Exploring the Paralympic School Day Professional Development Program on Physical Education Teachers' Attitudes and Self-Efficacy

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Marie Leake, Ph.D., M.A.T., B.S.

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University of Virginia
School of Education and Human Development Registrar
Office of Admissions and Student Affairs

Ehd-registrar@virginia.edu
Ridley Hall 102D
417 Emmet Street
Charlottesville, VA 22903

Dissertation Approval Form

Student Full Name: Leake,Marie Christine [redacted]

Department Name: Kinesiology

Degree Program: Education (PhD) KINES6-CON Kinesiology

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	Name	Department/University	Signature
Chair	Martin Block	KINE/EHD/UVA	DocuSigned by: Martin Block
Co-Chair (if applicable)			
Committee Member	Abby Fines	KINE/EHD/UVA	DocuSigned by: Abby Fines
Committee Member	Peter Youngs	CISE/EHD/UVA	DocuSigned by: Peter Youngs
Committee Member	Jim Soland	EDLF/EHD/UVA	DocuSigned by: Jim Soland
Committee Member	Cathy McKay	Kinesiology, College of Health and Behavioral Studies, James Madison University	DocuSigned by: Cathy McKay
Committee Member			
Committee Member			
Student	Marie Christine Leake		DocuSigned by:

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Abstract

This dissertation includes three papers aimed at investigating and enhancing physical educators' attitudes and self-efficacy in teaching students with disabilities within the general physical education (PE) setting. The first paper presented a comprehensive literature review that examined the definitions, conceptualizations, and measurement methods of attitudes among PE teachers towards students with disabilities. The review highlighted inconsistencies in research methodologies and emphasized the need to shift focus towards understanding factors influencing attitudes, such as beliefs about inclusion and perceived behavioral control.

The second paper reported findings from a qualitative study that explored physical educators' attitudes towards teaching students with disabilities following participation in a Paralympic School Day professional development program (PSD-PDP). Results revealed a shift in attitudes towards inclusive teaching practices, indicating an increased awareness and willingness to accommodate diverse needs within the PE classroom.

The third paper adopted a mixed methods approach to investigate physical educators' self-efficacy (SE) in teaching students with disabilities after engaging in the PSD-PDP. Quantitative analysis demonstrated a significant increase in SE scores post-program, corroborated by qualitative data highlighting changes in attitudes and perceptions towards inclusive teaching strategies.

Together, these papers contributed to a deeper understanding of the attitudes and self-efficacy of physical educators in teaching students with disabilities, underscoring the importance of targeted professional development programs in promoting inclusive practices within the PE curriculum. The findings had implications for curriculum design, teacher training, and policy development aimed at fostering an inclusive learning environment for all students in physical education settings.

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Physical Education Teachers' Attitudes towards Teaching Students with Disabilities: A Systematic Review of Empirical Studies

Abstract

The purpose of this review is to examine attitude (a) definitions, (b) conceptualizations, and (c) measurement methods, as they relate to the attitudes of PE teachers towards students with disabilities. Keyword searches were used to identify relevant literature from electronic databases published from 2013 to 2023. Twenty-five articles met all inclusion criteria, and relevant data regarding participants, measurement, and research design. Of the 25 articles, 15 were quantitative, eight were qualitative and one was mix-method design. Major findings indicate research in this area has been inconsistent in terms of attitude definitions, conceptualizations, and measurement methods. These inconsistencies make it difficult to examine the relationship between attitude and other variables as well as compare findings across studies. The authors surmise that moving forward, the focus of research should shift from determining attitudes of PE teachers, to focusing on factors that influence attitudes, such as beliefs about inclusion and perceived behavioral control.

Keywords: Methodology, attitude, inclusion, disability

Introduction

In 2021, 66% of students with disabilities spent at least 80% of their school day in general education settings (National Center for Education Statistics, 2023). This figure has doubled since 1990 when it stood at 33%. In the context of inclusive education, the initial placement of students with disabilities into general education classes frequently occurs in subjects such as physical education (PE), art, and music (Alquraini & Gut, 2012). This pattern of increased enrollment of students with disabilities being placed into general PE settings is seen not only in the U.S. but throughout the world (Heck & Block, 2019). Participation of students with disabilities in PE can increase a sense of belonging to the school community due to the socially structured environment (Rojo-Ramos et al., 2023; Sherrill, 2004). Additionally, participation in PE can increase physical functioning and motor skill acquisition, which benefits overall well-being (Murphy & Carbone, 2008).

Placing students with disabilities in general PE is certainly a positive step towards inclusion, which is a student's subjective experience of belonging, acceptance, and value within an educational setting (Spencer-Cavaliere & Watkinson, 2010). Unfortunately, mere placement of students with disabilities into general education settings, including general PE, does not ensure social inclusion. When asked about their experiences in general PE, students with disabilities often report negative experiences including struggling to be accepted, feeling isolated and not belonging, feeling as if they were treated differently by their peers and PE teachers, and feelings of incompetence (see Obrusnikova & Block, 2020; and Rekka et al., 2019, for a review).

Research has been long focused on trying to understand barriers to successful inclusion into PE. One of the most important factors in successful inclusion of students with disabilities in general PE perceived competence of the PE teacher (Block et al., 2016; Obrusnikova & Block, 2020; Özer et al., 2013). Unfortunately, studies suggest PE teachers do not feel confident in their ability to successfully include students with disabilities into their general PE programs, citing insufficient pre-service education, limited hands-on experiences, large class sizes, and expensive specialized equipment (Hersman & Hodge, 2010; Shields &

Synnot, 2016; Wilson et al., 2020). In addition to perceived confidence, attitudes of teachers towards teaching students with disabilities has emerged as a crucial factor influencing the effectiveness of inclusive education (Block et al., 2016; Ozer et al., 2013; Reina et al., 2019).

As the importance of teacher attitude became clear, research has turned its focus towards exploring the attitudes of pre-service and in-service PE teachers towards teaching students with disabilities. Research suggests physical educators generally exhibit positive attitudes (Rekaa et al., 2019; Tarantino et al., 2022). However, as noted earlier, these statements are often accompanied by justifications to why teachers are unable to effectively include a student with a disability, such as large class size, lack of personnel support, and inadequate training (Qi & Ha, 2012). It is important to note that most physical education teacher education programs in the U.S. require only one adapted physical education (APE) course, which does not always require hands-on practicum experience (Piletic & Davis, 2010). One introductory APE course with limited hands-on experiences is likely not enough to prepare PE teachers to accommodate the wide variety of children with disabilities who are being included in general PE (Block et al., 2016).

