PE, b) teachers' needs or problems, such as perceived voids, barriers, or difficulties practicing inclusive PE, c) teachers' innovativeness or how incipient teachers are in adopting a new inclusive PE training resource, and d) the norms of the social system, such as established inclusive PE behaviors or practices among teachers and other school personnel.

In addition to taking into account prior conditions, the DOI outlines five systematic stages that comprise the innovation-decision process and contribute to a resource being adopted in practice (Rogers, 2003): knowledge, persuasion, decision, implementation, and confirmation. In the *knowledge stage,* the teacher becomes aware of the resource and seeks further information. In the second stage, *persuasion,* a teacher's attitudes are shaped, either positively or negatively, towards the resource. Within this stage, five characteristics of the resource work to shape the teacher's attitudes: relative advantage, complexity, compatibility, trialability, and observability. Relative advantage is the degree to which the teacher sees the resource as an improvement over existing resources or practice. Complexity reflects how difficult the teacher perceives the training resource to be with regard to use and understanding. Compatibility refers to the perceived consistency between the resource and the values, needs, and experiences of the teacher. Trialability reflects the extent to which the teacher believes they can test the resource prior to adopting it. Lastly, observability refers to the extent to which the results or benefits of using the resource in question are visible to the teacher (i.e., learning new methods, activities, or ways to provide inclusive PE to students with disabilities). The *decision stage*, is where the teacher decides to adopt or reject the resource. If the teacher rejects the resource, then they would not apply it in practice. If the teacher adopts the resource, then they will enter the *implementation stage* and begin to use

the resource regularly. Lastly, in the *confirmation stage* the teacher seeks approval or support for their decision (e.g., affirmation or external validation from peers/colleagues, and/or through self-assessment or reflexive practices). The current study does not apply the DOI in its entirety, rather, the study considers only what directly facilitates or preceded the teachers' decision to adopt a teacher training resource (i.e., prior conditions, knowledge, and persuasion).

While the DOI has not previously been used to understand teachers' decisions regarding the adoption of inclusive PE training resources, but previous research regarding the adoption of other innovations in a school system can be informative. For example, the DOI has been applied as a framework to examine the adoption of school-based physical activity policies. Webster et al. (2013) identified the key factors related to teachers' adoption of the policy: a) school support and b) training resources that were perceived to be compatible with teachers' values and past experiences and simple to use and understand. Dingfelder and Mandell (2010) identified several factors as key to facilitating the adoption of interventions for children with autism: a) involving the stakeholder in the development of the innovation (i.e., targeting prior conditions), b) planning for intervention maintenance through delivering information, training, and tools (trialability), and c) targeting issues that are salient to usual practice (i.e., compatibility). These earlier studies identified modifiable factors that have increased the adoption of interventions related to either school PA or SWDs, and may inform tangible strategies for the development and dissemination of resources that support teachers in facilitating inclusive PE. Although these findings can provide a foundational understanding, no research has specifically examined factors related to teachers' decision making regarding the adoption of inclusive PE training resources.

Guided by the DOI framework, in this current study, the principle researcher identified factors related to teachers' decision making regarding the adoption of inclusive PE training resources. In applying the DOI as a framework, we will consider only the stages and characteristics that directly facilitate or precede the teachers' decision to adopt a teacher training resource. Specifically, we seek to understand factors related to prior conditions, as well as knowledge and persuasion processes that affect teachers' decision making and inform the development and dissemination of teacher training resources.

5.2   Methods

5.2.1   Research Setting and Study Design

In this study, we employ a phenomenological approach to understand the factors affecting teachers' decisions to adopt inclusive PE training resources. This study took place within the province of Ontario, Canada. Approximately 44% of Canadian school-aged children with an identified disability reside in Ontario (Statistics Canada, 2013), and Ontario has a variety of policies and legislation promoting and supporting the full inclusion of SWD in all education settings, including PE (e.g., Bill 82, "Each Belongs," Accessibility for Ontarians with Disabilities Act, PPM No. 119; Accessibility Ontario, n.d.; Hansen, Leyden, Bunch, & Pearpoint, 2006; Ontario Ministry of Education, 2009, 2018). Ontario is a geographically rich location for research regarding strategies to facilitate inclusive PE for SWD. Ontario is also home to Ophea, which is a not-for-profit with strong collaborative partnerships with "school boards, public health, government, non-government organizations, and private sector organizations to develop groundbreaking programs and services that support healthy, active schools and communities" (Ophea, 2015, para. 2). Ophea is

recognized as a dedicated leader in the creation of training resources to support teachers in delivering PE, as well as facilitating inclusive PE for SWD (Ophea, 2015).

Acknowledging the need for inclusive PE training resources, Ophea created *Steps to Inclusion*, a 30-page online inclusive PE resource, aimed at enhancing teachers' understanding and perceptions of SWD (Ophea, 2010). *Steps to Inclusion* is intended to "simply and clearly outline the necessary steps to achieve inclusion for children with disabilities" in a PE setting (Ophea, 2010, p. 5). The resource is intended to serve as a simplified guide and starting point for teachers who want to implement inclusive PE for SWD. For the current study, teachers were given *Steps to Inclusion* because it is a concrete example of an inclusive PE training resource, and as such, can inform a meaningful discussion of factors related to the adoption of an inclusive PE training resource. Pragmatically, the established relationship between Ophea and school communities could be helpful in translating the results of the study into practice (e.g., inform future iterations and the dissemination of *Steps to Inclusion* to improve teacher adoption). More broadly, results could also inform the development, dissemination, and adoption of other tools and resources within and beyond Ontario.

5.2.2   Participants

Participants included Ontario generalist elementary teachers (n=14) and secondary PE specialist teachers (n=6).[17] Additional participant demographic information can be found below in Table 14. The inclusion of generalist elementary teachers was imperative as only

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[17] Elementary teacher: a teacher trained to educate students from grades 1–8.
Secondary teacher: a teacher trained to educated students from grades 9–12.
Generalist: a teacher who has broad knowledge base in all subject areas. This teach has course offering in PE, however, this training is not intensive (Faulkner et al., 2008).
PE specialist: a teacher who has received specialized PE training; typically pursued PE or PE-type training (e.g., Kinesiology) IN undergraduate training prior to completing a Bachelor of Education (Spence et al., 2004).

42% of Health and Physical Education at the elementary level in Ontario is delivered by a

specialist teacher (People for Education, 2017). Teachers were excluded if they a) had been

retired or away from the classroom since 2010 or earlier,[18] b) were not proficient in English,

and c) had taught in a segregated classroom or school. Participants were recruited through

snowball sampling (Noy, 2008) whereby initial participants were contacted through an

existing list of teachers who had previously participated in research projects. Common

social media platforms (e.g., Facebook, Twitter) were also used to recruit teachers.

Table 14. Participant demographics

Variable	Frequency	Percent
Sex		
Male	5	25%
Female	15	75%
Teaching contract (years)		
Supply teacher or long-term occasional	8	40%
Full-time	12	60%
Subject level*		
Primary	11	55%
Junior	17	85%
Intermediate	12	60%
Senior	6	30%
PE Qualification		
Yes	6	30%
No	14	70%
Experience teaching students with disabilities		
Yes	20	100%

*Ontario teachers are initially qualified to teach two consecutive divisions (i.e., Primary/Junior, Junior/Intermediate, Intermediate/Senior) but have the ability to later become certified in other divisions (OCT, 2018). Teachers holding qualifications in the aforementioned divisions are authorized to teach the following:
Primary: kindergarten to grade 4
Junior: grades 4–6
Intermediate: grades 7–10
Senior: grades 11–12
Because of this, the numbers in this category add up to more than 20.

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[18] 2010 was the year *Steps to Inclusion* was released.

5.2.3 Procedure

Semi-structured interviews were employed to obtain detailed and in-depth data related to teachers' decision making regarding the adoption of inclusive PE training resources. Prior to participation in a qualitative interview, each participant received an electronic copy of S*teps to Inclusion* (https://www.ophea.net/product/steps-inclusion#.Wr1E32YZN0s). They were given one week to read and interact with *Steps to Inclusion* prior to their scheduled interview. All interviews took place via telephone in December 2017 and were digitally recorded. A semi-structured interview guide was developed by drawing on academic literature that utilized the DOI in a qualitative manner (Jwaifell & Gasaymeh, 2013; Kebritchi, 2010; Tomasone et al., 2015), as well as on research concerning inclusive education and PE. Prior to beginning the interview, the principle researcher worked to build rapport with the participants by utilizing techniques outlined in previous research (e.g., engaging in pleasant conversation, being courteous, asking broad questions about participants' career; Gremler and Gwinner, 2008). These informal conversations allowed her to move seamlessly into the interview questions outlined in the interview guide. Following the completion of the interview, participants were given the opportunity to share/address any additional thoughts or concerns. The interview guide was designed to capture themes related to prior conditions, as well as concepts related to knowledge and persuasion as operationalized within the DOI framework. Specifically, three broad, or higher-order themes were defined a priori: a) prior conditions that influence resource awareness and need (*prior conditions*), b) factors related to teachers' knowledge of inclusive PE training resources, including *Steps to Inclusion* (*knowledge stage*) and c) factors related to teachers' attitudes towards inclusive PE training resources (*persuasion*

stage). Scaffolded upon these higher-order themes were probes allowing for further investigation of ideas and deeper conversation (see Table 15 for sample questions). They were reflective of an existing structure of subcategories as specified by Rogers (2003). The subcategories provided additional detail on the factors researchers perceived to influence teachers' decision making regarding resource adoption.

The qualitative approach allowed the principle researcher to elicit discussion on the key study objectives, while also permitting organic conversation of broader themes and ideas (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). Interviews lasted between 27 and 67 minutes each (mean ~48 minutes). Participation was voluntary and informed consent was obtained prior to the interview. Participants received a small honorarium ($20) at the conclusion of the interview. All procedures were approved by the York University's Research and Ethics Board.

Table 15. Sample questions

Prior conditions	
Previous Practice	When looking for an inclusive PE training resource, can you walk me through the steps you typically take. - Where do you begin? - Why do you choose to start your search there?
Factors related to teachers' knowledge of inclusive PE training resource(s)	
Awareness of inclusive PE resources	Can you talk to me about how you find out about new inclusive PE training resources that are available?
Factors related to teachers' attitudes towards inclusive PE training resources	
Complexity	What are the aspects of the format and structure [of the inclusive PE training resource] that you specifically like? - Why

5.2.4   Data Analysis

Interviews were digitally recorded and transcribed verbatim. The researchers used a

content analysis approach to systematically code and categorize text. This analysis approach

was chosen namely because it has been identified as well-suited to examine complex

phenomena (Elo & Kyngäs, 2008) and is suitable for exploratory work (Green &

Thorogood, 2004). Further, data was analyzed deductively (Elo & Kyngäs, 2008) to allow

for interpretation of the data but also to expand and build upon current understanding.

5.2.4.1 Rigor

Several steps were taken to enhance the trustworthiness of data (Shenton, 2004).

Prior to commencing data collection, the study design and interview questions were

reviewed by individuals in the field of education. Additionally, the primary investigator

engaged in ongoing reflexive practice throughout the data collection and analysis processes;

through conversations with a close colleague, she worked to understand her position both as

an academic investigator and as an outsider to inclusive PE and noted important insights in a

research diary. Through these conversations and reflexive practice, the researcher became

inherently aware of the complexity of her outsider position. Having no experience in a

primary or secondary school PE setting, the researcher acknowledged her limited knowledge

of language characteristic of the teaching profession. Moreover, she thoughtfully exercised

sensitivity and vigilance when discussing teaching culture and practice. In her academic

position and having studied PE and individuals with disabilities intensely for several years,

the researcher also recognized complexities as they pertained to power and the division this

could cause between herself and participants. An additional level of intricacy is added when

considering that the researcher has a close family member with a disability. The researcher

worked to disentangle her perceptions and biases and considered self-disclosure related to

this point. However, upon more in-depth discussions with close colleagues, the researcher

chose not to disclose information to participants as she felt this information could influence

the interview content. During data collection and analysis, the primary investigator engaged

in frequent debriefing sessions with both the secondary author and colleagues in the

teaching profession. This bolstered the trustworthiness and credibility of the study, and the

primary investigator was able to substantiate ideas and foster new interpretations because of

this sounding board.

The senior author is an expert in the field of behavior change and is familiar with the

DOI framework. In order to address transferability, the data was collected over a short

timeframe (<1 month) lowering the risk of inconsistency across data. Lastly, participants

were given an opportunity to review transcripts and modify any information they felt to be

inconsistent with their intended communication. Participants did not request any

modifications.

5.3   Results

The results were organized into the three higher-order themes guided by the DOI

framework (see figure 8): 1) prior conditions that influence resource awareness (*prior*

conditions), 2) factors related to teachers' knowledge of teacher training resources

(*knowledge stage*), and 3) factors related to teachers' attitudes towards inclusive PE training

resources (*persuasion stage*). Each higher-order theme was accompanied by lower-order

categories. Higher-order themes are typically central to the phenomena and work to provide

a general overview or conceptualization of the experience, whereas lower-order categories

are organized around high-order categories but flesh out finer or intricate details (Glasser &

Straus, 1967). This hierarchal coding scheme allowed the researchers to analyze the text at varying levels of specificity.

Figure 8. Higher-order themes and associated lower-order categories

Themes

Lower-order categories

Previous practice and experience

Felt needs/problems

Prior conditions that influenced resource awareness and need

Innovativness

Social Norms

Awareness of inclusive PE resources

Factors related to teachers' knowledge of inclusive PE resources

Perceived purpose of the resource

Complexity

Compatibility

Factors related to teachers' attitudes towards teacher training resources for inclusive PE: Persuasion stage

Trialability

Relative Advantage

5.3.1   Prior Conditions that Influence Resource Awareness and Needs

Prior conditions include antecedents that influence teachers' decision making regarding the adoption of an inclusive PE training resource. Guided by the DOI, decision making around adoption of teacher training resources is dependent upon prior conditions, or factors, that either foster or inhibit awareness of the resource or highlight the need for additional knowledge concerning it. Prior conditions include previous experience, a felt need or problem, innovativeness, and social norms (Rogers, 2003).

