

Examining Factors Related to Teachers' Decisions to Adopt Teacher-Training Resources for Inclusive Physical Education

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Abstract

Steps to Inclusion is a teacher-training resource specifically designed to facilitate inclusive physical education. Teacher-training resources, such as *Steps to Inclusion*, can only be effective when systematic and effective adoption is achieved. The diffusion of innovations theory (DOI) provides a useful framework to contextualize and understand factors related to teachers' adoption of various teacher-training resources. Guided by the DOI, this study identified factors that teachers perceived to be important in facilitating resource adoption. Results indicate that improved adoption of resources could be achieved by: (a) communicating/promoting resources to key educational leaders, and (b) providing curated content. Additional practical implications and future directions are discussed.

Keywords: inclusive education, physical education, students with disabilities, teacher training

Résumé

Étapes vers l'inclusion est une ressource de formation pour enseignants conçue spécialement pour faciliter l'éducation physique inclusive. Les ressources pour la formation des enseignants telles qu'*Étapes vers l'inclusion* ne peuvent être efficaces que si l'adoption est systématique et effective. La théorie de la diffusion des innovations (*diffusion of innovations* [DOI]) fournit un cadre utile pour contextualiser et comprendre les facteurs liés à l'adoption par les enseignants de ressources de formation pour enseignants. Guidée par la DOI, cette étude a identifié les facteurs jugés importants par les enseignants pour faciliter l'adoption des ressources. Les résultats indiquent que l'adoption pourrait être améliorée en (a) communiquant / promouvant les ressources de formation des enseignants aux responsables de l'éducation et (b) en fournissant un contenu organisé. Des implications pratiques supplémentaires et des orientations futures sont également discutées.

Mots-clés : éducation inclusive, éducation physique, étudiants handicapés, formation des enseignants

Introduction

Teachers play a critical role in the effective inclusion of students with disabilities¹ (SWD) in physical education (PE) classrooms. Teachers are expected to create effective inclusion strategies that facilitate a safe PE environment and accommodate all students' needs (Belley-Ranger et al., 2016) while enhancing overall physical activity (PA; Sallis et al., 2012). However, teachers widely communicate feelings of insufficient training or unpreparedness in delivering PE for SWD (Lirgg et al., 2017; Vickerman & Coates, 2009). Evidence-based professional development opportunities, including training tools and resources, are essential in supporting teachers to facilitate inclusive PE² (Sokal & Sharma, 2014). In general, training resources have been shown to be effective in expanding teachers' knowledge and providing opportunities to learn about optimal pedagogical practice (DeCorby et al., 2005). Awareness, acquisition, and implementation of effective training resources support teachers in creating a plan of action to facilitate optimal PE for SWD (Danielson, 2011). 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 inclusive classrooms (Avramidis et al., 2000).

Acknowledging the value of teacher training to facilitate inclusive PE, various PE-focused organizations (e.g., Ophea, NCHPAD, SPARK)³ have created training resources. Despite efforts to support teachers, effective inclusive PE practices are often thwarted, largely due to teachers' perceptions regarding a lack of resources (Sharma et al., 2008). Indeed, inclusive PE training resources can be effective in supporting teachers only when teachers are aware of the resources and adopt them into 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 et al., 2015) for improved inclusive PE practice.

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- 1 Within the context of this study, disability was understood broadly. The researchers adopted the definition and characteristics of disability as outlined and accepted by the Ontario Ministry of Education (2017). Teachers must contend with a variety of disabilities and students with diverse needs and, as such, it was believed that an inclusive definition would be best suited for this study.
 - 2 For the purposes of this study, inclusive PE is understood as providing SWD the opportunity to learn, engage, and participate in general PE classes alongside their age-matched peers (Klein & Hollingshead, 2015).
 - 3 Ontario Physical and Health Education Association (Ophea); National Center on Health, Physical Activity and Disability (NCHPAD); and Sports, Play, and Active Recreation for Kids (SPARK).

Although there is scant 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 possible factors. The DOI has previously been applied to understand and inform the adoption of other innovations in a school system (Webster et al., 2013) as well as interventions for children with disabilities (Dingfelder & Mandell, 2011). These earlier studies identified modifiable factors that have increased the adoption of interventions related to either school PA or SWDs. For example, factors that facilitated resource adoption included creating resources that were compatible with teachers' values and past experiences, and were simple to use and understand. The DOI provides a framework for a systematic process of determining 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). The application of the DOI can help identify salient factors that enable or impede resource adoption. An improved understanding of factors that facilitate or impede resource adoption may inform tangible strategies for the development and dissemination of resources that are most likely to be adopted and support teachers in facilitating inclusive PE.