Teacher attitude research has been highly ambiguous. For example, in a review of studies focusing on attitudes of teachers in implementation science, Fishman et al. (2021) found that researchers rarely defined the construct of attitudes, lacked justification for attitude measures used, or commonly used a procedure that was unique to the singular study (Fishman et al., 2021). This led to inconsistent results that fail to explain the relationship between attitude and other variables. The lack of a definition of attitude is particularly problematic. Without a standardized definition, researchers are vulnerable to lack of agreement on attitude constructs. Of the definitions included, many stemmed from Ajzen and Fishbein's (1980) definition, which this paper adopts: "Attitude can be defined as a generalized positive or negative evaluation people may have towards any object."

While there have been reviews of literature on inclusion that have included attitudes of PE teachers towards teaching students with disabilities (Hutzler et al., 2019; Tarantino et al., 2022; Wilhelmsen & Sorensen, 2017), there have been no reviews that have focused

solely on methodological approaches. The purpose of this systematic review of literature was to examine the different ways attitude has been (a) defined, (b) conceptualized, and (c) measured in relation to determining the attitudes of PE teachers towards teaching students with disabilities in the general PE class. This review serves as a valuable resource that will inform future studies and result in more consistent and rigorous methodological approaches.

Method

Identifying Studies

The PRISMA Guidelines (Moher et al., 2009) were used to structure the search of literature used in this review. The inclusion criteria required the research to have been (1) an original empirical study, (2) contain a methods description, (3) published in English, (4) focused on determining the attitudes of pre-service or in-service physical education teachers towards teaching students with disabilities in the general education class (studies focusing exclusively on teachers from other content areas or self-efficacy were excluded), and (5) published in a peer reviewed journal from January 2013 to January 2023. In order to facilitate the work of future researchers and provide insight into the methodological approaches employed in recent years, a deliberate decision was made to focus on a 10-year timeframe.

The search terms used were [(“physical education”) AND (“teacher attitude”) AND (inclusion) AND (disability)]. The databases searched included ERIC, Academic Search Complete, Education Full Text, Education Index, Education Research Complete, Physical Education Index, Psychology and Behavioral Sciences Collection, and SPORTDiscus. Based on the search criteria described above, 141 studies were identified. To adhere to the PRISMA Guidelines (Moher et al., 2009) for navigating the selection process, duplicate studies were deleted (*n* = 79). Figure 1 illustrates a flowchart of the selection process. The author then screened titles, abstracts, and method sections for the aforementioned inclusion criteria which resulted in the exclusion of 39 studies. After full-text screening of the remaining 22 studies an additional five studies were excluded. An additional seven studies were included after a manual review of reference lists. In all, 24 studies were included for analysis.

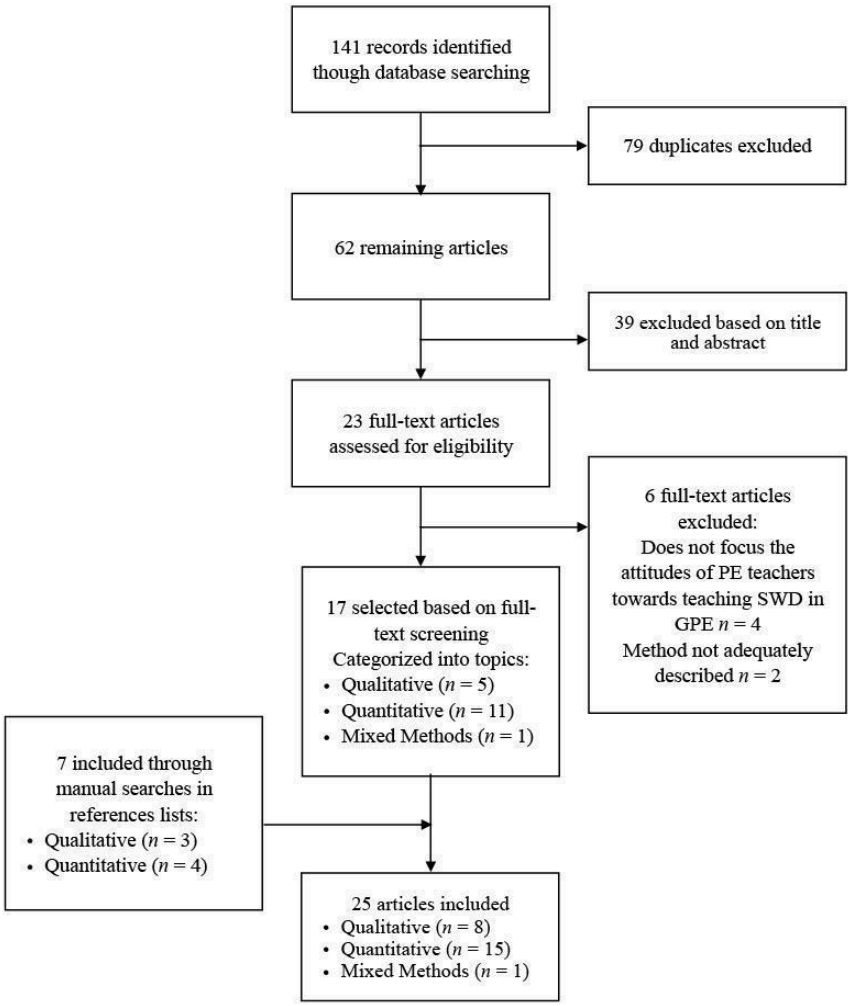


Figure 1 – Flowchart of study selection.

Analysis

Data analysis of the selected studies is two-fold. Descriptive analysis was a necessary first step to contextualize all relevant evidence. Studies were deconstructed into predetermined categories, which were identified from past literature reviews of inclusive physical education (Qi & Ha, 2012; Wilhelmsen & Sorensen, 2017). The studies were categorized by methodological approach, participant perspective, data source, theoretical framework, study design, findings, attitude definition, and location. The methodological approaches were coded as qualitative, quantitative, or mixed-method (qualitative and quantitative) studies. Participant perspectives in the selected studies were either pre-service or in-service physical education teachers. The study design was coded as intervention or no

intervention. In the cases of no intervention, the data collection method was used to determine the attitudes of physical educators with no attempt from the researchers to alter participant perspectives. The findings category reports the major themes that resulted from the study. Attitude definitions include direct quotes from the studies that explicitly defined how attitude was framed in the study. Lastly, location was determined by the country in which the data were collected. To reduce potential bias, a research assistant completed this process independently and then compared findings with the lead researcher. When disagreements in analysis arose, we came to a decision together after discussion and reassessment of the article in question.

After identifying conditions and possible patterns across studies, the second phase focused on understanding the theoretical frameworks used and methodological approaches used. Currently, we know the barriers (large class sizes, lack of hands-on experiences) and facilitators (positive teacher attitude) of effective inclusion within PE, but have yet to unpack the methodological approaches that have been used to reach these conclusions. Examining these methodological approaches was essential to meet the aim of this literature review.