5.3.1.1 Previous Practice and Experience

Rogers (2003) asserts that previous practice provides a familiar standard with which an innovation (i.e., an inclusive PE training resource) can be interpreted and compared to other available resources. All the teachers within the sample had previously delivered inclusive PE across a wide spectrum of needs and echoed what one teacher said: "it's not uncommon to have a student with a disability in a physical education classroom." This breadth of experience led to a unique discussion about decision making vis-à-vis the adoption of inclusive PE training resources. When asked about previous experience in searching for inclusive PE training resources, teachers often reported consulting web-based sources (e.g., YouTube, blogs, websites), but as one teacher mentioned, "Google isn't always your best friend." Teachers expressed a need for the increased availability of resources put out by trustworthy organizations. When probed further on trustworthiness, participants often identified Ophea as a trustworthy organization and suggested the organization is "supported by my department head and it is just something you learn to go to as a teacher."

5.3.1.2 Felt Needs/Problems

Rogers (2003) suggests that when individuals become aware of a problem or disparity within their current practice, the ways to fulfill their need for vital or tailored content. The likelihood and rate of adoption increase when the individual feels as though the innovation meets their needs. With regard to teachers' needs specific to inclusive PE, teachers believed that they were facilitating inclusive PE and serving students with disabilities to the best of their abilities. As one teacher commented, "With the time, resources and patience [laughs] that I have, I am doing my best." However, they identified some shortcomings in their current practices that spoke to their needs and problems. Specifically, teachers mentioned an abundance of existing resources but noted the lack of vital content. Demonstrating this idea, one teacher remarked:

> Everywhere I look in my office there are books, documents, curriculum,
> policies, I can go on and on. But I just feel like when I am looking for
> something specific because I need to make a modification or something for
> one of my students [with a disability] I don't have what I need [sigh].

5.3.1.3 Innovativeness

Innovativeness is described by Rogers (2003) as the stakeholder's perception that the innovation is new or novel. Teachers did not perceive the teacher training resource to be novel nor did teachers believe that adopting the resource would advance their pedagogical practice of inclusive. This notion is reflected by the perception that, as one teacher said, it was customary to "get resources like this (e-book) all the time."

With regards to the content of *Steps to Inclusion*, teachers commented on the vague and redundant information. For example, one teacher questioned the distinctiveness or individuality of the resource:

It's good [the information], but what makes it special or unique? It isn't offering me anything fresh…like I want more specifics. Like if I have a student with this disability I can do these types of activities, or this type of disability I can do this.

5.3.1.4 Social Norms

Rogers (2003) suggests that social norms, accepted standards of practice, and expected conduct are established by an organization's social system (e.g., colleagues, peers, staff, clients). Two general ideas emerged when discussing social norms: a) conventional behaviors and practices concerning inclusive PE and b) influential sources of social norms.

Firstly, discussions with teachers clearly illustrated the landscape of inclusive PE and classroom norms. Although "inclusion is a part of everything," the availability of student resources varied among classrooms, though similar sentiments emerged among teachers. Elementary teachers spoke about their initial efforts to appropriately modify and/or adapt their teaching for students with disabilities. These teachers spoke about the "ups and downs and 'yes this works, no this doesn't' [that they experienced] throughout the year." Teachers also mentioned that it was typical to turn to colleagues (e.g., teachers and educational assistants) to help alleviate pressure and provide classroom support for them. Specifically, discussions highlighted that it was not uncommon to "talk to other teachers who have had them [SWD] in the past and you sort of learn from them." The role and support garnered from educational assistants was best reflected in the following comment:

EAs [educational assistants] can be a god-send. They know their students so well so if we are playing a game or whatever and I overlook something about that student [with a disability] the EA can help me think of something on the fly. Or sometimes I will have multiple smaller games happening in the gym at the same time . . . the EA can help me monitor the students and make sure everyone is participating.

Secondly, teachers spoke about various sources of school norms, namely those individuals in leadership roles that influence their decision to adopt a teacher training resource for inclusive PE. Specifically, teachers spoke about how inclusive education had been integrated into the school culture through their school's improvement plan and further promoted by administrative staff. One teacher described this:

Your principal and your administration has to be the big ones because if they don't promote it, then what is going to make a teacher want to do with it? Um, and especially because they're the ones that promote the policies of the school.

Depending on the school, the principal and the principal or the VP [vice-principal]. They make certain things their passion projects and make it the SIP [school improvement plan]. . . . Adding it to the SIP gives the teachers and staff concrete goals that you're working toward.

5.3.2   Factors Related to Teachers' Knowledge of Teacher Training Resources for Inclusive PE

In the knowledge stage, stakeholders become aware of the innovation (i.e., inclusive PE training resource) and gain an understanding of how it functions (Rogers, 2003). An

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awareness of inclusive PE training resources and how they function is imperative, as unfamiliarity can impede adoption.

5.3.2.1 Awareness of Teacher Training Resources for Inclusive PE

When discussing their awareness of teacher training resources for inclusive PE, teachers did not make reference to specific materials or resources. Most teachers spoke about using their colleagues as a "chain of information" to generate ideas to effectively modify or adapt programming to fit the needs of their students with disabilities. One teacher remarked:

> For me specifically if I were trying to revamp or trying to fit a program, I start by talking with other teachers like maybe with similar or a little bit more experience and see what they have done and what worked.

When asked prior to the study about their awareness of the inclusive PE training resource *Steps to Inclusion*, nine of the 20 teachers said that they had been exposed to the resource in the past. Of these nine teachers, resource exposure most often came "in teacher's college but not, not outside teaching or from other teachers." The remaining 11 teachers were ambiguous about their awareness of *Steps to Inclusion* prior to the study. They expressed uncertainty when discussing when or if they had encountered *Steps to Inclusion* in the past. For example, "yeah, I think this [*Steps to Inclusion*] has come by my desk once or twice."

5.3.2.2 Perceived Purpose of the Resource

Teachers were asked what they perceived the purpose of *Steps to Inclusion* to be. Though their responses varied, they agreed, as one teacher said, that the resource was to be used "more of a guide . . . to plan for certain situations" concerning inclusive PE. Teachers

noted that the resource was a good point of departure. One teacher described how it helped her understand "the different disabilities, some organizations, [and] how to speak with parents" as well as how to identify the appropriate language to use to "build a very trusting and accepting environment." Teachers also spoke about how *Steps to Inclusion* could help them overcome nervousness or fear when contacting organizations about their resources.

Teachers generally agreed on the intended teaching demographic that would most benefit from this resource, new or emerging teachers. As one teacher said:

> if you're a new teacher . . . and you don't really have the opportunity to familiarize yourself with the process, it [*Steps to Inclusion*] could be seen as something that's um, that's useful.

New teachers wanted to be viewed as competent in their new role, and so they consulted *Steps to Inclusion* so as not to trouble colleagues with their inclusive PE planning.

5.3.3 Factors Related to Teachers' Attitudes Towards Inclusive PE Training Resources: Persuasion Stage

During the persuasion stage, teachers' attitudes about a resource are shaped, either positively or negatively. Nested within the persuasion stage are characteristics that are perceived to facilitate adoption. That is, teachers' favorable perceptions of the resource's characteristics will maximize the likelihood that teachers will decide to adopt a resource (i.e., complexity, compatibility, trialability, observability, and relative advantage; Rogers, 2003).

5.3.3.1 Complexity

Rogers (2003) regards complexity as the degree of ease or difficulty of using a particular innovation. If a teacher sees an inclusive PE training resource as difficult or complex to use, they will be less likely to adopt the resource in their practice. Overall, teachers believed the teacher training resource a) was minimally complex and "almost too easy," b) the text was easy, simple, and straightforward to read, c) the resource contained thought-out diagrams "that were basic, uncomplicated," and d) the resource had flowcharts "that kind of help you along."

An animated discussion emerged regarding the feasibility of use concerning the teacher training resource and ideas concerning alternative modes for delivery. Many teachers spoke about centralizing inclusive PE information on a website or search browser where conforming hits were vetted for credibility. Such a website would both simplify and accelerate the search process by providing teachers with the ability to search for particular disabilities and allowing for remote and easy access (e.g., during planning time or when teachers were not at school). Teachers also spoke about leveraging a web-based format to run digital seminars and videos, and/or using video-feedback to present and learn about inclusive practice in an increasingly pragmatic structure. Teachers believed that such presentation styles of inclusive PE would reduce the complexity and increase the relevance of the resource to their own pedagogical practice. This would, in turn, support their decision to adopt a resource.

5.3.3.2 Compatibility

Rogers (2003) identifies compatibility as how congruent an innovation is with the stakeholder's (i.e., teachers) current practice. During the interviews, it became apparent that

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the design of the resource, along with the presentation of its content, affected teachers'

decisions to adopt the resource. Teachers reported feeling inundated with reading in order to

stay on top of current teaching practices and guidelines. Teachers suggested, however, that

often they wanted to "quickly reference something" rather that scouring "a long-winded

document" for pertinent information.

Though teachers did not consider *Steps to Inclusion* novel, they considered inclusive

PE training resources essential for the advancement of their pedagogical practice, adding

that when resources come from "a reputable organization . . . it helps our cause [inclusive

PE]."

5.3.3.3 Trialability

Rogers (2003) discusses trialability as the stakeholder's (i.e., teachers) ability to test

the innovation (i.e., inclusive PE training resource) prior to full implementation. Teachers

who have the opportunity to test and experiment with an inclusive PE training resource may

be more inclined to adopt the resource in their practice. Though teachers were provided with

an online copy of the inclusive PE training resource, it was unclear to what extent they

interacted with the resource for their classroom and/or lesson planning preparation. It was

apparent, however, that the teachers reflected on the potential value and usability of the

inclusive PE training resource within their daily practice and discussed specific content.

With regards to activities that promoted inclusive PE by building a rapport among students,

teachers highlighted content that pertained to icebreakers, mentioning that they are "always

great to have, never ever enough…I could fit them into a gym class or when it gets nice how

I could use them on the blacktop or grass."

Teachers also commented on the usefulness of the resource from an administrative perspective. One teacher noted how she could use it in her interactions with parents: "I don't really call parents. That is usually the SERT's [Special Education Resource Teacher] job but this parent guide could be useful during parent-teacher interviews."

5.3.3.4 Relative Advantage

Rogers (2003) identifies relative advantage as the degree to which an innovation is superior to other existing alternatives. If a teacher does not see the relative advantage of a teacher training resource, they will not adopt it. Many of the teachers commented that new resources provide a relative advantage if they include the following:

a) A starting point and/or a stepping stone for those teachers who have yet to have a student with a disability in their PE classroom. As one teacher said, "you need to do a lot as a teacher and sometimes you don't know where to start, maybe this [*Steps to Inclusion*] could help."

b) An overview of the various disability types. "There's so many different ones [disabilities]," one teacher commented. An overview would provide teachers with "lingo" or appropriate "describing words", which would enhance the relative advantage of teacher training resources.

c) Links or direction to additional resources in order for teachers to know " where to look next."

Additionally, teachers spoke about content that would be advantageous in inclusive PE training resources. Addressing these issues can positively influence teachers' decisions

to adopt an inclusive PE training resource. Teachers' quotations will be used to demonstrate the issues below.

a) Compounded needs.

"Students don't just have this or that [disability] . . . they don't fit into one category . . . so how to address those more complex needs is usually where I need the most help."

b) The needs of students with higher needs or difficult cases.

"I want to have all students participating of course but how about those, those extreme cases? One girl in my class a few years back couldn't move her arms or legs. What was I supposed to do then?"

c) Specific modifications and adaptations.

"Sometimes I find it difficult to think of ways to change the games or activities that we play. Like having somewhere that shows you ok, you're doing basketball and you have a student who is blind, visually impaired, sorry, this is what you can, do or you're doing volleyball and you have a student in wheelchair, here are some things you can do to change and help."

5.4   Discussion

The purpose of the current study was to identify factors related to teachers' decision whether to adopt inclusive PE training resources, within the framework of Rogers' (2003) DOI theory. The study sought to elucidate prior conditions as well as factors related to knowledge and persuasion that affect teachers' decision making. An improved understanding of factors that influence teachers' decisions to adopt resources can inform strategic planning regarding the development (or revision) and dissemination of resources.

Broadly speaking, all teachers in the study had previous experience with inclusive PE teacher-training resources. They perceived teacher training resources to be largely redundant in format and lacking originality and innovativeness. Teachers identified *Steps to Inclusion* as minimally complex and straightforward and a good planning tool for emerging teachers. Teachers suggested, however, the need for a more interactive and reliable web-based resource. Additionally, teachers identified the need for content about situations involving SWD presenting with compound or higher needs, as well as suggestions for specific modifications and adaptations in these cases. In light of teachers' concerns, we suggest three areas of intervention regarding improved adoption of teacher training resources: a) leveraging educational leaders and professional support networks, b) improving communication channels, and c) other strategies to facilitate adoption. These are discussed in detail below.