In order to understand how the DOI guided this work, it is important that the various components of this theory are unpacked. According to the application of the DOI, adoption is dependent upon prior conditions that foster teachers' awareness of a resource and their perceived need for additional knowledge or resources (Rogers, 2003). Four specific prior conditions are considered to be antecedents of the adoption process. Within the context of the current study, the prior conditions that affect teachers' adoption of an inclusive PE training resource are: (1) teachers' previous practice or experience with teaching strategies for inclusive PE; (2) teachers' needs or problems, such as perceived voids, barriers, or difficulties practising inclusive PE; (3) teachers' innovativeness or receptivity in adopting a new inclusive PE training resource; and (4) the norms of the social system, such as established inclusive PE behaviours 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 (Rogers, 2003) including knowledge, persuasion, decision, implementation, and confirmation. Within the context of the current study, in the *knowledge* stage, teachers become aware of the resource and seek further information. In the second stage, *persuasion*, teachers' attitudes are shaped, either

positively or negatively, toward the resource. Within this stage, five characteristics of the resource work to shape teacher's attitudes: relative advantage, complexity, compatibility, trialability, and observability. Relative advantage is the degree to which teachers see the resource as an improvement over existing resources or practice. Complexity reflects how difficult teachers perceive the training resource to be with regard to use and understanding. Compatibility refers to the perceived consistency between the resource and the teachers' values, needs, and experiences. Trialability reflects the extent to which teachers believe 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 teachers (i.e., learning new methods, activities, or ways to provide inclusive PE to SWD). The *decision* stage is when teachers decide to adopt or reject the resource; if they reject the resource, then they would not apply it in practice. If the teachers adopt the resource, then they will enter the *implementation* stage and begin to use the resource regularly. Lastly, in the *confirmation* stage the teachers seek approval or support for their decision (e.g., affirmation or external validation from peers/colleagues and/or through self-assessment or reflexive practices).

Guided by the DOI framework, this study sought to identify factors related to teachers' decision making regarding the adoption of an inclusive PE training resource. The specific resource, *Steps to Inclusion* (described below) served as an example to understand more broadly how teachers make decisions regarding the adoption of resources generally. Considering that teachers' adoption was the main focus of this study, only the stages and characteristics of the DOI framework that directly facilitate or precede teachers' decisions to adopt a teacher training resource were analyzed. Therefore, only prior conditions, as well as knowledge and persuasion processes were considered.

Methods

Research Setting and Study Design

This study employed a phenomenological approach to understand the factors affecting teachers' decisions to adopt an inclusive PE training resource. The study took place in 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 Services Canada, n.d.; Hansen et al., 2006; Ontario Ministry of Education, 2009, 2018). Thus, Ontario is a geographically rich location for research regarding strategies to facilitate inclusive PE for SWD. Ontario is also home to the Ontario Physical and Health Education Association (Ophea), a not-for-profit organization with strong collaborative partnerships with “school boards, public health, government, non-government organizations and companies to develop groundbreaking programs and services” (Ophea, n.d., para. 1). 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, n.d.).

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 (Holt, 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 (Holt, 2010, p. 5). For the current study, teachers were given *Steps to Inclusion* because it is a concrete example of an inclusive PE training resource and can inform a meaningful discussion of factors related to the adoption of inclusive PE training resources more broadly. Results of these discussions could also inform the development, dissemination, and adoption of other tools and resources within and beyond Ontario.

Participants

Participants included Ontario generalist elementary teachers ($n = 14$) and secondary PE specialist teachers ($n = 6$).⁴ Table 1 presents additional participant demographic information. The inclusion of generalist elementary teachers was imperative as approximately 63% of elementary PE in Ontario is delivered by non-specialists (Faulkner et al., 2008).

4 Elementary teacher: a teacher trained to educate students from grades 1–8. Secondary teacher: a teacher trained to educate students from grades 9–12. Generalist: a teacher who has not received any specific PE training; predominantly delivers PE within an elementary school context (Hardman & Marshall, 2000). 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 degree (Spence et al., 2004).