Results

Table 1 describes the 24 studies by the eight predetermined categories: methodological approach, participant perspective, data source, theoretical framework, study design, findings, attitude definition, and location.

Table 1

Studies on Physical Education Teachers Attitudes Towards Teaching Students with Disabilities

Participant Perspective	Authors (Year) [Journal]	Data Source	Theoretical Framework	Intervention (Y/N)	Findings	Attitude Defined (Y/N)	Location
Qualitative Studies (*n* = 8)							
Pre-service *n* = 6	Barber (2018)	Focus groups, videography, individual interviews	Not included	Yes	(1) Pre-service interventions can begin to change attitudes to inclusion, (2) participants began to reconceptualize ability and dis-ability, and (3) unclear if longitudinal changes in practice and lesson planning would occur.	No	Canada
	Barber et al. (2016)	Auto-ethnography and videography	Not included	Yes	Participants experienced significant shifts in attitudes towards inclusive physical education.	No	Canada
	Maher & Morley (2020)	Focus groups	Theory of Mind (Goldstein & Winner, 2012); Situated Learning Theory (Lave & Wenger, 1991)	Yes	Participants developed a more empathetic attitude toward students with disabilities.	No	England
	Roper & Santiago (2014)	Focus groups	Not included	Yes	Intervention positively affected their attitudes toward individuals with disabilities.	Yes	United States
	Sato et al.	Interviews,	Theory of	Yes	Ambivalent or negative to positive	No	United States

	(2015)	Self-reflective journals entries, email follow ups	Planned Behavior (TpB; Ajzen, 1985, 1991)		attitudes about teaching students with severe disabilities in aquatics.		
	Tindall et al. (2015)	Reflective written artifacts	Situated Learning Theory (Lave & Wenger, 1991)	Yes	Positive change in attitude and perception toward both the idea of inclusion and working with students with disabilities. Pre-programme anxieties diminished, confidence increased, and the benefits of the program design were realized.	Yes	Ireland
In-service *n* = 2	McGrath et al. (2019)	Semi-structured interviews	Social Constructivism Theory (Vygotsky, 1978)	No	(1) Overall positive attitude and perspective towards inclusive physical education, (2) participants reported a need for pre-service hands-on experience with students with disabilities, and (3) everyday interactions to be challenging.	No	Ireland
	Qi et al. (2017)	Semi-structured interviews	Social Constructivism Theory (Vygotsky, 1978)	No	(1) Favorable attitudes, but with concerns, (2) need for professional development, and (3) lack of collaboration with key stakeholders (administrators, parents, paraprofessionals, etc.).	No	China
Quantitative Studies (*n* = 15)							
Pre-service *n* = 4	Braksiek (2022)	Attitude Toward Inclusive Physical Education (ATIPE) (Hutzler et al., 2005)	Theory of Planned Behavior (Fishbein &	No	Contact intensity with people with disabilities positively affected participants' attitudes toward inclusive PE.	Yes	Germany

			Ajzen, 2010)				
	Di Nardo et al. (2014)	Attitudes Towards Teaching Individuals with Physical Disabilities in Physical Education (ATIPDPE) (Kudláèek et al., 2002)	Theory of Planned Behavior (Ajzen, 1991)	Yes	Positive attitudes towards inclusion after completing an undergraduate course in adapted physical education.	Yes	Italy
	Orlic et al. (2016)	Attitude Toward Inclusive Physical Education (ATIPE) (Hutzler et al., 2005)	Not included	No	Moderately positive attitudes towards inclusion of children with disabilities in PE classes. Participants also reported a need for professional development and hands-on experiences.	Yes	Serbia
	Sharma & Nuttal (2016)	Teachers' Attitudes Toward Inclusion Scale (TATIS) (Bailey, 2004)	Not included	Yes	Completing a course in special education increases positive attitudes towards inclusion.	No	Australia
In-service *n* = 11	Arteaga et al. (2014)	Physical Educators' Attitudes Toward Teaching Individuals with Disabilities-III (PEATID-III) (Rizzo, 1993)	Not included	No	Ninety percent of PE teachers agreed with the concept of teaching students with disabilities in general PE. Reported a need for more training.	No	Venezuela
	Columna et al. (2016)	Physical Educators' Intention Toward Teaching Individuals with Disabilities	Theory of Planned Behavior (Ajzen, 1991)	No	PE teachers from Venezuela and Costa Rica had more positive attitudes toward teaching students with disabilities than teachers from	Yes	Argentina, Columbia, Costa Rica, Guatemala,

	(PEITID) survey (Tripp & Rizzo, 2006)			Colombia and Guatemala.		and Venezuela
Cyran et al. (2017)	Attitudes Towards Teaching Individuals with Physical Disabilities in Physical Education-Revised (ATIPDPE-R) (Kudlacek, 2007)	Theory of Planned Behavior (Ajzen, 1991) Theory of Reasoned Action (Ajzen & Fishbein, 1980)	No	The aim of this study was to determine the validity of the ATIPDPE-R to the Polish context. The Polish version is valid and reliable to measure the attitudes of physical education teachers towards teaching students with physical disabilities.	Yes	Poland
Đorđić et al. *(2014)*	Attitude Toward Inclusive Physical Education (ATIPE) (Hutzler et al., 2005)	Not included	No	Participants had moderately positive attitudes towards inclusive physical education. Participants reported lack of training results in higher stress and less time to work with other students.	No	Serbia
Gava et al. (2018)	Attitude Toward Inclusive Physical Education (ATIPE) (Hutzler et al., 2005)	Not included	No	Teachers who had past experience working with students with disabilities reported more positive attitudes than counterparts.	No	Serbia
Haegele et al. (2018)	Physical Educators' Judgements about Inclusion (Hodge et al., 2002)	Not included	Yes	Participants were consistently undecided about their positioning toward inclusive ideology. A need for additional training is reported.	No	Brazil
Hodge et al. (2015)	Physical Educators' Judgements about Inclusion (Hodge et al., 2002)	Not included	Yes	The purpose of this study was to validate the PEJI to be translated to Portuguese. It is recommended to report subscale scores rather than	No	Brazil

				total score.		
	Kavanaugh et al. (2021)	Teachers' Beliefs and Intentions toward Teaching Students with Disabilities (TBITSD) (Jeong & Block, 2011)	Not included	No	APE teachers have more positive attitudes towards teaching students with disabilities than PE teachers.	Yes	United States
	Ogu et al. (2017)	Physical Educators' Attitudes Toward Teaching Handicapped (PEATH) (Rizzo, 1984)	Not included	No	PE teachers reported teaching students with disabilities will require too much of their time, result in more work, and will create more discipline problems.	No	Nigeria
	Özer et al. (2013)	Teachers' Attitudes Towards Children with Intellectual Disability Scale (TACIDS) (Sucuoglu et al., 1997)	Not included	No	PE teachers had mixed feelings towards teaching students with disabilities. Relatively positive results towards social effects, but moderate degrees of difficulty towards barriers.	Yes	Turkey
	Yarimkaya & Rizzo (2020)	Physical Educators' Attitudes Toward Teaching Individuals with Disabilities-III (PEATID-III) (Rizzo, 1993)	Theory of Planned Behavior (Ajzen, 1991; 2019)	No	PE teachers hold generally positive attitudes towards teaching students with disabilities. Gender, years teaching, experience with students with disabilities impacted beliefs and attitudes.	No	Turkey
Mixed Methods Studies (*n* = 1)							
In-service *n* = 1	Mangope et al.	Attitudes toward the Inclusion of	Not included	No	Pre-service teachers have moderately positive attitudes	No	Botswana