5.4.1 Leveraging Educational Leaders and Professional Support Networks

Rogers (2003) describes social norms as established behaviors of members of the social group in question. Teachers identified personnel within leadership roles (e.g., principals and department heads) as important in establishing the norms of the social system and thus play a critical role in supporting inclusive PE. Educational leaders have the comprehensive responsibility for the formation of school culture (Hallinger, 2005; Marks & Printy, 2003) and influencing instructional practices (Habegger, 2008; McGuigan & Hoy, 2006). Principals have complex roles within the context of inclusive education as visionaries, advocates, innovators, interpreters, and organizers (Cobb, 2015). To date, however, there has been no inquiry regarding systems or processes to leverage educational leaders in influencing teachers to adopt inclusive PE training resources. In comprehensive

school health literature, principals have been viewed as "resource brokers" who mediate the exchange of knowledge to members of their professional network (e.g., teachers; Roberts et al., 2016). Given the role of educational leaders, there may be merit in finding effective ways to promote evidence-based inclusive PE training resources to them so that they can, in turn, influence teachers' decisions regarding which resource(s) to adopt in their classroom practice. Moreover, it may be beneficial for professional organizations to position themselves as content leaders within specific educational domains, such as PE, and connect with institutional leaders (e.g., department heads and principals) in order to efficiently disseminate evidence-based resources to the classroom teacher. For example, it may be advantageous for leading PE organizations (e.g., Ophea, SPARK) to seek to more broadly connect with principals in order to optimize the adoption of training resources. An improved understanding of educational leaders and professional support networks as knowledge brokers who support the adoption of inclusive PE training resources is required.

5.4.2 Improved Communication Channels

Closely aligned with social norms are communication channels that support adoption. Teachers talked about relying on their colleagues for information, direction, and suggestions of resources. Although sharing and suggesting resources is not distinctively detailed in the literature on inclusion, inter-professional collaboration, co-teaching, and peer support have been extensively explored (Ainscow, 2000; Cook, Sorensen, Hersh, Berger, & Wilkinson, 2013; Dettmer, Knackendoffel, & Thurston, 2013; Gebhardt, Schwab, Krammer, & Gegenfurtner, 2015; Solis, Vaughn, Swanson, & Mcculley, 2012). It has become accepted that collaboration enhances the success of inclusive practice and the success of students with disabilities (Murawski, 2008). More specifically, providing and fostering collaborative

opportunities for teachers to share information (e.g., regarding teacher training resources) is a powerful professional development strategy (Ainscow, 2000) whereby enhanced adoption of teacher-training resources can occur. The power of collaboration for inclusive education has been identified broadly within the literature (Ainscow, 2000; Cook et al., 2013; Dettmer et al., 2013; Gebhardt et al., 2015; Solis et al., 2012). Moving forward, however, an understanding of the emergence of these communication channels and how to best foster them in order to facilitate the adoption of inclusive PE training resources is warranted.

5.4.3   Other Strategies to Facilitate Adoption

Finally, teachers suggested approaches or platforms that would accommodate their needs and facilitate their use of inclusive PE training resources. Teachers specifically suggested that a centralized website along with hands-on learning opportunities would reduce resource complexity and enhance trialability. With regards to a centralized website, teachers desired an online platform, rather than a static resource, that would allow them to quickly and efficiently locate information germane to their needs (e.g., specific ways to modify activities based on students' varying abilities). Moreover, teachers suggested that the information presented in any given resource be vetted for quality and validity, as this would improve the compatibility of the resource with teachers' current practice. In addition to the importance of insuring credibility (Cook et al., 2013), researchers have recognized that the internet changes the way teachers plan and implement lessons (Kalantzis & Cope, 2010; Gee & Levine, 2009) as it provides quick access to information when teachers feel inadequately supported (Sawyer & Myers, 2018). Supporting teachers through the development of a centralized website to complement current inclusive PE training resources should be investigated as a possible means to facilitate teachers' adoption of such resources.

Additionally, teachers cited a need for hands-on experience to supplement resource content. This idea is consistent with research highlighting the positive impact of hands-on or field training and teachers' perceived usefulness of such experiences (Hardin, 2005). Although some teachers receive some hands-on training at the pre-service (Van Laarhoven et al., 2006) and in-service (Lee, 2005) stages, the structure, content, and execution of these experiences is largely unknown. The profound impact that hands-on experience can have is supported within current literature (Tristani & Bassett-Gunter, under review; Van Laarhoven et al., 2006) and, therefore, future inclusive PE training resource development should be coupled with hands-on experience (e.g., workshops or practicums) in order to provide teachers with diversified learning opportunities. Through hands-on experience, teachers could explore the application of the resource within a practical setting, improving trialability and enhancing the overall adoption of the resource during their planning of classroom activities.

5.4.4 Limitations

The diversity of the teacher sample (i.e., various levels and years of teaching experience) was a strength of the study. However, all teachers worked in Ontario, in particular, in the Greater Toronto Area. While their narratives illustrate broad themes that are not geographic centric, teachers' experiences may differ based on geographical location (e.g., among provinces, urban vs. rural area) due to access to resources, support organizations, and/or opportunities for professional development.

There is no gold standard with regards to sample size for qualitative studies, and thus researchers tend to determine sample size on the principal "that N should be sufficiently large and varied to elucidate the aims of the study" (Malterud, Siersma, & Guassora, 2016,

p. 1753). Though the number of teachers within this study allowed researchers to achieve their objectives, comparisons between teachers (e.g., pre-service vs. in-service) could not be undertaken. Due to informational redundancy, the researchers do, however, feel that data saturation was achieved. There may be value in exploring if a delineation exists between the adoption experiences of pre-service and those of in-service teachers. Moreover, the principal investigator acknowledges the limitations presented because of her lack of practical experience in the realm of education. The coding and subsequent interpretations of the transcripts were analyzed from a certain perspective, and personal bias may have influenced analyses (Blair, 2015). Lastly, participants were provided with a sample inclusive PE training resource, *Steps to Inclusion*, prior to the interview, which may have worked to limit the generalizability of the results more broadly.

5.4.5 Pragmatic Implications and Future Directions

The qualitative analysis provides insight into pragmatic considerations related to teachers' decisions concerning the adoption of inclusive PE training resources. Beyond the passive adoption and dissemination strategies currently employed, active dissemination strategies tailored to the teaching demographic should be utilized. Though passive strategies are more cost effective, these strategies are often not widely adopted (Grimshaw et al., 2001). As such, there is a need for further research on the role that educational leaders and inter-collegial communication networks play in the dissemination and adoption of evidence-based inclusive PE training resources. Although the school principal is commonly accepted as providing leadership for school reform (e.g., inclusive education; Ainscow & Sandill, 2008), future research is necessary to understand how principals can leverage particular organizational contexts in order to promote the adoption of inclusive PE training resources.

Given that inter-collegial communication networks facilitate the transfer of expertise and resources among teachers (Ainscow, 2000), future research should seek to understand how to build and support these networks to ensure that evidence-based information (e.g., inclusive PE training resources) is being circulated. Future research should utilize approaches that are more holistic and understand the outcomes, such as adoption, as a joint function of teachers and their environment. Moreover, the need for more relevant formatting of inclusive PE training resources (e.g., web platforms and/or hands on experiences) and enhancing opportunities for trialability will ultimately improve adoption.

Works Cited

Accessibility Ontario. (n.d.). About the AODA. Retrieved from
https://accessontario.com/aoda/

Ainscow, M. (2000). The Ron Gulliford lecture: The next step for special education:
Supporting the development of inclusive practices. *British Journal of Special
Education*, *27*(2), 76–80.

Ainscow, M., & Sandill, A. (2010). Developing inclusive education systems: The role of
organisational cultures and leadership. *International Journal of Inclusive Education*,
14(4), 401–416.

Avramidis, E., Bayliss, P., & Burden, R. (2000). A survey into mainstream teachers'
attitudes towards the inclusion of children with special educational needs in the
ordinary school in one local education authority. *Educational Psychology*, *20*(2),
191–211.

Belley-Ranger, E., Carbonneau, H., Roult, R., Brunet, I., Duquette, M. M., & Nauroy, E.
(2016). Determinants of participation in sport and physical activity for students with
disabilities according to teachers and school-based practitioners specialized in
recreational and competitive physical activity. *Sport Science Review*, *25*(3–4), 135–
158.

Blair, E. (2015). A reflexive exploration of two qualitative data coding techniques. *Journal
of Methods and Measurement in the Social Sciences*, *6*(1), 14–29.

Cobb, C. (2015). Principals play many parts: A review of research on school principals as
special education leaders, 2001−2011. *International Journal of Inclusive Education*,
19(3), 213–234.

Cook, D. A., Sorensen, K. J., Hersh, W., Berger, R. A., & Wilkinson, J. M. (2013). Features
of effective medical knowledge resources to support point of care learning: A focus
group study. *Retrieved from
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0080318*

Danielson, C. (2011). *Enhancing professional practice: A framework for teaching*.
Alexandria, VA: ASCD.

DeCorby, K., Halas, J., Dixon, S., Wintrup, L., & Janzen, H. (2005). Classroom teachers
and the challenges of delivering quality physical education. *The Journal of
Educational Research*, *98*, 208–220.

Dettmer, P., Knackendoffel, A., & Thurston, L. P. (2013). *Collaboration, consultation, and
teamwork for students with special needs*. Ottawa: Pearson.

Dingfelder, H. E., & Mandell, D. S. (2011). Bridging the research-to-practice gap in autism intervention: An application of diffusion of innovation theory. *Journal of Autism and Developmental Disorders*, *41*(5), 597–609.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, *62*(1), 107–115.

Faulkner, G. E., Dwyer, J. J., Irving, H., Allison, K. R., Adlaf, E. M., & Goodman, J. (2008). Specialist or nonspecialist physical education teachers in Ontario elementary schools: Examining differences in opportunities for physical activity. *Alberta Journal of Educational Research*, *54*(4), 407-419.

Gebhardt, M., Schwab, S., Krammer, M., & Gegenfurtner, A. (2015). General and special education teachers' perceptions of teamwork in inclusive classrooms at elementary and secondary schools. *Journal for Educational Research Online*, *7*(2), 129-146.

Gee, J. P., & Levine, M. H. (2009). Welcome to our virtual worlds. *Educational Leadership*, *66*(6), 48–52.

Glasser, B. G., & Straus, A. (1967): *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine.

Green, J., & Thorogood, N. (2004). In-depth interviews. *Qualitative Methods for Health Research*, *2*, 93–122.

Gremler, D. D., & Gwinner, K. P. (2008). Rapport-building behaviors used by retail employees. *Journal of Retailing*, *84*(3), 308–324.

Grimshaw, J. M., Shirran, L., Thomas, R., Mowatt, G., Fraser, C., Bero, L., . . . & O'Brien, M. A. (2001). Changing provider behavior: An overview of systematic reviews of interventions. *Medical Care, 30(8)*, II2–II45.

Habegger, S. (2008). The principal's role in successful schools: Creating a positive school culture. *Principal, 88*, 42–46.

Hallinger, P. (2005). Instructional leadership and the school principal: A passing fancy that refuses to fade away. *Leadership and Policy in Schools*, *4*, 1–20.

Hansen, J., Leyden, G., Bunch, G., Pearpoint, J. (2006). *Each belongs: The remarkable story of the first school system to move to inclusion*. Toronto, ON: Inclusion Press.

Hardin, B. (2005). Physical education teachers' reflections on preparation for inclusion. *Physical Educator*, *62*(1), 44-56.

Jwaifell, M., & Gasaymeh, A. M. (2013). Using the diffusion of innovation theory to explain the degree of English teachers' adoption of interactive whiteboards in the

modern systems school in Jordan: A case study. *Contemporary Educational Technology*, *4*(2), 138–149.

Kalantzis, M., & Cope, B. (2010). The teacher as designer: Pedagogy in the new media age. *E-learning and Digital Media*, *7*(3), 200–222.

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, *72*(12), 2954–2965.

Kebritchi, M. (2010). Factors affecting teachers' adoption of educational computer games: A case study. *British Journal of Educational Technology*, *41*(2), 256–270.

Lee, H. J. (2005). Developing a professional development program model based on teachers' needs. *Professional Educator*, *27*, 39–49.

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research*, *26*(13), 1753–1760.

Marks, H. M., & Printy, S. M. (2003). Principal leadership and school performance: An integration of transformational and instructional leadership. *Educational Administration Quarterly*, *39*, 370–397.

McGuigan, L., & Hoy, W. K. (2006). Principal leadership: Creating a culture of academic optimism to improve achievement for all students. *Leadership and Policy in Schools, 5*, 203–229.

Ministry of Education. (2009). Ontario's equity and inclusive education strategy. Retrieved from http://www.edu.gov.on.ca/eng/policyfunding/equity.pdf

Murawski, K. K. (2008). *Co-teaching for success: Effective strategies for working together in today's inclusive classrooms*. Bellevue, WA: Bureau of Education and Research.

Noy, C. (2008). Sampling knowledge: The hermeneutics of snowball sampling in qualitative research. *International Journal of Social Research Methodology*, *11*(4), 327–344.

Ontario College of Teachers (OCT). (2018). Teaching Divisions. Retrieved from https://www.oct.ca/public/professional-standards/how-teachers-are-certified/initial-teacher-education/teaching-divisions

Ontario Ministry of Education. (2018). *Education Act*. http://www.edu.gov.on.ca/eng/general/elemsec/speced/edact.html

Ophea. (2015). About us. Retrieved from https://www.ophea.net/about-us

Ophea, L. (2010). *Steps to inclusion: A resource to support inclusive physical activity for children and youth living with physical or intellectual disabilities.* Toronto, ON: Ophea.

People for Education. (2017). Health and physical education 2017. Retrieved from https://peopleforeducation.ca/our-work/health-and-physical-education-2017/

Roberts, E., Bastian, K., Ekwaru, J. P., Veugelers, P., Gleddie, D., & Storey, K. (2016). The role of the CSH school principal in knowledge sharing and use. *Revue phénEPS/PHEnex Journal*, *8*(1), 1-20.

Rogers, E. M. (2003). *Diffusion of innovations*. (5th ed.). New York: Free Press.