Teachers were excluded if they: (a) had been retired or away from the classroom since 2010 or earlier;⁵ (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.

Procedure. Semi-structured interviews were employed to obtain detailed and in-depth data related to teachers' decision making regarding the adoption of an inclusive PE training resource. Prior to the qualitative interview, each participant received an electronic copy of the example teacher training resource (i.e., *Steps to Inclusion*).⁶ Participants 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 used 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 principal researcher worked to build rapport with the participants by using techniques outlined in previous research (e.g., engaging in pleasant conversation, being courteous, asking broad questions about participants' career; Gremler & Gwinner, 2008). These informal conversations allowed for seamless transition into the interview questions outlined in the interview guide.

Table 1. 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%

⁵ *Steps to Inclusion* was released in 2010.

⁶ Available at: <https://www.ophea.net/product/steps-inclusion#.Wr1E32YZN0s>

Variable	Frequency	Percent
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 (Ontario College of Teachers, 2019). Teachers holding qualifications in the aforementioned divisions are authorized to teach the following:

- Primary: JK 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.

**No PE qualification exists for elementary school teachers; however, there are specialist PE teachers who deliver PE in elementary settings.

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: (1) prior conditions that influence resource awareness and need (*prior conditions*); (2) factors related to teachers' knowledge of inclusive PE training resources, including *Steps to Inclusion (knowledge stage)*; and (3) factors related to teachers' attitudes toward 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 2 for sample questions). Higher-order themes were reflective of an existing structure of subcategories as specified by Rogers (2003). The subcategories provided additional detail on the factors *thought to* influence teachers' decision making regarding resource adoption.

The qualitative approach allowed the principal researcher to elicit discussion on the key study objectives, while also permitting organic conversation of broader themes and ideas (Kallio et al., 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 institution's Research and Ethics Board.

Table 2. Sample questions

DOI Theme	Category	Question(s)
Prior conditions	Previous practice	<ul style="list-style-type: none"> – 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 resource(s)	Complexity	– What are the aspects of the format and structure [of the inclusive PE training resource] that you specifically like?

Data Analysis

Interviews were digitally recorded and transcribed verbatim. A content analysis approach was used to systematically code and categorize text. This approach is thought to be well-suited for examining complex phenomena (Elo & Kyngäs, 2008) and is suitable for exploratory work (Green & Thorogood, 2004). Further, data were analyzed deductively (Elo & Kyngäs, 2008) to allow for interpretation of the data but also to expand and build upon current understanding.

Rigour. Several steps were taken to enhance the trustworthiness of data (Shenton, 2004). In an effort to engage teachers in the design of the study, the study's

methodologies and interview questions were reviewed by individuals in the field of education prior to commencing data collection. Additionally, the primary investigator engaged in ongoing reflexive practice throughout the data collection and analysis processes. Through conversations with a close colleague, the investigator 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 both with 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 these interactions.

The senior author is an expert in the field of behaviour change and is familiar with the DOI framework. In order to address transferability, the data were collected over a short time frame (<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.

Results

The results were organized into the three higher-order themes guided by the DOI framework (see Table 3): (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 toward inclusive PE training resources (*persuasion stage*). Each higher-order theme was analyzed to reveal inherent related 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 (Glaser & Strauss, 1967). This hierarchical coding scheme allowed the researchers to analyze the text at varying levels of specificity.

Table 3. Higher-order themes and associated lower-order categories

Themes	Lower-order categories
Prior conditions that influenced resource awareness and need	<ul style="list-style-type: none"> – Previous practice and experience – Felt needs/problems – Innovativeness – Social norms
Factors related to teachers' knowledge of inclusive PE resources	<ul style="list-style-type: none"> – Awareness of inclusive PE resources – Perceived purpose of the resource
Factors related to teachers' attitudes toward teacher training resources for inclusive PE: Persuasion stage	<ul style="list-style-type: none"> – Complexity – Compatibility – Trialability – Relative advantage

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. Relevant prior conditions were identified through discussions concerning previous experience, a felt need or problem, innovativeness, and social norms.

Previous practice and experience. Previous practice is the familiar standard through which teachers interpreted and compared *Steps to Inclusion* to other available

resources. All of 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 the notion of trustworthiness, participants often identified Ophea as a trustworthy organization and suggested it is “supported by my department head and it is just something you learn to go to as a teacher.”