(2013)	Individuals with Disabilities Scale (ATIES) (Wilczenski, 1995); Interviews	towards inclusion. Participants were concerned about the lack of knowledge and skills required for inclusion.

Methodological Approaches

Upon examination of methodological approach, 62.5% (*n* = 15) of the studies used a quantitative approach, all of which utilized surveys. Thirty-three percent (*n* = 8) of the selected studies utilized a qualitative approach with interviewing (50%: *n* = 4) and focus groups (37.5%: *n* = 3) being the most common data collection methods. Additionally, the most common participant recruitment used was convenience sampling. Many of these studies gathered data through voluntary surveys that were distributed in the mail or at conferences. Only one of the studies (4.17%) used a mixed methods approach where the primary data source was a survey and interviews were used to inform the results.

Surveys Used

Ten different surveys were used across the 16 studies that utilized a survey as the primary data source. The Attitude Towards Inclusive Physical Education (25%: *n* = 4; Hutzler et al., 2005) was used most frequently. Two versions of the Attitude Towards Teaching Individuals with Physical Disabilities in Physical Education (Kudláèek et al., 2002), the Physical Educator' Attitudes Toward Teaching Individuals with Disabilities-III (Rizzo, 1993), and the Physical Educators' Judgements about Inclusion (Hodge et al., 2002) scales were each used twice (12.5%). The remaining six scales were each used once (6.25%). Three of the surveys used in five of the studies were different iterations of the same survey that was first published in 1984 by Rizzo (Rizzo, 1984, 1993; Tripp & Rizzo, 2006). This is important to note since three studies used the outdated versions of the current scale (Ogu et al., 2017; Arteaga et al., 2014; Yarimkaya & Rizzo, 2020). Several scales used the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980) as the theoretical foundation but as you will read on to learn, TRA is an incomplete and outdated model in this context. A critical discussion about the differences among these frequently cited scales is addressed in subsequent sub-sections.

Theoretical Framework

Another critical component of this review is to organize, compare, and synthesize the theoretical frameworks that were explicitly reported in the selected studies. Forty-six percent (*n* = 11) of the studies reported a theoretical framework that guided the empirical research. The most reported theoretical framework was the Theory of Planned Behavior (TpB; Ajzen, 1985; 1991; 2019; Fishbein & Ajzen, 2010) (54.5%: *n* = 6). Other reported theories include: Situated Learning Theory (Lave & Wenger, 1991) (18.2%: *n* = 2); Social Constructivism Theory (Vygotsky, 1978) (18.2%: *n* = 2); Theory of Mind (Goldstein & Winner, 2012) (9.1%: *n* = 1); Theory of Reasoned Action (Ajzen & Fishbein, 1980) (9.1%: *n* = 1). Inversely, 54% (*n* = 13) of the selected studies did not state if a theoretical framework was used. Of these 14 studies that appear to be atheoretical, 12 used a survey which previously had been developed based on a theoretical framework, but there was no mention in the studies of these theories. It is unclear if these studies applied the theory that underpinned the survey used in the analysis of the results. Theory aids in the ability to organize knowledge and construct objectivity (Longo & Soto, 2016). Research without theory is more subjective in the claims of relationships between variables and explanation of how and why a phenomenon is occurring.

Intervention

When reviewing the research, it was apparent that few studies included an intervention that sought to influence the participants' attitude toward teaching students with disabilities (41.67%: *n* = 10). Eight of the 10 studies that used interventions were qualitative studies while the remaining two were quantitative. Interventions included participating in a pre-service adapted physical education course (40%: *n* = 4), an adapted physical activity program (40%: *n* = 4), or a professional development session (20%: *n* = 2). The two studies that used professional development as the intervention were the only two intervention studies that focused on in-service physical educators. It is important to note that only a small number of intervention studies have been conducted on in-service physical education teachers in this context. Most of the research that explores the attitudes of these teachers

towards students with disabilities has relied on anonymous surveys sent via mail or internet, aimed at gaining a general understanding of their attitudes rather than improving attitudes.

Definitions of Attitudes

Although all the studies focused on understanding attitudes, only 50% (*n* = 12) included a definition of how attitude was framed within their study. Two of the studies included the same definition that was provided by Ajzen & Fishbein (1980): “Attitude can be defined as a generalized positive or negative evaluation people may have towards any object.” In the context of this literature review, the “object” in question would be teaching students with disabilities and “people” would be physical educators. Although the other attitude definitions presented are not verbatim, they seem to be derived from the definition provided above. Alternative phrasings include: “degree of favorableness or unfavorableness” (Fishbein & Ajzen, 2010); “positive or negative evaluation” (Zimbardo & Leippe, 1991); “evaluative responses” (Albarracin & Shavitt, 2018); “positive or negative expression of one’s tendency” (Cyran et al., 2017); “attitudes represent dispositions” (Gall et al., 1996; Vogel & Wanke, 2016); and “opinion or general feeling” (Avramidis & Norwich, 2002; Rust & Sinelnikov, 2010). It is encouraging that the attitude definitions provided are similar in meaning, but discouraging that half of the studies did not define the attitude construct. This missing piece makes it difficult to compare findings across studies and leaves the field open to unnecessary risk of misinterpreting results.

General Findings from Studies

Key themes from the identified studies include: (1) an overall positive attitude by PE teachers toward inclusive PE, (2) a need for increased pre-service training as well as on-going professional development, (3) increased hands-on experiences teaching students with disabilities, and (4) improved pre-service PE teacher attitudes after completing an adapted physical education course. The consistency of these findings with research spanning the last two decades indicates a lack of significant progress in improving PE teacher attitudes within the field (Qi & Ha, 2012; Wilhelmsen & Sorensen, 2017).