Sallis, J. F., McKenzie, T. L., Beets, M. W., Beighle, A., Erwin, H., & Lee, S. (2012). Physical education's role in public health: Steps forward and backward over 20 years and HOPE for the future. *Research Quarterly for Exercise and Sport*, *83*(2), 125–135.

Sawyer, A. G., & Myers, J. (2018). Seeking comfort: How and why preservice teachers use internet resources for lesson planning. *Journal of Early Childhood Teacher Education*, *39*(1), 16–31.

Sharma, U., Forlin, C., & Loreman, T. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. *Disability & Society*, *23*(7), 773–785.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*(2), 63–75.

Sokal, L., & Sharma, U. (2014). Canadian in-service teachers' concerns, efficacy, and attitudes about inclusive teaching. *Exceptionality Education International*, *23*(1), 59–71.

Solis, M., Vaughn, S., Swanson, E., & Mcculley, L. (2012). Collaborative models of instruction: The empirical foundations of inclusion and co-teaching. *Psychology in the Schools*, *49*(5), 498–510.

Spence, J. C., Melynchuk, N., Mandigo, J. L., Marshall, D., Schwartz, M., Thompson, L. P., & Dunn, J. C. (2004). A descriptive profile of physical education teachers and related program characteristics in Alberta. *Alberta Journal of Educational Research*, *50*, 87-102.

Statistics Canada. (2013) The 2012 Canadian Survey on Disability (CSD) and the 2006 Participation and Activity Limitation Survey (PALS). Retrieved from http://www23.statcan.gc.ca/imdb- bmdi/document/3251_D6_T9_V1-eng.htm.

Tomasone, J. R., Ginis, K. A. M., Estabrooks, P. A., & Domenicucci, L. (2015). Changing minds, changing lives from the top down: An investigation of the dissemination and adoption of a Canada-wide educational intervention to enhance health care professionals' intentions to prescribe physical activity. *International Journal of Behavioral Medicine*, *22*(3), 336–344.

Van Laarhoven, T., Munk, D. D., Lynch, K., Wyland, S., Dorsch, N., Zurita, L., . . . & Rouse, J. (2006). Project ACCEPT: Preparing pre-service special and general educators for inclusive education. *Teacher Education and Special Education*, *29*(4), 209–212.

Vickerman, P., & Coates, J. K. (2009). Trainee and recently qualified physical education teachers' perspectives on including children with special educational needs. *Physical Education and Sport Pedagogy*, *14*(2), 137–153.

Webster, C. A., Caputi, P., Perreault, M., Doan, R., Doutis, P., & Weaver, R. G. (2013). Elementary classroom teachers' adoption of physical activity promotion in the context of a statewide policy: An innovation diffusion and socio-ecologic perspective. *Journal of Teaching in Physical Education*, *32*(4), 419–440.

Chapter 6: General Discussion

The primary purpose of this dissertation was to examine teacher training to gain an improved understanding of theoretical factors that facilitate inclusive PE practice. That is, using a variety of methodologies, the content, effects, and adoption of teacher-training resources were investigated along with salient factors that facilitate teachers' inclusive PE practice. The secondary purpose was to expand upon the current literature and apply a comprehensive behavior change framework in order to more intricately understand teachers' intentions to practice inclusive PE. In a successive manner, four distinct, yet related, studies were undertaken. Together the studies work to provide valuable information to the current understanding of the complex nature of teachers' motivation regarding inclusive PE practices, while exploring teacher-training resources as a strategy to support teachers in facilitating inclusive PE. The studies also contribute to our understanding of the development and teachers' decisions to adopt training resources for inclusive PE. The theoretical and pragmatic implications, suggestions for future research, and additional limitations are discussed in this final chapter.

6.1 Theoretical Implications

Broadly, the studies in this dissertation emphasize the significance of grounding research within a strong theoretical foundation. Considering theory from the onset, provides a guide for the research process, creates a basis for data interpretation, and results can be extrapolated and compared to broader literature (French et al., 2012). The explicit use of the TDF throughout this program of research has extended the current literature on determinants of teachers' behavior within an inclusive PE setting. Situating the studies in a robust theoretical framework provided a conceptual understanding and allowed for the findings to

be connected to existing knowledge. Drawing upon the findings across all three studies allowed the researchers to make theoretically informed suggestions regarding targets and strategies for supporting teachers in facilitating inclusive PE.

The importance of BCT is apparent when considering the findings of Study 1 and 3a concurrently. In Study 3a, a statistically significant change in the TDF domains related to Knowledge and Skills were observed following teachers' interactions with a teacher-training resource (i.e., *Steps to Inclusion*). The observed changes in Knowledge and Skills are consistent with what one might expect based on the resource's content targeting these domains. Indeed, through the content analysis conducted in Study 1, resource content targeting Knowledge and Skills were identified in significant proportion (50.3%, 10.9% respectively). The salient nature of each of these domains has been demonstrated within inclusive literature (e.g., Forlin & Chambers, 2011; Rhodes et al., 2016; Sharma Forlin, & Loreman, 2008; Tristani, Sweet, Tomasone, & Bassett-Gunter, under review) and Studies 1 and 3a demonstrate that factors related to behavior change have the potential to be positively influenced in the presence of theoretically relevant content. Using the same theoretical framework throughout both studies aligned the findings allowing for a richer interpretation of the results.

Further exploration of findings between the two aforementioned studies provides insight regarding potential misalignment between the understanding of resource content from a theoretical perspective versus understanding and interpretations by the intended reader. For example, in Study 3a, small to large effect sizes were present in the following TDF domains; Memory, attention, and decision processes, Beliefs about capabilities, Social influences, Environmental context and resources, and Nature of behaviors for those teachers

in the experimental condition. The effect sizes are reflective of the differences between two points (e.g., baseline and time one), indicating that post exposure to the teacher-training resource, teachers demonstrated positive changes in the aforementioned TDF domains. These findings were especially interesting given that content pertaining to these domains was diminutive (as per Study 1). Given the minimal content targeting these domains it is curious to understand how exposure to *Steps to Inclusion* might lead to the observed changes. One possible explanation is that a potential disparity exists between how resource content is formally and/or theoretically analyzed as opposed to how content is understood and digested by the end user or intended reader. Relatedly, another possible explanation is grounded in understanding the high correlations observed between TDF domains (see Study 2). It is logical to ascertain that content coded in one theoretical domain could influence another domain given the shared variability and conceptual overlap. For example, content coded as Knowledge may work to improve teachers' Beliefs about capabilities. An improved understanding of the content and objectives regarding inclusive PE (i.e., content targeting Knowledge) may work to increase teachers' belief in their capabilities to implement inclusive PE (i.e., Beliefs about capabilities). Thus, although the content was coded in a manner that is consistent with accepted definitions of theoretical constructs, the coding may not accurately represent the way in which the content is perceived by teachers and may influence constructs outside of the coded domain. A reception-based approach to analyzing the content of a resource may be of value. This approach situates content and meaning within the intended reader allowing for fuller pragmatic interpretation of the text (Ahuvia, 2001). Moreover, it would be appropriate for future research to examine the validity and reliability of the coding manual and questionnaire utilized in Studies 1 and 3a

respectively. Reflecting upon Study 1 and the subsequent coding manual, it would be apt to consider how teachers might apply the coding manual to the teacher-training resource in order to assess the validity of the instrument. Further, multiple applications of the coding manual by different teachers (e.g., male/female, grade level, PE qualification) is suggested in order to assess reliability. Reflecting upon Study 3 and the subsequent questionnaire, although preliminary data analysis suggested that all TDF domains were independent (i.e., Pearson correlation below cutoff value of $r = .80$, VIF scores below 10; Bamics2, 2011; Hair et al., 1995), further investigations into the construct and content validity are reccomended. Future research should seek to understand content from the teachers' perspective and investigate how it aligns with theoretical interpretations as well as further analyze the psychometric properties of the questionnaire.

This dissertation worked to expand use of the TDF as a framework to understand teachers' behavior within the inclusive PE context. The TDF has been operationalized and explored within healthcare settings (e.g., Curran et al., 2013; McSherry et al., 2012) where it has been useful in understanding behavior change among practitioners in relation to the delivery of evidence-based practice (Dyson, Lawton, Jackson & Cheater, 2011; McCluskey & Middleton, 2010; McKenzie et al., 2008; McKenzie et al., 2010). More recently, the TDF has shown utility in exploring barriers and facilitators related to physical activity policy implementation at the school level (Weatherson, Gainforth, & Jung, 2016). Studies 1, 2, and 3a however, are the first to demonstrate the use of the TDF for understanding inclusive PE. The potential utility of the TDF within this context is significant given that current research concerning inclusive practice, PE or otherwise, tends to be fragmented. That is, literature regarding inclusive education tends to suggest and/or identify factors related to teachers'

inclusive practice in isolation (e.g., Alur & Timmons, 2009; Avramidis, Bayliss & Burdern, 2000; Savolainen, Engelbrecht, Nel, & Malinen, 2012; Shah et al., 2014) rather than considering the multitude of factors which work to facilitate or impede inclusive PE practice concurrently. Though pertinent to our understanding of inclusive education and inclusive PE, understanding factors in a fragmented manner does not lend itself to suitable interpretations nor broader applicability. Further, it does not allow researchers to identify areas of need or greatest impact. Through applying the TDF as a framework, researchers can acknowledge the plethora of existing factors related to teachers' behaviors and identify theoretically-driven starting points for intervention design. For example, in Study 2 a number of TDF domains were identified as significantly related to teachers' intentions to implement inclusive PE (i.e., Social influences, Social/professional role and identity, Memory, attention and decision processes, and Knowledge), supporting the notion that a variety of theoretical factors contribute to teacher's inclusive PE practice. Understanding theoretical factors related to teachers' inclusive PE practice from a comprehensive vantage point is not only beneficial but necessary to advance the pedagogical practice. Funding for inclusive PE education, including professional development opportunities, is sparse (McQuigge, 2018, June 26; Young, 2018, August 9) and as such should be allocated in a cost-effective fashion. Creating and providing training resources and interventions that consider and prioritize theoretical determinants of behavior change will expectantly produce significant results yielding a better return on investment.

Though the TDF served as the primary theoretical framework for the dissertation, additional supporting frameworks were utilized in Studies 1 and 3b. In addition to the TDF, Study 1 also considered the QPM (Martin Ginis et al., 2017), which seeks to understand the

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quality of experiences and meanings beyond the overall quantity of involvement (Martin Ginis et al., 2017). Study 1 was the first known study to apply the QPM as a means for interpreting content of a teacher-training resource. It was important to consider content of the teacher-training resources from the vantage point of quality participation because the meaning and experience of the PE opportunities of SWD is paramount. Considering the content of a teacher-training resource for inclusive PE from both a behavior change and experiential perspective is valuable from a practical assessment. Teachers play an important role in facilitating meaningful and quality experiences for all students and as such training resources should include content targeting these factors. Although no follow-up study was conducted to examine how the teacher-training resource might impact the six factors of the QPM, findings from Study 1 and 3 exemplify the utility of targeted content. As such, extrapolating these findings, the scant content related to the QPM suggests that the resource may fall short in its ability to instill in teachers the importance of providing quality PE experiences through targeting the six factors. While QPM suggests a new dimension for understanding PE participation, it captures pertinent elements to consider. For example, fostering belongingness and meaning have been identified as ctitical parts of quality physical activity experiences (e.g., PE; Martin Ginis et al., 2017). It is suggested that teachers seek opportunities within the PE classroom where SWD can gain a sense of purpose and develop group cohesion, rather than facilitating simple positive relationships between a few peers (Shirazipour et al., 2017). Future research should seek to incorporate content targeting the QMP factors within teacher-training resources, as well as examine how to train teachers to foster acpects of the QPM within the PE classroom.

The Diffusion of Innovations theory (DOI; Rogers, 2003) was also applied as a framework to guide Study 3b. The DOI allowed for an understanding of factors that precede or directly facilitate the decision to adopt an innovation (Rogers, 2003). That is, the DOI provided a means to explore influential factors related to teachers' decisions to adopt resources. The DOI worked to illustrate a more holistic picture related to teacher training resources. Suggestions regarding factors related to behavior change (i.e., findings from TDF) would be futile and misleading without supporting work suggesting teachers' potential adoption of the teacher training resource. In other words, changes in factors related to teachers' inclusive PE practice are contingent upon factors related to adoption of the teacher training resource. Though an intervention may have sound components of behavior change it remains meaningless if the end user (i.e., teachers) does not adopt these components into practice. As such, the DOI provided a meaningful contribution to this program of research which will be further discussed below.

The use of theoretical frameworks throughout this dissertation have guided the research process, allowed for findings to be interpreted across studies, and identified salient factors related to teachers' implementation of inclusive PE practice. The research also suggests that teacher-training resources that include theoretically targeted content have the potential to positively influence factors related to teachers' motivation and inclusive PE practice. However, in examining outcomes across dissertation studies, a potential misalignment between theoretically coded content and its pragmatic interpretation(s) was identified. The application of a variety of theoretical frameworks and perspectives has provided a more comprehensive understanding of complex nature of inclusive PE and how teacher-training resources might work to support inclusive PE practice.