Felt needs/problems. With regard to teachers’ needs specific to inclusive PE practice, teachers believed that they were facilitating inclusive PE and serving SWD 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*].

Innovativeness. Innovativeness was identified by teachers’ perceptions regarding the novelty of *Steps to Inclusion*. Teachers did not perceive the teacher-training resource to be novel, nor did they believe that adopting the resource would advance their pedagogical practice of inclusive PE. 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:

[The information] is good, 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 [with] this type of disability, I can do this.

Social norms. Teachers operate within norms of their social system through accepted standards of practice. Two general ideas emerged when discussing social norms: (1) conventional behaviours and practices concerning inclusive PE, and (2) 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 across classrooms, though similar sentiments emerged among teachers. Elementary teachers spoke about their initial efforts to modify and/or adapt their teaching practices appropriately for SWD. 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 important role of and support garnered from educational assistants was best reflected in the following comment:

EAs [educational assistants] can be a godsend. 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 who 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 [anything] to do with it? Um, and especially because they're the ones that [who] 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.

Factors Related to Teachers' Knowledge of Teacher Training Resources for Inclusive PE

It is imperative to gain an understanding of how teachers become aware of inclusive PE training resources as well as the processes they undergo to interpret the function of any given resource. Unfamiliarity with the existence of an inclusive teacher training resource and/or ambiguity concerning the function of the resource can impede adoption.

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 modify or adapt programming effectively to fit the needs of their SWD. 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.

Prior to the interview, participants were asked 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 teachers' college but 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."

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, [*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.

Factors Related to Teachers’ Attitudes Toward Inclusive PE Training Resources: Persuasion Stage

The persuasion stage is marked by the formation of teachers’ attitudes, either negative or positive, toward the inclusive PE training resource. That is, teachers’ favourable perceptions of the resource’s characteristics will maximize the likelihood that teachers will decide to adopt a resource. In order to understand this process better, Rogers (2003) highlighted five characteristics that are perceived to positively influence adoption: (1) complexity, (2) compatibility, (3) trialability, (4) observability, and (5) relative advantage.

Complexity. Complexity concerned teachers’ perceptions of ease or difficulty in using the inclusive PE training resource. Overall, teachers said of the teacher training resource (i.e., *Steps to Inclusion*): (a) it 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 searchable online database 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.

Compatibility. Rogers (2003) identified compatibility as how congruent an innovation is with the stakeholders' (i.e., teachers') current practice. During the interviews, it became apparent that 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 than 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 a resource came from "a reputable organization...it helps our cause [inclusive PE]."

Trialability. Rogers (2003) discussed trialability as the stakeholders' (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 [i.e., better weather]) how I could use them on the black-top 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’s] job but this parent guide could be useful during parent-teacher interviews.”

Relative advantage. Discussions concerning the relative advantage of the inclusive PE training resource tended to highlight content that future iterations of the resource could include to improve perceived usefulness. Teachers suggested the following:

1. A starting point for teachers who have yet to have a SWD 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 [*Steps to Inclusion*] could help.”
2. An overview of the various disability types. “There are so many different ones [disabilities],” one teacher commented. An overview would provide teachers with “lingo” or appropriate “describing words” that would enhance the relative advantage of teacher training resources.
3. 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. The following quotations from teachers demonstrate these considerations:

1. 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.”
2. 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?"

3. 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 a wheelchair, here are some things you can [do to] change and help."

Discussion

Guided by the DOI framework, this study sought to identify factors related to teachers' decision making regarding the adoption of an inclusive PE training resource. The specific resource, *Steps to Inclusion*, served as an example to understand more broadly how teachers make decisions regarding the adoption of resources generally. Using a theoretical lens to understand 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 an example of a minimally complex and straightforward resource, which provided a good planning tool for emerging teachers. Teachers suggested, however, the need for more interactive and reliable web-based resources. Additionally, teachers identified the need for content about situations involving SWD who presented with compound or higher needs and suggested that teachers would benefit from recommendations for specific modifications and adaptations in these cases. In light of teachers' concerns, the following discussion is structured to suggest areas of intervention within the knowledge and persuasion stages of the DOI framework. Factors related to teachers' knowledge and persuasion precede or directly facilitate adoption. Accordingly, intervention efforts should be focused on: (a) prior conditions: leveraging educational leaders; (b) factors related to teachers' knowledge of teacher training resources for inclusive PE: improved communication channels; and (c) factors related to teachers' attitudes toward inclusive PE training

resources: resource format, content, and supplemental learning opportunities. These priority areas are discussed in detail below.