Location of Studies

Over half of the studies originated from Europe (37.5%: *n* = 9, which included England, Germany, Ireland, Italy, Poland, and Serbia) and North America (20.83%: *n* = 5, three from the United States and two from Canada). South America accounted for 16.67% (*n* = 4), three studies (12.5%) were from Asia, two studies (8.33%) were from Africa, and one study (4.12%) was from Australia. It should be noted that in Europe (with the exception of Italy and Portugal), South America, and Asia, most children with disabilities are still placed in special classes or special schools. As a result, PE teachers in these regions of the world likely do not have first-hand experience including students with disabilities into their general PE programs, which may influence their attitudes towards inclusion (Heck & Block, 2019).

Discussion

After analyzing the collected data in this review, distinct patterns emerged, encompassing prevalent theoretical frameworks, the origins of attitude definitions, and the survey instruments utilized in the research. The subsequent discussion delves into the aim of this review — a comprehensive examination of how attitudes have been defined, conceptualized, and measured in the context of PE teachers' attitudes towards teaching students with disabilities in general PE classes.

Evolution of Theory: Theory of Reasoned Action to Theory of Planned Behavior

Eighty percent (*n* = 8) of the surveys in this review that included a theory utilized the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980) and/or the Theory of Planned Behavior (TpB; Ajzen, 1985; 1991; 2019; Fishbein & Ajzen, 2010). Additionally, the attitude definitions that were included in the studies stem from Ajzen and Fishbein's (1980) work. For these reasons, the discussion will focus on these theoretical frameworks and their influence on attitude research.

Theory of Reasoned Action includes two constructs that predict behavior: (a) attitude towards the behavior and (b) the subjective norms (perceived social pressure to engage in a behavior). TRA assumes perfect volitional control, meaning performance of the behavior is a direct result of behavioral intention (Ajzen, 2020). For example, if a teacher has the intention

to authentically include a student with a disability, then this is what they will do regardless of the situation. However, barriers to effective inclusion of students with disabilities into general PE have been well-researched (Qi & Ha, 2012; Wilhelmsen & Sorensen, 2017). New insights reveal that even when teachers hold positive attitudes and intentions, the effectiveness of teaching a student with disabilities in a general PE is influenced by multiple variables. Such barriers include lack of pre-service education, lack of in-service professional development, unsupportive colleagues, class size, availability of adapted equipment, and so on. Due to the complexities of effectively teaching students with disabilities in general PE, researchers cannot assume there is perfect volitional control. As a result, the TRA is now viewed as an incomplete model in this context, as teachers do not have perfect volitional control. The fact that one of the studies in this review used TRA as the theoretical framework and four studies used surveys that were based on this framework was surprising.

Theory of Planned Behavior is an extension of the TRA, which includes a third construct that considers perceived behavioral control (Ajzen, 2022). Perceived behavioral control is the belief that is associated with the presence of barriers or facilitators to performing a behavior. These factors can include required skills and abilities to perform the task, availability of time and other resources, and cooperation from others (Ajzen, 2020). If a physical educator has received pre-service coursework in adapted physical education, has access to relevant professional development opportunities, and works with other professionals who share the same intention, they are going to perceive that they have more control over their ability to teach students with disabilities in general PE. Perceived behavioral control is a moderating variable to attitude and subjective norm; attitude and subjective norm beliefs can be improved by having a high-level of perceived behavioral control (Ajzen 2020).

Similar to TRA, the purpose of TpB is to predict an individual's behavior, not an individual's attitude. TpB consists of three components: attitude, subjective norms, and perceived control. The studies in this review that use these theories as their theoretical

frameworks are using all available components with TpB. This leads one to wonder: Have researchers been determining attitudes as they claim, or have they been determining behavioral intention?

Evolution of Survey: PEATH to PEITID

About 81% (*n* = 13) of the studies that used a survey instrument utilized a survey based on TRA or TpB. Twenty-five (*n* = 4) of these studies used variations of the same survey. These surveys included: Physical Educators' Attitude Toward Teaching Handicapped (PEATH; Rizzo, 1984), Physical Educators' Attitudes Toward Teaching Individuals with Disabilities-III (PEATID-III; Rizzo, 1993), and Physical Educators' Intention Toward Teaching Individuals with Disabilities (PEITID; Tripp & Rizzo, 2006). This section examines the evolution of these surveys to address the aforementioned problem that research has been measuring behavioral intention rather than attitudes.

Rizzo's first survey in this lineage was the Physical Educators' Attitude Towards Teaching Handicapped (PEATH; 1984) survey, which aims to assess teacher attitudes toward students with disabilities depending on type of disability and grade level. The respondent population during the validation process for this survey included only in-service physical education teachers. Ajzen and Fishbein's Theory of Reasoned Action (TRA; 1980) provides the theoretical foundation for this measure.

While ties with a theoretical foundation and claim of validity are usually strengths, in this case, they are also problematic. First, Rizzo (1984) introduces the PEATH survey without an explanation of why or how TRA underpins the instrument. Based on the absence of this information, it is unclear to what extent the TRA was applied in the creation of the PEATH survey or in the analysis of results. Theory aids in the ability to organize knowledge and construct objectivity (Longo & Soto, 2016); therefore, a weak theoretical alignment increases the risk of the findings being subjective and, as a result, not valid. Secondly, PEATH should further be put into question because it has the most basic form of validity testing – face validity. Face validity refers to what extent a test *appears* to measure rather than what the test *actually* measures (Bornstein, 1996; Johnson, 2021). Rizzo gathered a

panel of six doctoral professionals in the field of education to assess the face validity of the PEATH survey. The panel commented on content of items, suggested edits to wording, and concluded that the PEATH had sufficient face validity because it *appeared* to measure teacher attitude toward students with disabilities. There was no statistical testing conducted to determine *what* the test actually measured. Face validity can be a useful supplemental form of validity but is not objective enough to be a standalone validity argument. In other words, it is hard to ascertain that PEATH measured what it intended – the attitudes of in-service physical educators towards teaching students with disabilities.

The Physical Educators' Attitudes Toward Teaching Individuals with Disabilities-III (PEATID-III) was later developed by Rizzo in 1993 as a revision of the PEATH, but was not formally assessed for construct validity and reliability until 2002 (Folsom-Meek & Rizzo, 2002). The goal of this survey was to determine beliefs and attitudes of physical education teachers towards teaching students with disabilities in general PE, the same as PEATH. Revisions updated terminology, including person-first language. This survey was validated with a population of pre-service physical education teachers, yet the three studies in this review that utilized this instrument included only in-service teachers (Arteaga et al.,2014; Wang et al., 2015; Yarimkaya & Rizzo 2020). Surveys are created and validated for a specific population of respondents, and if this population changes the instrument should be re-validated (Juniper, 2009). In this case, PEATID-III was not validated with in-service teachers in mind.