6.2   Challenges Applying the Theoretical Domains Framework

Though the TDF grounded this program of research, the challenges in application should be acknowledged. Study 2 was the first known study which sought to apply the TDF to an inclusive PE context and as such, the existing questionnaire (Huijg et al., 2014) was subject to manipulation in order to fit the intended purpose. Moreover, in working with a community partner, researchers had to balance stakeholder suggestions with research priorities. The original questionnaire had 93 items and was developed to assess the determinants of implementation behaviors specific to healthcare professionals (Huig et al., 2014). Following the manipulation of verbiage along with the removal of numerous questions due to stakeholder concerns around readability, redundancy, and response burden, the resultant questionnaire contained 45 items. Although the resultant questionnaire demonstrated high internal consistency (Study 2), the psychometric properties of this questionnaire more generally, remain largely unknown. Exploring the psychometrics of this questionnaire would allow for improved confidence in the manipulation of the questionnaire because "the quality of the information provided by the instruments depends, at least partially, on their psychometric properties" (Souza, Alexandre, & Guirardello, 2017, p. 649). Utilizing an accurate instrument is critical in order to ensure that outcomes can be appropriately interpreted. High correlations (though below suggested cutoffs; Bamics2, 2011) were noted suggesting a strong relationship among domains. Specifically, high correlations were demonstrated between independent variables. Issues concerning high correlation among domains has been demonstrated in the literature previously (Huijg et al., 2014b), signaling the potential for issues concerning multicollinearity. That is, changes in one independent variable may be associated with changes in another independent variable,

proving difficult for the regression analysis to isolate the relationship(s) between the independent variable(s) and the dependent variable (Frost, 2019). Future research should seek to examine the discriminant validity (i.e., the degree to which the domains differ from one another; Souza, Alexandre, & Guirardello, 2017) and issues concerning multicollinearity among quantitative applications of the TDF. Lastly, the presence of suppressor variables, in Study 2, were demonstrative of the challenges in using the TDF as a framework for a quantitative study. Due to the statistical difficulties experienced in Study 2, both Skills and Behavioral regulation were removed from the analyses. Though the TDF demonstrates promise as a quantitative tool for examining factors realted to teachers' inclusive PE practice, it is recommended that future research proceed with caution until further tests regarding reliability and validity are completed.

6.3   Methodology

The important implications of utilizing mixed methods in Study 3 should also be acknowledged. Considering the outcomes of Study 3a in isolation may present as underwhelming from a statistical perspective. Though the findings revealed some changes in the TDF domains among teachers in the experimental condition, many of these changes were not sustained at time two (i.e., two weeks following the intervention). Statistically non-significant outcomes or regression of positive findings at follow-up quantitatively suggest that teacher-training resources might not independently serve as an ideal strategy to elicit long term changes in factors related to teachers' inclusive PE practice. However, coupling quantitative analyses with a qualitative component may provide a different or more succinct appraisal of the teacher-training resource. Within the context of behavior change, a mixed methods design is advocated for, as it allows the researchers to consider "both the extent and

the circumstances in which behaviors are interrelated" (Plow et al., 2017 p. 26). Specific to this dissertation, the statistical results presented in Study 3a suggest that the teacher-training resource alone may not be an ideal intervention strategy to elicit long term impact on factors related to teachers' inclusive PE practice. However, the findings of Study 3b provide a more succinct appraisal of the teacher-training resource. Although teachers identified some shortcomings of the resource, teachers did suggest that the resource was "a good starting place" especially for those individuals who were newer to the profession. The mixed methods approach also works to illuminate some missteps related to efforts surrounding behavior change. Most notably is the misconception that information drives behavior (Kelly & Barker, 2016). That is, the existence of a teacher-training resource is not sufficient to drive behavior change. Rather, teachers must make the decision to adopt the resource into their practice in order for behavior change to potentially occur. Therefore, researchers must ensure the antecedents (i.e., prior conditions, knowledge, and persuasion stage) of the decision-making process are appropriately satisfied. It is only through the decision to adopt the teacher-training resource can researchers be assured that teachers are in fact receiving the intended information.

6.4   Pragmatic Implications

6.4.1   Informing the design and development of teacher training resources for inclusive physical education

In addition to the above theoretical contributions, it is important to consider the number of pragmatic implications derived from this dissertation. Improvements relating to resource content are suggested. The resource utilized throughout this dissertation had an evident lack of breadth regarding theoretically relevant content generally (i.e., Study 1).

More specifically, a dearth of content related to salient factors for teachers' intentions to implement inclusive PE (e.g., Social influences, Social/professional role and identity, and Memory, attention and decision processes; Study 2) was observed. Using targeted messages is suggested in order to maximize the impact of an intervention (e.g., teacher training resource; Schmid, Rivers, Latimer, & Salovey, 2008). Borrowing from the broader literature, suggestions regarding how teacher-training resources might target these domains are identified. For example, planning has been shown to support behavior enactment through linking the intended behavior with situational cues (Ziegelmann, Lippke, & Schwarzer, 2006). As such, teacher-training resources may incorporate content that supports teachers in the planning of inclusive PE. Social influences, and Social/professional role and identity present as more abstract domains and as such may be potentially difficult to target within a text-based resource. Outcomes from Study 3b however, may suggest ways to support these domains. Providing content or links to other resources, such as professional support networks, may work to appropriately target these domains. It is further suggested to involve relevant stakeholders in the process of resource development so that they may suggest pertinent ways to target these theoretical factors within teacher-training resources. Further to the idea of content, were identified areas of improvement (Study 3b). Study 3b identified a need for content pertaining to students with "complex needs" as well the inclusion of specific modifications or adaptations. It is important that the design and development process proceed in a collaborative manner, addressing the needs of teachers as well as incorporating findings from current liturature. Providing teachers and researchers with opportunities to collaborate at the early stages of development would allow for

interventions aptly contain features associated with and conditions that support maintained behavior change (e.g., Estabrooks, Bradshaw, Dzewaltowski, & Smith-Ray, 2008).

From a development perspective, it is also necessary to identify how a teacher-training resource might be best utilized and develop the resource in a manner to fulfill the intended purpose. Study 3a demonstrated scores regressing back towards the mean at the second follow-up (two weeks after resource exposure) indicating that changes in the TDF domains were not sustained. Although it is not uncommon for follow-up results to demonstrate a regression towards baseline levels (e.g., Tomasone et al., 2014), it is important to consider ways to sustain positive changes. The use of a booster session has been frequently noted a way to maintain results (e.g., Fleig, Pomp, Schwarzer, & Lippke, 2013). Due to identified resource constraints (McQuigge, 2018, June 26; Young, 2018, August 9), the teacher-training resource may in fact act as the booster. That is, workshops, courses, and practicums are inherently costly, therefore teacher-training resources might be developed in such a manner to support other approaches to teacher training.

6.4.2 Informing the dissemination of teacher training resources for inclusive physical education.

The studies in this dissertation also infer a number of pragmatic implications relating to the dissemination of teacher-training resources. Firstly, tailoring the message and/or content to the individual or unique group of individuals has demonstrated effectiveness (Noar, Grant Harrington, Van Stee, & Shemanski Aldrich, 2011). Information that is customized to an individual is more likely to be cognitively processed than information created for a group, increasing the likelihood for behavior change to occur. In Study 3b, teachers identified a desire for a web-based platform or centralized website over the

traditional e-book style resource. Though tailored text-based materials have demonstrated success, the cost per individual is greater than using Internet-based tailored messages (Short, James, Plotnikoff, & Girgis, 2011). Due to previous wide application of tailored Internet-based health promotion programs (e.g., Brouwer et al., 2011; Skov-Ettrup et al., 2014) and the identified cost-effectiveness, coupled with teachers' desires for a web-based resource, it is suggested that tailoring teacher-training resources on an online platform may prove effective.

Study 3b highlights potential avenues which may work to assist and/or bolster the dissemination of teacher-training resources. Findings from this study suggest leveraging educational leaders (e.g., principals and department heads) and professional support networks as a means of influencing teachers' decisions to adopt training resources for inclusive PE. Educational leaders were identified as knowledge-brokers and may act as a way to mediate the exchange of teacher training resources. In this way, it is suggested that stakeholders seek to identify pertinent educational leaders, as well as seek to find ways of fostering professional support networks as a means of enhancing the dissemination of teacher training resources. Closely aligned with this idea, was the emergence of peer collaboration as a suggested communication channel. It was evident that teachers are reliant upon their colleagues to identify, vet, and recommend resources. Teachers suggested that they seek information from credible sources within their teaching field however, their vetting process seemed largely obscure.

Understanding teachers' screening process will lend insight into how to create teacher training resources that are more likely to be disseminated to colleagues. Moreover, providing teachers with collaborative opportunities may prove beneficial. Creating a space

where inter-collegial collaboration is supported might work to enhance the sharing of teacher training resources across a broader group of individuals. Considering these recommendations and supporting improved communication networks during the dissemination process has the potential to increase the dissemination of teacher training resources. Overall, considering a community-based approach and/or research partnerships can work to improve outcomes at the population (i.e., teacher) level (Brand et al., 2014).

6.5   Strengths & Limitations

A major strength of this dissertation is its thoughtful succession and theory-driven process. Due to the successive nature of the research program it was imperative that a sound theoretical foundation guide the research process and potential research implications were assessed from the studies outset. In this way, a strong commonality between studies was evident and the methodical progression allowed for concepts and ideas to build upon each other. More importantly, the inclusion of theory provided an opportunity to understand the findings beyond the current research program and compare outcomes to the broader literature. Though the TDF has not been used extensively within an educational context, it continues to gain traction within the healthcare field (e.g., Curran et al., 2013; McSherry et al., 2012). Parallels between healthcare practitioners and PE teachers were drawn, allowing findings to be extrapolated. Further, utilizing a mixed methods design provided a richer understanding of teacher training resources. Establishing why and/or how an intervention, such as a teacher training resource, is (or is not) successful within a real-world context requires an understanding beyond pre-post outcomes. A bias exists towards quantitative methodologies (Rhodes, Stimson, Moore, & Bourgois, 2012), however, qualitative approaches in behavior change theory, offer insights into more subjective viewpoints and

help to reveal more nuanced findings (Smith, 2015). Despite the strengths of the research, it is also critical to recognize the potential limitations. Most notably, teachers' PE behaviors were not assessed. Instead, intention was used as proxy for behavior and as such results should be interpreted with caution. Many behaviors change theories posit that intentions are an immediate precursor for behavior (e.g., Ajzen, 1991; Schwarzer et al., 2008) and as such several interventions substitute measures of intentions (e.g., Irwin, O'Callaghan, & Glendon, 2018; Lippke, Ziegelmann, & Schwarzer, 2004). However, an intention-behavior gap exists and therefore high intentions do not necessarily translate into behavioral outcomes (e.g., Rhodes, & de Bruijn, 2013; Sniehotta, Scholz, & Schwarzer, 2005). Currently however, a valid and reliable measure for teachers' inclusive PE behaviors does not exist and therefore it was more sensible to measure intentions in this application. An additional limitation worth considering is the potential impact of social desirability bias. Social desirability bias has the potential to arise when questions relate to socially sensitive content (King & Bruner, 2000), such as issues concerning individuals with disabilities and inclusive education. In an attempt to minimize the possibility of this bias, all surveys were anonymized. Building upon this, the sample was relatively homogeneous and held high baseline intentions towards inclusive PE practice and may be a result of self-selection bias (Lavrakas, 2008). The homogeneous sample however, limits the generalizability of the results to a broader population of teachers who may exhibit lower intentions. Further, all teachers had experience working with SWD. *Steps to Inclusion* was identified as an introductory resource by participants and as such the sample and the resource may not be an appropriate fit. Finally, this research program was limited to the use of one teacher training resource (i.e., *Steps to Inclusion*) and a population

of Ontario teachers. Therefore, the findings may not withstand should an alternative population be considered.

6.6   Directions for Future Research

Given the emphasis of inclusive PE within the current school setting, rigorous and scientifically driven research is necessary to inform the continued development of its pedagogy. The importance of teachers' behavior(s) related to inclusive education cannot be disputed (e.g., Florian & Spratt, 2013). Moreover, the role teachers' play within the inclusive PE classroom, as it pertains to optimal and effective physical activity for SWD, cannot be understated (e.g., Block & Obrusnikova, 2007). Unlike clinical research, behavior change research tends to be unregulated and does not follow a prescribed process for development (Czajkowski et al., 2015). Behavior change research however has demonstrated its utility as a treatment protocol to target health outcomes (e.g., improved physical activity support behaviors for SWD; Tanna, Arbour-Nicitopoulos, Rhodes, & Bassett-Gunter, 2017). As such, there are grounds to suggest a more systematic approach to intervention design and development. For example, the ORBIT model provides an iterative process through which researchers can begin to develop "behavioral efficacy trials" (Czajkowski et al., 2015 p. 12). Advocates for the model emphasize four key features; i) it guides the development of an evidenced-based program of research, ii) it encourages an interdisciplinary approach, iii) it supports new and creative applications of research design and methodologies, and iv) it provides language and terminology for conveying findings (Czajkowski et al., 2015). Working to extend the current literature with regard to teachers' intentions to implement inclusive PE, as well as positioning teacher training resources as an avenue to positivity influence intentions, are recommendations for future research to follow

the ORBIT approach to the design of teacher training resources for inclusive PE. In this way, teacher training resources will ascribe to an evidence-based model of development. As such, researchers can be more confident that they are targeting salient behavior change factors thus positively influencing intentions to implement inclusive PE.

6.7   Conclusion

The aggregation of the different theories and outcomes of this dissertation creates a more comprehensive assessment of teacher-training resources from both a theoretical and pragmatic perspective. This dissertation demonstrates that teachers' intentions to implement inclusive PE are influenced by numerous theoretical factors. Further, complex interactions between these theoretical factors were observed. Targeted resource content appears to have the abilitiy to positivity influence salient factors related to teacher intentions to implement PE. Key findings of this dissertation have practical implications for pertinent stakeholders (i.e., resource developers), as well as ministry and government officials. The increasing number of SWD within the general education classroom (Statistics Canada, 2013) calls on teachers to appropriately modify and adapt PE programming to fit students' needs. As such, research concerning best practice for teacher training, within the field of inclusive PE, has become increasingly important. Continued research regarding teacher training, through a behavior change lens, will assist researchers and stakeholders in developing efficacious and feasible means to positively impact teachers' inclusive behaviors. Teachers are fundamental to the delivery of quality physical activity opportunities for SWD via inclusive PE. As such, optimal teacher training is critical in facilitating positive outcomes and it is worth conducting additional, high-quality research in order to achieve this effort.