Prior Conditions: Leveraging Educational Leaders

Teachers identified personnel within leadership roles (e.g., principals and department heads) as important in establishing the norms of the social system. These key educational leaders may work as catalysts for the adoption process regarding teacher-training resources. 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), critical to inclusive PE. Principals have complex roles within the context of inclusive education as visionaries, advocates, innovators, interpreters, and organizers (Cobb, 2015). However, there has been no known 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 with 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. The role of educational leaders may be particularly important during the early stages of a teacher’s career when he or she is establishing practices and seeking support resources. It may also 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 disseminate evidence-based resources efficiently 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. Dissemination practices that target both the end user (i.e., PE teachers) directly, as well as knowledge brokers (i.e., principal) may be an advantageous approach. An improved understanding of educational leaders and professional support networks as knowledge brokers who encourage and support the adoption of inclusive PE training resources is required.

Improved Communication Channels

Closely aligned with social norms are communication channels and professional networks that support adoption. Teachers talked about relying on their colleagues for information, direction, and suggestions of resources. Although resource sharing is not distinctively detailed in the literature on inclusion, inter-professional collaboration, co-teaching, and peer support have been extensively explored (Ainscow, 2000; Cook et al., 2013; Dettmer et al., 2013; Gebhardt et al., 2015; Solis et al., 2012). 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). It has become accepted that collaboration enhances the success of inclusive practice and the overall achievement of SWD (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. It is also imperative to acknowledge communities of practice and their role in how teachers become aware of and interpret inclusive PE training resources. Communities of practice are domains of collective learning that can improve access to knowledge and resources (Wenger, 2011) such as inclusive PE training resources. Communities of practice may act as a catalyst for adoption. Fostering communities of practice within inclusive PE may support teachers' awareness of training resources. An improved understanding of teachers' peer-to-peer communication channels and communities of practice, as well as how to foster and optimize them, would be of value to facilitate the adoption of inclusive PE training resources.

Factors Related to Teachers' Attitudes Toward Inclusive PE Training Resources, Persuasion Stage: Resource Format, Content, and Supplemental Learning Opportunities

Teachers suggested approaches or platforms that would accommodate their needs and facilitate the use of inclusive PE training resources. These suggestions were thought to serve as a means to improve teachers' attitudes towards inclusive PE training resources. Teachers specifically proposed the idea of a centralized website along with hands-on learning opportunities, which were thought to reduce resource complexity and enhance

trialability. With regard to a centralized website, teachers desired an online platform, rather than a static resource. They believed this type of platform would allow them to locate information germane to their needs quickly and efficiently (e.g., specific ways to modify activities based on students' varying abilities).

Teachers also suggested that the information presented in any given resource must 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 ensuring credibility (Cook et al., 2013), researchers have recognized that the Internet changes the way teachers plan and implement lessons (Gee & Levine, 2009; Kalantzis & Cope, 2010) as it provides quick access to information when teachers feel inadequately supported (Sawyer & Myers, 2018). The development of a centralized website to complement current inclusive PE training resources should be considered as a possible means to facilitate teachers' adoption of such resources.

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 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, 2019; 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 the planning of classroom activities.

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, particularly in the Greater Toronto Area. While their narratives illustrate broad themes that are not

geographically centred, 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 et al., 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; generalists vs. those trained in PA) could not be undertaken. The researchers do, however, feel that data saturation was achieved. There may be value in exploring whether a delineation exists between the adoption experiences of sub-categories of teachers such as pre-service in-service teachers or teachers with and without specific PE training. 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). Additional consultation with PE teachers is recommended as a means to understand data further within a practical perspective. It is pertinent to acknowledge the timeframe that participants were given to interact with the PE training resource. One week to read and interact with the document prior to their scheduled interviews may not have been sufficient time to read, implement, and reflect upon complex issues. 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.

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 teachers' needs 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 (Ainscow & Sandill, 2010), future research is necessary to understand how principals can leverage particular organizational contexts in order to promote the adoption of inclusive PE training resources. 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). 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 incorporate 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.

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