PEATID-III, like PEATH, was theoretically oriented by TRA (Azjen & Fishbein, 1980). Similar to PEATH, PEATID-III asserts that attitude toward the behavior can be inferred from the level of agreement a respondent has with belief statements about the behavior. Rizzo did address why the choice was made to not adopt the TpB, which would have added the component of perceived behavioral control. This choice was made based on his belief that since the law was that students with disabilities were to be taught in general education classes to the maximum extent possible, this would make the perceived behavioral control irrelevant. We now know that placement of a student with a disability in a general education

class does not mean the student will have their educational or social needs met (Obrusnikova & Block, 2020; Rekka et al., 2019), and PE teachers cite various barriers to including students with disabilities into their programs (Qi & Ha, 2012). Since perceived behavioral control is a moderating variable to attitude and subjective norm, and perfect volitional control cannot be assumed in this context, the theoretical foundation for this measure is incomplete.

In 2006, Rizzo and Tripp created the Physical Educators' Intention Toward Teaching Individuals with Disabilities (PEITID) survey, which was a revision of PEATID-III. The PEITID utilized the TpB theoretical framework instead of TRA and aimed to determine the intentions of physical educators toward teaching students with disabilities in general PE, rather than their attitudes. This change was informed by recent research that highlighted the impact that perceived behavioral control has on attitudes and beliefs (Ajzen, 2022). This change required additional theoretical constructs to be added to be in accordance with TpB (Ajzen, 2002). The PEITID contains constructs for beliefs, attitudes, intentions, perceived control, and subjective norms. These changes addressed the need for consideration of perceived behavioral control when attempting to understand associated attributes, such as intentions, attitudes, and beliefs.

This most recent revision to this lineage of surveys seems to be the most theoretically complete and is seeking to determine intentions, which is a more tangible outcome than attitude. Attitude has proven to be a complex attribute to determine due to its abstract nature and social desirability concerns. Even if researchers were able to accurately measure an individual's attitude, it does not carry practical implications since it is known that attitude is influenced by other factors such as perceived behavioral control. Simply put, if a teacher has a positive attitude towards teaching students with disabilities in PE but lacks perceived behavioral control, then according to this theory their intention to teach students with disabilities will be negatively impacted. The inverse of this is true as well, if a teacher has an ambivalent attitude toward teaching students with disabilities in PE but has a high level of perceived behavioral control, their intention to teach students with disabilities will be

positively impacted. For decades researchers have been attempting to improve the attitudes of physical educators towards students with disabilities in hopes of improving student outcomes in PE with little success (Qi & Ha, 2012). This literature review indicates that it is time to shift the focus away from attitude and examine how strategies aimed at increasing teachers' feelings of perceived behavioral control are affecting students with disabilities who are taught in general PE.

Conclusion

This review provided a summary and discussion of the methodological, theoretical, and attitudinal definitions that have been utilized in the past decade. Findings from this review indicate that the attitude research of PE teachers towards students with disabilities has remained largely unchanged. In terms of research design, most of the research has been quantitative studies that utilized a survey design and targeted in-service teachers. The few qualitative studies that have been conducted typically used focus groups and semi-structured interviews with pre-service teachers. Only one study conducted was mixed methods, utilizing a survey and interviews. It would seem researchers are conducting research through the path of least resistance, which is to send out surveys to in-service teachers to get a temperature reading of attitudes or to determine the impact of required APE undergraduate courses or practicums on pre-service teacher attitudes. It is necessary to increase the rigor of the research designs in this field and implement novel interventions, since what has been done thus far has done little to change the educational experience in PE for students with disabilities.

Research conducted in the field of physical education needs to be held to the same standards as other domains. Approximately fifty-four percent (n = 13) of the studies identified in this review appeared to be atheoretical, yet 11 of these studies used previously developed surveys that were developed based on a theoretical framework that was not mentioned in the current studies. Additionally, about 54% percent (n = 13) of the studies did not define the targeted construct of attitude within their studies. And of the 16 studies that used surveys as the primary data source, ten different surveys were used. These findings are in alignment

with Fishman et al. (2021), in that research that has focused on attitudes has been highly ambiguous in methods making it difficult to explain the relationship between attitude and other variables as well as compare findings between studies.

Albert Einstein has been commonly credited with the phrase, “Insanity is doing the same thing over and over and expecting a different result.” It is possible this is where we have landed in this area of research. Perhaps it is time researchers stop focusing on determining attitudes and instead focus on factors that influence attitudes such as beliefs about inclusion and perceived behavioral control. These factors are often more tangible than attitude and can overcompensate for a moderate attitude toward teaching students with disabilities. Future studies that seek to understand PE teacher attitudes should do so through the means of implementing the proposed suggestions that PE teachers have consistently voiced (e.g. more training, more personnel support, smaller class sizes, etc.). These studies should then assess the influence of these interventions on attitudes toward teaching students with disabilities. Nevertheless, this review has enhanced our knowledge of the state of research practices in this domain - inconsistent and flawed.

References

Ajzen, I. (2024). *Frequently Asked Questions*. Retrieved January 22, 2022, from https://people.umass.edu/aizen/faq.html

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, *2*(4), 314–324. https://doi.org/10.1002/hbe2.195

Ajzen, I. (2002). Constructing a TpB questionnaire: Conceptual and methodological considerations. Retrieved October 12, 2023, from http://www.people.umass.edu/aizen/TpB.html

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood-Cliffs, NJ: Prentice-Hall.

Albaracin, D., & Shavit, S. (2018). Attitudes and attitude change. *Annual Review of Psychology,* (69), 299–327. https://doi.org/10.1146/annurev-psych-122216-011911

Alquraini, T., & Gut, D. (2012). Critical components of successful inclusion of students with severe disabilities: Literature Review. *International Journal of Special Education*, *27*(1), 42–59.

Arteaga, F., Pérez, J. R. P., & Reyes, C. (2014). The attitudes of physical education teachers who work with children and youth with disabilities in the school system of Merida, Venezuela. *International Sports Studies*, *36*(2), 51–56.

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. https://doi.org/10.1080/08856250210129056

Block, M. E., Kwon, E., & Healy, S. (2016). Preparing future physical educators for inclusion: Changing the physical education teacher training program. *Journal of the Brazilian Association of Adapted Physical Activity, 17*(1), 9–12. https://doi.org/10.36311/2674-8681.2016.v17n1.02.p9

Bornstein, R. F. (1996). Face validity in psychological assessment: Implications for a unified model of validity. *American Psychologist*, *51*(9), 983–984. https://doi.org/10.1037/0003-066X.51.9.983

Cyran, M., Kudláček, M., Block, M., Malinowska-Lipień, I., & Zyznawska, J. (2017). Attitudes of teachers towards the inclusion of students with disabilities in physical education: Validity of the ATIPDPE-R instrument in Polish cultural context. *Acta Gymnica, 47*(4), 171-179. https://doi.org/10.5507/ag.2017.020

Fishman, J., Yang, C., & Mandell, D. (2021). Attitude theory and measurement in implementation science: A secondary review of empirical studies and opportunities for advancement. *Implementation Science*, *16*(1), 87. https://doi.org/10.1186/s13012-021-01153-9

Folsom-Meek, S. L., & Rizzo, T. L. (2002). Validating the physical educators' attitude toward teaching individuals with disabilities III survey for future professionals. *Adapted Physical Activity Quarterly*, *19*(2), 141. https://doi.org/10.1123/apaq.19.2.141

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Education research: An introduction*. New York: Longman Publishers.