Works Cited

Ahuvia, A. (2001). Traditional, interpretive, and reception based content analyses: Improving the ability of content analysis to address issues of pragmatic and theoretical concern. *Social Indicators Research*, *54*(2), 139-172.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211.

Alur, M., & Timmons, V. (Eds.). (2009). *Inclusive education across cultures: Crossing boundaries, sharing ideas*. New Delhi: SAGE Publications India.

Bamics2. (2011). Threshold guide. Retrieved from http://bamics2.cmbi.ru.nl/websoftware/phenolink/doc/ThresholdGuide_21Dec2011.pdf

Block, M. E. and Obrusnikova, I. 2007. Inclusion in physical education: A review of the literature from 1995–2005. *Adapted Physical Activity Quarterly*, 24(2): 103–124.

Brand, T., Pischke, C., Steenbock, B., Schoenbach, J., Poettgen, S., Samkange-Zeeb, F., & Zeeb, H. (2014). What works in community-based interventions promoting physical activity and healthy eating? A review of reviews. *International Journal of Environmental Research and Public Health*, *11*(6), 5866-5888.

Brouwer, W., Kroeze, W., Crutzen, R., de Nooijer, J., de Vries, N. K., Brug, J., & Oenema, A. (2011). Which intervention characteristics are related to more exposure to internet-delivered healthy lifestyle promotion interventions? A systematic review. *Journal of Medical Internet Research*, *13*(1), 25-43

Corace, K., & Garber, G. (2014). When knowledge is not enough: Changing behavior to change vaccination results. *Human Vaccines & Immunotherapeutics*, *10*(9), 2623-2624.

Czajkowski, S. M., Powell, L. H., Adler, N., Naar-King, S., Reynolds, K. D., Hunter, C. M., ... & Epel, E. (2015). From ideas to efficacy: The ORBIT model for developing behavioral treatments for chronic diseases. *Health Psychology*, *34*(10), 971.

Estabrooks, P. A., Bradshaw, M., Dzewaltowski, D. A., & Smith-Ray, R. L. (2008). Determining the impact of Walk Kansas: applying a team-building approach to community physical activity promotion. *Annals of Behavioral Medicine*, *36*(1), 1-12.

Fleig, L., Pomp, S., Schwarzer, R., & Lippke, S. (2013). Promoting exercise maintenance: How interventions with booster sessions improve long-term rehabilitation outcomes. *Rehabilitation Psychology*, *58*(4), 323.

Florian, L., and J. Spratt. (2013). Enacting Inclusion: A Framework for Interrogating Inclusive Practice. *European Journal of Special Needs Education,* 28 (2), 119–135.

Forlin, C., & Chambers, D. (2011). Teacher preparation for inclusive education: Increasing knowledge but raising concerns. *Asia-Pacific Journal of Teacher Education*, *39*(1), 17-32.

French, S. D., Green, S. E., O'Connor, D. A., McKenzie, J. E., Francis, J. J., Michie, S., ... & Grimshaw, J. M. (2012). Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework. *Implementation Science*, *7*(1), 38.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate data analyses with readings*. Englewood Cliffs, NJ: Pearson College.

Huijg, J. M., Gebhardt, W. A., Crone, M. R., Dusseldorp, E., & Presseau, J. (2014a). Discriminant content validity of a theoretical domains framework questionnaire for use in implementation research. *Implementation Science*, *9*(11), 1-16.

Huijg, J. M., Gebhardt, W. A., Dusseldorp, E., Verheijden, M. W., van der Zouwe, N., Middelkoop, B. J., & Crone, M. R. (2014b). Measuring determinants of implementation behavior: psychometric properties of a questionnaire based on the theoretical domains framework. *Implementation Science*, *9*(33), 1-15.

Irwin, J., O'Callaghan, F., & Glendon, A. I. (2018). Predicting parental intentions to enrol their children in swimming lessons using an extended Theory of Planned Behaviour. *Australian Psychologist*, *53*(3), 263-270.

Kelly, M. P., & Barker, M. (2016). Why is changing health-related behaviour so difficult?. *Public Health*, *136*, 109-116.

King, M. F., & Bruner, G. C. (2000). Social desirability bias: A neglected aspect of validity testing. *Psychology & Marketing*, *17*(2), 79-103.

Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. London: SAGE Publications Ltd.

Lippke, S., Ziegelmann, J. P., & Schwarzer, R. (2004). Behavioral intentions and action plans promote physical exercise: A longitudinal study with orthopedic rehabilitation patients. *Journal of Sport and Exercise Psychology*, *26*(3), 470-483.

Martin Ginis, K. A., Evans, M. B., Mortenson, W. B., & Noreau, L. (2017). Broadening the conceptualization of participation of persons with physical disabilities: A configurative   review and recommendations. *Archives of Physical Medicine and Rehabilitation*, *98*(2), 395-402.

McQuigge, M. (2018, June 26). Ontario students with special needs increasingly asked to stay home: Report. *The Canadian Press*. Retrieved from https://www.theglobeandmail.com/canada/article-ontario-students-with-special-needs- increasingly-asked-to-stay-home/

Michie, S., Carey, R. N., Johnston, M., Rothman, A. J., De Bruin, M., Kelly, M. P., & Connell, L. E. (2017). From theory-inspired to theory-based interventions: A protocol for developing and testing a methodology for linking behaviour change techniques to theoretical mechanisms of action. *Annals of Behavioral Medicine*, *52*(6), 501-512.

Michie, S., & Prestwich, A. (2010). Are interventions theory-based? Development of a theory coding scheme. *Health Psychology*, *29*(1), 1.

Murphy, N. A., & Carbone, P. S. (2008). Promoting the participation of children with disabilities in sports, recreation, and physical activities. *Pediatrics*, *121*(5), 1057–1061.

Noar, S. M., Grant Harrington, N., Van Stee, S. K., & Shemanski Aldrich, R. (2011). Tailored health communication to change lifestyle behaviors. *American Journal of Lifestyle Medicine*, *5*(2), 112-122.

Pivik, J., McComas, J., & Laflamme, M. (2002). Barriers and facilitators to inclusive education. *Exceptional Children*, *69*(1), 97-107.

Prestwich, A., Webb, T. L., & Conner, M. (2015). Using theory to develop and test interventions to promote changes in health behaviour: evidence, issues, and recommendations. *Current Opinion in Psychology*, *5*, 1-5.

Rhodes, R. E., Berry, T., Craig, C. L., Faulkner, G., Latimer-Cheung, A., Spence, J. C., & Tremblay, M. S. (2013). Understanding parental support of child physical activity behavior. *American Journal of Health Behavior*, *37*(4), 469-477.

Rhodes, R. E., & de Bruijn, G. J. (2013). How big is the physical activity intention–behaviour gap? A meta-analysis using the action control framework. *British Journal of Health Psychology*, *18*(2), 296-309.

Rhodes, R. E., Spence, J. C., Berry, T., Deshpande, S., Faulkner, G., Latimer-Cheung, A. E., ... & Tremblay, M. S. (2016). Understanding action control of parental support behavior for child physical activity. *Health Psychology*, 35(2), 131.

Rhodes, T., Stimson, G. V., Moore, D., & Bourgois, P. (2010). Qualitative social research in addictions publishing: Creating an enabling journal environment. *The International Journal on Drug Policy*, *21*, 441–444.

Savolainen, H., Engelbrecht, P., Nel, M., & Malinen, O. P. (2012). Understanding teachers' attitudes and self-efficacy in inclusive education: Implications for pre-service and in-service teacher education. *European Journal of Special Needs Education*, *27*(1), 51-68.

Schmid, K. L., Rivers, S. E., Latimer, A. E., & Salovey, P. (2008). Targeting or tailoring? Maximizing resources to create effective health communications. *Marketing Health Services*, *28*(1), 32-37.

Segall, M. J., & Campbell, J. M. (2012). Factors relating to education professionals' classroom practices for the inclusion of students with autism spectrum disorders. *Research in Autism Spectrum Disorders*, *6*(3), 1156-1167.

Sharma, U., Forlin, C., & Loreman, T. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. Disability & Society, 23(7), 773-785.

Shirazipour, C. H., Evans, M. B., Caddick, N., Smith, B., Aiken, A. B., Ginis, K. A. M., & Latimer-Cheung, A. E. (2017). Quality participation experiences in the physical activity domain: Perspectives of veterans with a physical disability. *Psychology of Sport and Exercise*, *29(1)*, 40-50.

Skov-Ettrup, L. S., Ringgaard, L. W., Dalum, P., Flensborg-Madsen, T., Thygesen, L. C., & Tolstrup, J. S. (2014). Comparing tailored and untailored text messages for smoking cessation: A randomized controlled trial among adolescent and young adult smokers. *Health Education Research*, *29*(2), 195-205.

Short, C. E., James, E. L., Plotnikoff, R. C., & Girgis, A. (2011). Efficacy of tailored-print interventions to promote physical activity: a systematic review of randomised trials. *International Journal of Behavioral Nutrition and Physical Activity*, *8*(1), 1-13.

Smith, J. A. (2015). *Qualitative psychology: A practical guide to research methods*. Thousand Oaks, CA: Sage.

Sniehotta, F. F., Scholz, U., & Schwarzer, R. (2005). Bridging the intention–behaviour gap: Planning, self-efficacy, and action control in the adoption and maintenance of physical exercise. *Psychology & Health*, *20*(2), 143-160.

Souza, A. C. D., Alexandre, N. M. C., & Guirardello, E. D. B. (2017). Psychometric properties in instruments evaluation of reliability and validity. *Epidemiologia e Serviços de Saúde*, *26*(3), 649-659.

Statistics Canada. (2013) The 2012 Canadian Survey on Disability (CSD) and the 2006 Participation and Activity Limitation Survey (PALS). Retrieved from http://www23.statcan.gc.ca/imdb- bmdi/document/3251_D6_T9_V1-eng.htm.

Tanna, S., Arbour-Nicitopoulos, K., Rhodes, R. E., & Bassett-Gunter, R. (2017). A pilot study exploring the use of a telephone-assisted planning intervention to promote parental support for physical activity among children and youth with disabilities. *Psychology of Sport and Exercise*, *32*, 25-33.

Tristani, L., Tomasone, J., Gainforth, H., Bassett-Gunter, R. (in press). Taking Steps to Inclusion: A content analysis of a resource aimed to support teachers in delivering inclusive physical education. *International Journal of Disability, Development and Education.*

Tristani, L., Sweet, S. Tomasone, J., Bassett-Gunter, R., (under review). Applying the Theoretical Domains Framework and COM-B to examine theoretical factors related to teachers' intentions to implement inclusive Physical Education. *European Physical Education Review*.

Tomasone, J. R., Ginis, K. A. M., Estabrooks, P. A., & Domenicucci, L. (2015). Changing minds, changing lives from the top down: an investigation of the dissemination and adoption of a Canada-wide educational intervention to enhance health care professionals' intentions to prescribe physical activity. *International Journal of Behavioral Medicine*, *22*(3), 336-344.

Weatherson, K. A., Gainforth, H. L., & Jung, M. E. (2017). A theoretical analysis of the barriers and facilitators to the implementation of school-based physical activity policies in Canada: A mixed methods scoping review. *Implementation Science*, *12*(1), 41.

Young, C. (2018, August 9). Ontario government cut $25 million from funding for special education programs for students. *National Post*. Retrieved from https://nationalpost.com/news/ontario-government-cuts-millions-of-dollars-in-student-programming

Ziegelmann, J. P., Lippke, S., & Schwarzer, R. (2006). Adoption and maintenance of physical activity: Planning interventions in young, middle-aged, and older adults. *Psychology & Health*, *21*(2), 145-163.

Appendix A: Coding Guide Using TDF and QPM

Domain	Construct	Examples*
Theoretical Domains Framework		
Knowledge Awareness of information regarding students, their disability, underlying medical or behavioral concerns, and strategies to successfully include and meet the student's needs.	1. Knowledge (condition or disability) 2. Procedural knowledge 3. Knowledge of task environment	Does the *Steps to Inclusion* (SI) document provide content and objectives of inclusive education? SI makes the teacher aware of content and objectives of inclusive education. SI familiarizes the reader with the content and objectives of inclusive education. SI makes the teacher aware of how to create an inclusive PE classroom for students with disabilities.
Skills Ability to teach and make appropriate modifications for students with disabilities through ongoing professional development	4. Skills 5. Skills development: 6. Competence 7. Ability 8. Practice 9. Skill assessment	SI trains teachers to create an inclusive PE classroom for students with disabilities. SI provides teachers with the skills to create an inclusive PE classroom. SI provides teachers with information how to practice creating an inclusive PE classroom.
Social/professional role and identity A coherent set of behaviors and qualities based on the ethical and standards of practice set out by the Ontario College of Teachers.	10. Professional Identity/role 11. Social identity 12. Identity 13. Professional boundaries/ confidence 14. Leadership	SI regards creating inclusive PE classrooms as part of my work as a teacher. SI reinforces that as a teacher, it is my job to create an inclusive PE classroom for students with disabilities.

	15. Organizational commitment	SI reinforces that as a teacher it is my responsibility to create an inclusive PE classroom for students with disabilities. SI reinforces that creating an inclusive PE classroom is consistent with the teaching profession.
Beliefs about capabilities Belief in the capacity to execute behaviors that promote an inclusive physical education environment.	16. Self-confidence 17. Perceived competence 18. Self-efficacy 19. Perceived behavioral control 20. Beliefs 21. Self-esteem	SI provides confidence to the reader that they can create an inclusive PE classroom even when resources are limited. SI provides confidence to the reader that they can create an inclusive PE classroom when time is limited. SI provides the reader with confidence should they want to create an inclusive PE classroom.
Optimism Confidence that yearly classroom goals and lesson plans will be implemented successfully; confidence that students will be able to learn and grow within the classroom.	22. Optimism	SI provides the best possible scenario for creating an inclusive PE classroom during uncertain times. SI provides optimistic perspectives for creating an inclusive PE classroom.
Beliefs about consequences An estimate that the creation of an inclusive physical education class that is free of discrimination, put-downs, or negativity, where all members are participating fully, regardless of ability, is possible (Ophea, 2010).	23. Beliefs 24. Outcome expectancies 25. Characteristics of outcome expectancies	SI provides evidence that inclusive PE classrooms are beneficial to public health. SI acknowledges the disadvantages associated with the creation of an inclusive PE classroom.

Reinforcement Increase the probability of positive student (physical and psychosocial) development through the creation of inclusive PE classes.	26.	Incentives	SI stresses the importance of creating an inclusive PE classroom.
	27.	Consequents	
Intentions Consciousness to perform certain behaviors that create and support inclusive PE classes.	28.	Stability of intentions	SI addresses *what* a teacher will do to create an inclusive PE classroom, *how* they will create an inclusive PE classroom, and *when* they will create an inclusive PE classroom.
	29.	Stages of change model	
	30.	Transtheoretical model and stages of change	
Goals Internal aspirations translated through lesson and unit plans to promote inclusive PE classes and student development.	31.	Goals (distal/proximal)	SI assists the reader in creating action plans to facilitate the creation of inclusive PE classrooms. SI assists the reader in creating plans on how to create an inclusive PE classroom.
	32.	Goal priority	
	33.	Goal/target setting	
	34.	Action planning	
	35.	Implementation intention	
Memory, attention and decision processes The ability to recall information about the student(s) with a disability (i.e. IEP) and interpret and manipulate the PE classroom, in order to promote inclusion.	36.	Memory	SI directs the reader's attention to important content within individualized education plans (IEP) SI leads the reader to focus on contextual cues that are important in the decision-making process, in order to effectively create an inclusive PE classroom.
	37.	Attention	
	38.	Attention control	
	39.	Decision making	
Environmental context and resources The school environment and available resources that are conducive to the creation of an inclusive PE class that enhances student learning and development	40.	Environmental stressors	SI directs the reader to external resources or supports for the creation of inclusive PE classrooms. SI makes the reader aware of the networks and external stakeholders involved in
	41.	Resources/material resources	
	42.	Organizational culture/climate	
	43.	Salient events/critical incidents	

	44. Person x environment interaction	creating an inclusive PE classroom.
	45. Barriers and facilitators	SI provides possibilities to adapt inclusive sport to the student's needs (i.e., type of disability).
Social influences Macro- and micro-relationships (i.e. with provincial government, school boards, principals, teachers, parents) that affect your thoughts, feelings, and/or actions within or for the creation of an inclusive PE classroom.	46. Social pressure/norms	SI acknowledges the importance of societal expectations to uphold inclusive practices within the school.
	47. Social support	
	48. Group identity	SI highlights a team-based approach to the creation of an inclusive PE classroom.
	49. Modeling	
Emotion Feelings (positive and negative) regarding students with disabilities and inclusive physical education.	50. Fear	SI acknowledges teachers' positive feelings towards students with disabilities and inclusive education. SI acknowledges teachers' negative feelings towards students with disabilities and inclusive education.
	51. Anxiety	
	52. Stress	
	53. Positive/negative affect	
Behavioral regulation Teaching strategies used to guide and manage teacher behavior within the inclusive PE class.	54. Self-monitoring	SI document provides examples of lesson plans for teachers to follow and create inclusive PE classrooms.
	55. Action planning	

Domain	Examples
Participation Model	
56. Autonomy Teacher's ability to promote feelings of independence, choice, and control among *all* students.	SI teaches the reader how to create an inclusive PE classroom that promotes student independence.
57. Belongingness The teacher's ability to foster feelings of acceptance and mutual respect between *all* students.	SI gives the reader strategies to promote open lines of communication between the teacher and students.

58. Challenge A teacher's ability to encourage and promote student development using increasingly demanding activities.	SI provides the reader with progressive modifications in order to challenge the student's physical abilities.
59. Engagement A teacher's ability to engage and motivate all students within an inclusive PE classroom.	SI provides the reader with strategies to increase participation of SWD.
60. Mastery A teacher's ability to foster student's feelings of accomplishment and fulfillment within the inclusive PE classroom's goals and objectives.	SI teaches the reader how and when to choose challenging activities that promote student success and achievement.
61. Meaning The teacher's capability to create feelings of importance and significance in *all* students in the inclusive PE classroom.	SI teaches the reader how to select activities that are of value to student's personal goals.

*Adapted from Huijg, Gebhardt, Crone, Dusseldorp, & Presseau, 2014.

Appendix B: *Steps to Inclusion* **Table of Contents**

Table Of Contents

Reference Cards

Informed Consent Form
Taking Steps to Inclusion: An exploration of teachers' perspectives
York University

Primary Researchers: Rebecca Bassett-Gunter, ███████████████████████████████
████████████████████████████████
███████████; Lauren Tristani ███

Background: This research project is focused on understanding teachers' thoughts and feelings regarding inclusive physical education for students with disabilities. The following brief is intended to provide you with the necessary details prior to giving consent to participate in this study. Please read the following information carefully and feel free to ask any questions.

Purpose of the Research: To explore teachers' perspectives regarding inclusive Physical Education.

What You Be Asked to Do in the Research: Today you will be asked to complete an online questionnaire exploring teachers' perspectives and experiences regarding inclusive PE. This online questionnaire will take approximately 15 minutes to complete.

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in the research.

Benefits of the Research: No direct benefits are anticipated for the participants.

Voluntary Participation: Your participation in this study is completely voluntary. Your decision not to volunteer will not influence your relationship with York University either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you should so decide. Your decision to stop participating, or refusal to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: All information you supply during the research will be held in confidence and your name or school will not appear in any report or publication of the research. Your data will be safely stored in a locked facility and / or on a password protected computer and only research staff will have access to this information. Data will be stored for the duration of the study and will subsequently be destroyed. Confidentiality will be provided to the fullest extent possible by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Dr. Rebecca Bassett-Gunter by telephone at ████████████████████ or by email ████████████████ or Lauren Tristani by email ████████████████████. This research has been reviewed and approved by the Human Participants Review Sub-Committee of York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Senior Manager and Policy Advisor for the Office of Research Ethics, ███████████████████████████████████ ████████████████████████████████.

I consent to participate in Steps to Inclusion: An exploration of teachers' perspectives conducted by Dr. Rebecca Bassett-Gunter. I have understood the nature of this project and wish to participate. By clicking "I agree" below, I indicate my consent.

I AGREE		I DISAGREE

Legal Rights and Signatures:

Appendix C: Demographic Questionnaire

Your participation and responses on the following questionnaire will uphold rigorous standards of anonymity. Your responses will be in no way linked to your professional identity, school, or school board. No personally identifiable information is captured unless you voluntarily offer personal or contact information in the comment field. In the event that you do offer personal or contact information, it will not be included in any publication or report. Additionally, your responses will be combined with all other participants and will be summarized to further protect your anonymity.

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Demographic Questionnaire

Age:_____

Gender (circle one)**:**   M   F   Prefer not to disclose

Please indicate your current employment status within the teaching profession:
   a   Attending Teacher's College
   b   Supply Teacher and/or LTO
   c   Part time employment
   d   Full time employment
   e   Retired
   f   Other, please specify _____

What grade level(s) are you currently qualified to teach? (indicate all that apply)
   a.   Primary
   b.   Junior
   c.   Intermediate
   d.   Senior

Are you qualified to teach Health and Physical Education?

Yes   No

Do you have experience teaching a student(s) with a disability?

Yes   No

Appendix D: Modified TDF Questionnaire

TDF Domain	Items
Knowledge	I am aware of Ontario's 2015 Health & Physical Education curriculum.
	I am aware of the content and objectives within Ontario's 2015 Health and Physical Education curriculum.
	I know the content and objectives of inclusive physical education for students with disabilities.
	I am familiar with the content and objectives of inclusive physical education for students with disabilities.
	I am aware of the *Steps to Inclusion* document, created by Ophea, that focuses on teaching inclusive physical education.
	I am aware of the content and objectives of Ophea's *Steps to Inclusion* document.
	I am aware of how to teach inclusive physical education for students with disabilities.
Skills	I have been trained to teach inclusive physical education to students with disabilities.
	I have the skills to teach inclusive physical education to students with disabilities.
	I have practiced teaching inclusive physical education for students with disabilities.
Social/professional role and identity	Teaching inclusive physical education is part of my work as a teacher.
	As a teacher it is my job to teach inclusive physical education to students with disabilities.
	It is my responsibility as a teacher to teach inclusive physical education to students with disabilities.
	Teaching inclusive physical education to students with disabilities is consistent with the obligations and responsibilities being a teacher.
Beliefs about capabilities	I am confident that I can teach inclusive physical education to students with disabilities even when students with disabilities are not motivated.
	I am confident that I can teach inclusive physical education for students with disabilities even if there is little time.
	I am confident that I can deliver inclusive physical education following the guidelines even when other teachers with whom I work do not do so.
	I have control over delivering inclusive physical education following the guidelines.
	For me, delivering inclusive physical education following the guidelines is: (Very difficult – very easy)
Beliefs about consequences	For me, delivering inclusive physical education following the guidelines is: (Not useful – useful)
	For me, delivering inclusive physical education following the guidelines is: (Not worthwhile – very worthwhile)

	For me, delivering inclusive physical education following the guidelines is: (Not pleasurable – pleasurable)
Motivation and goals (Intentions)	If I have a student in my class with a disability I would strongly intend to teach inclusive physical education.
	I strongly intend to teach inclusive physical education following the guidelines in the next three months.
Memory, attention, and decision processes	When concentrating on teaching inclusive physical education for students with disabilities, I am able to focus my attention on the safety of my classroom.
	Delivering inclusive physical education following the guidelines is something I do automatically.
	Delivering inclusive physical education following the guidelines is something I do without having to consciously remember.
	Delivering inclusive physical education following the guidelines is something I do without thinking.
Environmental context and resources	Within our school's physical education department there is sufficient financial support for **teaching resources and equipment** to facilitate inclusive physical education.
	Within our school's physical education department there is sufficient financial support for **training** regarding inclusive physical education.
	Within my current school setting, there are good networks between parties involved in inclusive physical education.
	My school provides teachers with the training to deliver inclusive physical education.
Social Influences	Most people who are professionally important to me think that I should practice inclusive physical education to students with disabilities.
	Most people whose opinion I value would approve me of teaching inclusive physical education for students with disabilities.
Emotion	When I work with students with disabilities I feel nervous *
	When I work with students with disabilities I feel agitated.*
	When I work with students with disabilities I feel sad. *
	I am uncomfortable delivering inclusive physical education. *
Behavioral regulation	I have a clear plan with regards to delivering inclusive physical education.
	I have a clear plan with regards to delivering inclusive physical education when the students are not motivated.
	I have a clear plan with regards to delivering inclusive physical education when there is little time.
	I have a clear plan with regards to delivering inclusive physical education when other professionals with whom I work with do not do so.
Nature of Behaviors	Whenever I teach inclusive physical education I receive recognition from my colleagues.
	Whenever I teach inclusive physical education I receive recognition from the students' parents.
	Whenever I teach inclusive physical education I receive recognition from students.

Informed Consent Form
Taking Steps to Inclusion: An exploration of teachers' perspectives
York University

Primary Researchers: Rebecca Bassett-Gunter, ███████████████████
████████████████████; Lauren Tristani ████████████████████████
███████████████████████████████████

Background: This research project is focused on understanding teachers' thoughts and feelings regarding inclusive physical education (PE) for students with disabilities. The following brief is intended to provide you with the necessary details prior to giving consent to participate in this study. Please read the following information carefully and feel free to ask any questions.

Purpose of the Research: To explore teachers' perspectives regarding inclusive PE.

What You Be Asked to Do in the Research: If you wish to participate in the study you will be asked to do the following:
1. Complete an online questionnaire (approximately 15 minutes).
2. Following completion of the online questionnaire, you will have one week to read a teacher training tool at your convenience (approximately 30 pages/35 minutes reading).
3. Complete second online questionnaire. This will take place one week after completing your baseline questionnaire.
4. Complete third questionnaire. This will take place two weeks after completing your second online questionnaire.

Participants who complete *all four* phases of the research project will receive a $20.00 honorarium (Part 1: $5, Part 2 &3, $10, Part 4: $5).

Upon completion of the current study, a follow up study will also take place in which some individuals will be invited partake in a one-on-one interview with the researcher (in person or by telephone). The interview will last approximately 1 hour and will further investigate inclusive PE from the teachers' perspective. If we may contact you to give you more information about this follow up study then please check this box. By doing so you are not committing to participating in the follow up study. Rather, the researcher will contact you to give you more information. If you do decide to participate in the follow up study then you will receive an additional $10.00 honorarium.

By clicking "I agree" below, I indicate my consent to be contacted about the follow up study:

I AGREE	I DISAGREE

If you have AGREED to hear more about the follow up study then please fill in your name and email.

Name:
Email:

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in the research.

Benefits of the Research: No direct benefits are anticipated for the participants.

Voluntary Participation: Your participation in this study is completely voluntary. Your decision not to volunteer will not influence your relationship with York University or any research partner either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you should so decide. Your decision to stop participating, or refusal to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: All information you supply during the research will be held in confidence and your name or school will not appear in any report or publication of the research. Your data will be safely stored in a locked facility and / or on a password protected computer and only research staff will have access to this information. Data will be stored for the duration of the study and will subsequently be destroyed. Confidentiality will be provided to the fullest extent possible by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Dr. Rebecca Bassett-Gunter by ███████████████████ ██████████████████████ or Lauren Tristani by email ██████████████. This research has been reviewed and approved by the Human Participants Review Sub-Committee of York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Senior Manager and Policy Advisor for the Office of Research Ethics, ██████ ██.