Goldstein, T., & Winner, E. (2012). Enhancing empathy and theory of mind. *Journal of Cognition and Development, 13*(1), 19–37. https://doi.org/10.1080/15248372.2011.573514

Haegele, J. A., Wilson, W. J., Zhu, X., Bueche, J. J., Brady, E., & Li, C. (2021). Barriers and facilitators to inclusion in integrated physical education: Adapted physical educators' perspectives. *European Physical Education Review*, *27*(2), 297–311. https://doi.org/10.1177/1356336X20944429

Heck, S., & Block, M. E. (Eds.). (2019). *Inclusive Physical Education Around the World: Origins, Cultures, Practices*. Routledge. https://doi.org/10.4324/9780429026294

Hersman, B. L., & Hodge, S. R. (2010). High school physical educators' beliefs about teaching differently abled students in an urban public school district. *Education and Urban Society*, *42*(6), 730–757. https://doi.org/10.1177/0013124510371038

Hodge, S. R., Murata, N. M., & Kozub, F. M. (2002). Physical educators' judgments about inclusion: A new instrument for preservice teachers. *Adapted Physical Activity Quarterly*, *19*(4), 435. https://doi.org/10.1123/apaq.19.4.435

Hutzler, Y., Zach, S., & Gafni, O. (2005). Physical education students' attitudes and self-efficacy towards the participation of children with special needs in regular classes. *European Journal of Special Needs Education*, *20*(3), 309–327. https://doi.org/10.1080/08856250500156038

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. https://doi.org/10.1080/02701367.2011.10599751

Johnson, E. (2021). Face validity. In F. R. Volkmar (Ed.), *Encyclopedia of Autism Spectrum Disorders* (pp. 1957–1957). Springer International Publishing. https://doi.org/10.1007/978-3-319-91280-6_308

Juniper, E. F. (2009). Validated questionnaires should not be modified. *European Respiratory Journal*, *34*(5), 1015–1017. https://doi.org/10.1183/09031936.00110209

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. https://doi.org/10.1123/apaq.19.3.280

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation in communities of practice*. New York: Cambridge University Press.

Lieberman, L.J., & Block, M.E. (2017). Inclusive settings in adapted physical activity: A worldwide reality? In C.D. Ennis (Ed.), *Routledge Handbook of Physical Education* (pp. 262-276). New York: Routledge.

Longo, G., & Soto, A. M. (2016). Why do we need theories? *Progress in Biophysics and Molecular Biology*, *122*(1), 4–10. https://doi.org/10.1016/j.pbiomolbio.2016.06.005

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Medicine, 6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

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. https://doi.org/10.1542/peds.2008-0566

National Center for Education Statistics. (2023). *Annual reports and information: Students with disabilities*. Retrieved January 22, 2024, from https://nces.ed.gov/programs/coe/indicator/cgg/students-with-disabilities

Obrusnikova, I., & Block, M. E. (2020). Historical context and definition of inclusion. In J. A. Haegele, S. R. Hodge, & D. R. Shapiro (Eds.), *Routledge handbook of adapted physical education* (pp. 65–80). Routledge.

Ogu, O. C., Umunnah, J. O., Nwosu, K. C., & Gloria, I. C. (2017). Perception of physical educators toward teaching students with disabilities in an inclusive class setting in Nigeria. *Palaestra*, *31*(1), 23–31.

Özer, D., Nalbant, S., Ağlamış, E., Baran, F., Kaya, S. P., Aktop, A., & Hutzler, Y. (2013). Physical education teachers' attitudes towards children with intellectual disability: The impact of time in service, gender, and previous acquaintance. *Journal of Intellectual Disability Research, 57*(11), 1001–1013. https://doi.org/10.1111/j.1365-2788.2012.01596.x

Piletic, C. K., & Davis, R. (2010). A profile of the introduction to Adapted Physical Education course within undergraduate physical education teacher education programs. *ICHPER-SD Journal of Research*, *5*(2), 26–32.

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. https://doi.org/10.1080/1034912X.2012.697737

Qi, J., Wang, L., & Ha, A. (2017). Perceptions of Hong Kong physical education teachers on the inclusion of students with disabilities. *Asia Pacific Journal of Education, 37*(1), 86–102. https://doi.org/10.1080/02188791.2016.1169992

Reina, R., Healy, S., Roldan, A., Hemmelmayr, I. & Klavina, A. (2019). Incluye-T: A professional development program to increase the self-efficacy of physical educators towards inclusion. *Physical Education and Sport Pedagogy, 24*(4), 319–331. https://doi.org/10.1080/17408989.2019.1576863

Rekaa, H., Hanisch, H., & Ytterhus, B. (2019). Inclusion in physical education: Teacher attitudes and student experiences. A systematic review. *International Journal of Disability, Development and Education*, *66*(1), 36–55. https://doi.org/10.1080/1034912X.2018.1435852

Rizzo, T. L. (1984). Attitudes of physical educators toward teaching handicapped pupils. *Adapted Physical Activity Quarterly*, *1*(4), 267–274. https://doi.org/10.1123/apaq.1.4.267

Rojo-Ramos, J., Gomez-Paniagua, S., Adsuar, J. C., Mendoza-Muñoz, M., Castillo-Paredes, A., Denche-Zamorano, A., Garcia-Gordillo, M. A., & Barrios-Fernandez, S. (2023). Attitudes towards peers with disabilities among schoolchildren in physical education classes. *International Journal of Environmental Research and Public Health*, *20*(5), 3802. https://doi.org/10.3390/ijerph20053802

Rust, R., & Sinelnikov, O. (2010). Practicum in a self-contained environment: Pre-service teacher perceptions of teaching students with disabilities. The Physical Educator, 67(1), 33–45.

Sherrill, C. (2004). *Adapted physical activity, recreation, and sport: Cross-disciplinary and lifespan* (6th ed.). Boston: McGraw-Hill.