Legal Rights and Signatures:
I consent to participate in *Steps to Inclusion: An exploration of teachers' perspectives* conducted by Dr. Rebecca Bassett-Gunter and Lauren Tristani. I have understood the nature of this project and wish to participate. By clicking "I agree" below, I indicate my consent.

I AGREE	I DISAGREE

Appendix F: Manipulation Check

Reading Recall Task

1. When working with a child with a cognitive or intellectual disability, it is important to recognize that each person's disability is unique.

2. It is important to gather information about the child, such as his or her present functioning level, behaviors, and physical capabilities.

3. It is important to understand your school community before making any decision on your priority health topic.

4. Student engagement is emphasized across all process steps, and is valued with higher points for certification.

5. Due to the significant number of individuals diagnosed with Autism Spectrum Disorder, teachers and community partners are working hard to support these individuals.

6. The Health Schools approach engages the whole community to promote and engage health and well-being of children, youth, school staff, and the broader community.

Appendix G: DOI Interview Guide

Note: Interviews will begin with general introductions and expressing appreciation for the interviewees' participation. Participants will also be asked whether they have any questions about participating before they are asked to provide consent.

Have you thoroughly read *Steps to Inclusion*?
- If yes, continue forward in the interview.
- If no, ask participant if he/she would like to schedule another time for an interview after thoroughly reading *Steps to Inclusion*.

We are going to begin with reading the record of consent.

RECORD OF CONSENT

<mark>CONSENT STATEMENT</mark>

Do you consent to participate?

Do you have any further questions?

If the interviewees consent and have no further questions, recording will start at this point.

** HAVE PARTICIPANTS HAVE STEPS TO INCLUSION WITH THEM DURING INTERVIEW

INTERVIEW
Building a Rapport:

1. Can you talk to me about why you decided to become a teacher?
2. I can see from the pre-interview questionnaire that you have had a personal/teaching experience with a child with a disability.
   a. Can you tell me more about that experience?
3. **If no experience indicated on pre-interview questionnaire**: I can see from your pre-interview questionnaire that you have yet to have a personal or teaching experience with a child or student with a disability. Can you talk about your feelings and or any ideas/thoughts you may have regarding inclusive physical education in your future classroom?
   a. Why do you believe these are at the forefront of your mind?
4. Can you tell me what inclusive physical education means to you?
   a. In an ideal world, what would inclusive physical education look like?

We are interested in better understanding the current landscape of inclusive education, particularly inclusive physical education. We are looking for teachers' insights into their practice of inclusive PE.

PREVIOUS PRACTICE:
1. Can you describe your typical PE class?
    a. What activities do you do, how might you come up with these activities, etc.
2. Can you tell me how your PE class might change when a student(s) with a disability is present
    a. Do you do anything particularly noteworthy
        i. Example; research the students' disability, speak to colleagues, meet with the SERT

FELT NEEDS/PROBLEMS
1. Can you tell me about inclusive PE at your school?
    a. Example; environment, resources, colleagues, support, administration
2. Do you feel adequately prepared to teach inclusive PE?
    a. If *yes*, please explain
        i. What courses, programs, resources, experience etc. help you get to this point?
        ii. Did you always feel this way?
    b. If *no*, please explain
        i. Can you identify any specific issues, problems or areas of concern?
3. Can you tell me about the teacher training resources that you have available to you (or that you are aware of) that can support your inclusive PE practice?
    a. Can you provide me with some details – what do you like/dislike, how did you become aware of them etc.

INNOVATIVENESS:
1. With regards to *Steps to Inclusion*, how did it compare to other teacher training resources you have encountered previously?
    a. Content/format/applicability/usefulness

NORMS OF THE SOCIAL SYSTEM:
1. How is inclusive education perceived in your school?
    a. Who promotes and/or supports inclusive practice?
        i. Can you provide any examples of how he/she might demonstrate this?

COMPATIBILITY: We are interested in better understanding the current landscape of inclusive education, particularly inclusive physical education. We are looking for teachers'

insights into their daily practice and their existing teaching perspectives. The following questions will relate closely to these ideas.

1. Reflecting upon your own teaching practice and situation, what are your current needs concerning creating inclusive physical education classrooms or programming?
    a. Can your provide us with an overview of some of the general needs related to having a student(s) with a disability in your physical education class?
        i. Do these needs differ when speaking about students with physical or developmental/cognitive disabilities? If so, how?
2. Do you see *Steps to Inclusion* playing a role in fulfilling the needs you have described above?
    a. If yes, please explain.
        i. Can you provide some specific examples as to how *Steps to Inclusion* fulfills your teaching needs?
    b. If no, why not?
        i. Can you provide some specific examples as to how *Steps to Inclusion* does not fulfill your teaching needs?
    c. Can you suggest some areas of improvement?
        i. Can you provide an example(s) of something that could be added to *Steps to Inclusion* would help to fill your teaching need?

AUGMENTATION/SUPPORT: We are trying to gain an awareness of teachers' experiences regarding the social support and resources that are available to support inclusive education. The following questions will touch upon this topic.

1. Do you know people, organizations, support groups etc. that can work to support/aid in, enhance, or reinforce your ability to teach inclusive physical education?
    a. If yes, who?
    b. Are you in contact with people/organizations/support groups that aid in, enhance, or reinforce your ability to teach inclusive physical education?
        i. Can you explain their role and how they work to support your inclusive pedagogy?
        ii. Why do you believe it is important or beneficial?
    c. If no, how do you think contact and consultation(s) would better facilitate your inclusive education practices?
2. Do you know what resources are available to you to support inclusive physical education?
    a. Do you know how to access these resources?
    b. What are particular resources you often turn to concerning how to best facilitate inclusive physical education?
    c. Why do you turn to/use this resource?
        i. * remember to ask or probe about trust factor – why do they trust this resource

3. What type(s) of resource – either social, organizational, or tangible - would you like to have available to you?
    a. Why?
    b. How might this resource be useful?
    c. How do you believe your teaching practice would benefit?
4. If you could add any additional content to the *Steps to Inclusion* document, what information/content would you add?
    a. What type of information would be most relevant to you? Why?
    b. Where do you currently look to find this type of information?

KNOWLEDGE: In this section, we would like to know more about your thoughts and experiences regarding *Steps to Inclusion*. The following questions should be considered from your personal point of view.
1. Had you heard of and/or read *Steps to Inclusion* prior to this project?
    a. If yes, who/what alerted you to the teaching tool?
    b. Have you read/used any other inclusive tools?
        i. Did you find them useful?

PERSUASION we are interested in knowing more about what would make *Steps to Inclusion* persuasive/useful/appeal to teachers. The next few questions relate to this idea.
1. What do you see as the purpose for *Steps to Inclusion*?
2. Which sections did you find were most useful or relevant to facilitating inclusive PE?
    a. Why did that/those particular section(s) resonate with you?
3. Which sections did you find unsuitable, or impractical facilitating inclusive PE
    a. Can you explain why you felt this way?

COMPLEXITY: In the following sections we would like your opinions concerning the current structure and format of the *Steps to Inclusion* document.
1. What do you think of the format of *Steps to Inclusion* and how it is structured?
2. What are the aspects of the format and structure that you specifically like?
    a. Why?
3. If you could, would you change the format of *Steps to Inclusion*?
    a. How would you make it more user friendly or more accessible?
    b. What format would be best to convey this type of information?
        i. Why?
4. What do you think of the length of *Steps to Inclusion*?
    a. What do you think about the language used in *Steps to Inclusion*?
        i. Why?
5. What do you think of the visual learning aids (e.g., charts, figures, tables) in *Steps to Inclusion*?
    a. Why?

DECISION/IMPLEMENTATION: In the following (two) sections we would like to you to discuss with us how you perceive *Steps to Inclusion* to fit within your current teaching practice. The proceeding questions will relate to this idea.

OBSERVABILITY: *Steps to Inclusion* outlines <u>general strategies</u> for inclusion within physical education.

1. * <mark>If no experience indicated above (ask questions 1 – 3 and 7) :</mark> How might the general strategies outlined in Steps to Inclusion be used in your future inclusive physical education classroom?
    a. Can you provide an example?
2. Although you have yet to use *Steps to Inclusion* in practice, in the future, do you see Steps to Inclusion helpful in developing/enhancing/supporting your inclusive teaching practice within a physical education context?
    a. If yes, please explain how.
    b. If no, please explain why not.
3. There are different aspects of teaching practice where *Steps to Inclusion* might be valuable. For example, lesson planning or activity modifications, interacting with parents interacting with other teachers, school staff, administrators, community organizations etc. and or awareness and promotion opportunities. In what aspect of your teaching practice might you find *Steps to Inclusion* to be a valuable tool?
    a. Why did you choose to speak about these areas specifically?
        i. Do you require additional support in this area?
4. <mark>If the participant indicated having previous experience with a SWD in physical education, ask questions 4-7</mark>. Reflecting on your own teaching practice, have you used any of the general strategies for inclusive PE that are outlined in *Steps to Inclusion*?
    a. Can you explain or provide an example?
5. Is the current format of *Steps to Inclusion* to helpful in developing/enhancing/supporting your inclusive teaching practice within a physical education context?
    a. If no, why?
    b. If yes, why?
6. There are different aspects of teaching practice where *Steps to Inclusion* might be valuable. For example, lesson planning or activity modifications, interacting with parents interacting with other teachers, school staff, administrators, community organizations etc. and or awareness and promotion opportunities. In what aspect of your teaching practice do you find *Steps to Inclusion* the most valuable?
    a. Please explain why you chose to speak specifically about _____?
    b. Do you think *Steps to Inclusion* does a particularly good job in this (these) area(s)? Why?
    c. Do you need extra support in this (these) area(s)?

        d.   What aspect of your teaching practice is currently the least supported by *Steps to Inclusion*?

7.   Can you please turn or scroll to the parent meeting guide on p. 20-21 and the icebreaker activities found on p. 28; how might you use these templates to help create an inclusive physical education classroom.

        a.   If yes, explain.

        b.   If no, explain.

REINVENTION:

1.   Do you think *Steps to Inclusion* can be used to help progress inclusive PE in your school?

        a.   If yes, please explain.

              i.   How would you use it?

        b.   If no, please explain why.

2.   Do you see the value in Steps to Inclusion as a resource to support inclusive physical education?

        a.   If yes, Being a ___*fill in with answer from above*____ teacher do you think you have the influence to make other teachers, school staff, and or administrators more interested in implementing/utilizing *Steps to Inclusion*/ inclusive education?

              i.   what are some ways you might go about doing this?

             ii.   * If no, why do you believe that you do not have the ability to influence others within your school environment to use *Steps to Inclusion*? Explain

            iii.   Who do you think may have the influence or power to persuade other teachers/staff members?

                   1.   Why do you think this person would be able to change your mind?

        b.   If no, why do you believe that *Steps to Inclusion* is not a valuable resource in supporting inclusive physical education? Explain

3.   Would you pass *Steps to Inclusion* along to other teachers and/or education administers to read/use?

        a.   If yes, who would you give it to?

              i.   Why?

             ii.   What are their positions within the teaching community?

        b.   If no, why not?

4.   Can you think of any suggestions for a better way of communicating *Steps to Inclusion* and making educators better aware of its existence?

TASK ISSUES:

1.   Do you have any short term and/or long term goals in terms of inclusive physical education?

    a. If yes, can you explain how you decide on your goals?
        i. what are your short and long term goals in terms of inclusive physical education?
        ii. How might *Steps to Inclusion* play a role in fulfilling goals?
        iii. How might you measure your progress of these goals?
    b. If no, can you explain why you don't currently have outlined goals for inclusive physical education?

<mark>**CONFIRMATION:**</mark> In the final questions, we ask that you reflect on your experience with *Steps to Inclusion*.

TRIALABILITY:
1. Has talking about *Steps to Inclusion* changed how you think about inclusive physical education, or at least made you think about it more thoroughly?

RELATIVE ADVANTAGE:
1. Do you think that you are likely to incorporate *Steps to Inclusion* in future planning?

Do you have any final thoughts, comments, or questions that you would like to share with us?

Works Cited in Appendices

Ajzen, I. (1991). The theory of planned behaviour. *Organizational behavior and human decision processes, 50*, 179–211.

American Psychological Association (APA). (2007). *APA dictionary of psychology*. Washington, DC: American Psychological Association.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215.

Cane, J., O'Connor, D., & Michie, S. (2012). Validation of the theoretical domains framework for use in behavior change and implementation research. *Implementation Science, 7*(37), 1- 17.

Huijg, J. M., Gebhardt, W. A., Crone, M. R., Dusseldorp, E., & Presseau, J. (2014). Discriminant content validity of a theoretical domains framework questionnaire for use in implementation research. *Implementation Science, 9*(33), 1-15.

Martin Ginis, K. A., Evans, M. B., Mortenson, W. B., & Noreau, L. (2017). Broadening the conceptualization of participation of persons with physical disabilities: A configurative review and recommendations. *Archives of physical medicine and rehabilitation*, *98*(2), 395-402.

Ontario Physical Health and Education Association (2010). *Steps to Inclusion*. Retrieved from https://www.ophea.net/product/steps-inclusion#.XHNY6C0ZNQI

Prochaska, J. O., & DiClemente, C. C. (1984). *The transtheoretical approach: Crossing traditional boundaries of change*. Homewood IL: J. Irwin.

Skinner, B. F. (1963). Operant behavior. *American Psychologist, 18*(8), 503–515.

Sunderland, S. (1995). *The MacMillan dictionary of psychology* (2nd ed.). London: Palgrave Macmillan.