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). https://doi.org/10.1186/s12887-016-0544-7

Spencer-Cavaliere, N., & Watkinson, E. J. (2010). Inclusion understood from the perspectives of children with disability. *Adapted Physical Activity Quarterly*, *27*(4), 275–293. https://doi.org/10.1123/apaq.27.4.275

Tarantino, G., Makopoulou, K., & Neville, R. D. (2022). Inclusion of children with special educational needs and disabilities in physical education: A systematic review and meta-analysis of teachers' attitudes. *Educational Research Review*, *36*, 100456. https://doi.org/10.1016/j.edurev.2022.100456

Tripp, A., & Rizzo, T. (2006). Disability labels affect physical educators. *Adapted Physical Activity Quarterly*, *23*(3), 310–326. https://doi.org/10.1123/apaq.23.3.310

Vogel, T., & Wanke, M. (2016). *Attitudes and attitude change* (2nd ed.). Psychology Press. https://doi.org/10.4324/9781315754185

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wang, L., Qi, J., & Wang, L. (2015). Beliefs of Chinese physical educators on teaching students with disabilities in general physical education classes. *Adapted Physical Activity Quarterly*, *32*(2), 137–155. https://doi.org/10.1123/apaq.2014-0140

Wilczenski, F. L. (1995). Development of a scale to measure attitudes toward inclusive education. *Educational and Psychological Measurement*, *55*(2), 291–299. https://doi.org/10.1177/0013164495055002013

Wilhelmsen, T., & Sørensen, M. (2017). Inclusion of children with disabilities in physical education: A systematic review of literature from 2009 to 2015. *Adapted Physical Activity Quarterly*, *34*(3), 311–337. https://doi.org/10.1123/apaq.2016-0017

Wilson, W.J., Haegele, J.A., & Kelly, L.E. (2020). Revisiting the narrative about least restrictive environment in physical education. *Quest,* 72(1), 19–32. https://doi.org/10.1080/00336297.2019.1602063

Yarimkaya, E., & Rizzo, T. (2020). Beliefs and attitudes of Turkish physical educators toward teaching students with disabilities in inclusive physical education classes. *Palaestra*, *34*(4), 27–36.

Zimbardo, P. G., & Leippe, M. R. (1991). *The psychology of attitude change and social influence*. New York, NY: McGraw-Hill.

Physical Educators' Attitudes Toward Teaching Students with Disabilities After a Paralympic School Day Professional Development Program

Abstract

Purpose: This study aimed to examine physical educators' attitudes toward teaching students with disabilities in general physical education after participating in a Paralympic School Day professional development program (PSD-PDP).

Method: Elementary through high school physical education teachers participated in a PSD-PDP. Data from focus groups and written reflections were analyzed deductively and inductively using a three-step approach.

Results: The analysis revealed five interrelated themes: (a) “you're trying to accommodate everyone, and so it's hard”; (b) “putting yourself in other people’s shoes”; (c) “I definitely want to use these ideas”; (d) “It made me think about all of my students”; (e) “not talking is the hurtful action”.

Discussion: Following the PSD-PDP, physical educators described a shift in attitudes characterized by a desire to implement inclusive teaching practices and an enhanced focus on promoting conversations with individuals with disabilities.

***Keywords**:* Adapted physical education, para sport, inclusion

Introduction

For over 20 years, research has addressed the attitudes of physical education (PE) teachers toward teaching students with disabilities, yet attitudes have remained unchanged (Rekka et al., 2019; Tarantino et al., 2022; Wilhelmsen & Sørensen, 2017). Teacher attitudes and competence are crucial factors to whether inclusion within PE will be effective (Block et al., 2016; Özer et al., 2013; Reina et al., 2019). Inclusion is defined as a student's subjective experience of belonging, acceptance, and value within an educational setting (Spencer-Cavaliere & Watkinson, 2010). PE teachers who feel they received extensive academic preparation and had positive hands-on experiences teaching students with disabilities tend to have greater perceived competence and more positive attitudes (Kavanaugh et al., 2021). Unfortunately, the majority of PE teachers have not received adequate educational preparation in this regard. Many PE teachers report that their pre-service education was insufficient in preparing them to teach students with disabilities in general PE (Hersman & Hodge, 2010; Shields & Synnot, 2016; Wilson et al., 2020). As a result, this lack of educational preparation has had a detrimental impact on PE teachers' self-efficacy and attitudes towards inclusive education (Haegele et al., 2018; Ogu et al., 2017; Orlic et al., 2016).

Professional Development Programs

Professional development (PD) programs offer a promising solution to address the lack of training in pre-service teacher education programs. By participating in such programs, teachers can enhance their knowledge and competence, enabling them to better accommodate students with disabilities (Opfer & Pedder, 2010). This increased expertise may positively influence attitudes towards inclusive education, fostering a more supportive and inclusive learning environment for students with disabilities. Parker and colleagues (2017) stress that it is essential for teachers to be actively engaged in their PD, and illustrate how teachers receive and experience PD programs. Physical education teachers have expressed a need for additional PD opportunities to enhance their understanding and pedagogical skills (Qi et al., 2017; Haegele et al., 2018). While most school districts offer

professional development opportunities for teachers, content-specific training tailored to the needs of PE teachers is generally not provided (Durden-Myers & Keegan, 2019).

Despite the documented need for additional training among PE teachers to support students with disabilities, only three studies have examined the impact of PD programs on PE teachers' attitudes and knowledge regarding inclusive PE. Taliaferro and Harris (2014) conducted the only study to take place in the United States. This study measured the impact of a one-day workshop and did not find significant improvement in self-efficacy or attitudes towards inclusive PE. Haegele et al. (2018) provided a two-day training in Brazil, which also did not result in significant improvement in teacher attitudes. Reina et al. (2019), who provided six, three-hour training sessions which spanned over a three-week timeframe in Spain, was the only study to have yielded significant improvements in self-efficacy and beliefs towards inclusion.

The PD programs conducted by Taliaferro and Harris (2014) and Haegele et al. (2018) included traditional methods such as lectures, discussions, and hands-on demonstrations using supplemental materials. In contrast, Reina et al. (2019) was the only study to yield significant results and the only one that included meaningful interaction with individuals with disabilities. Reina's study involved participants learning and playing a variety of Para sports taught by Paralympic athletes. This direct interaction aligned with Allport's (1954) contact theory, suggesting that positive contact with members of a minority group, in this case, athletes with disabilities, can reduce prejudicial beliefs. Through these interactions, PE teachers in Reina's study developed essential skills and gained a deeper appreciation of the importance of making accommodations for students with disabilities in general PE settings.

Paralympic School Day

One extensively studied disability awareness intervention is the Paralympic School Day (PSD) program (Liu et al., 2010; McKay 2015, 2018, 2019, 2021, 2023; Panagiotou et al., 2008; Xafopoulous et al., 2009). The PSD program was created by the International Paralympic Committee (IPC) as a mechanism to increase awareness and understanding

towards individuals with impairments (IPC, n.d.-a), particularly by participating alongside Para sport athletes (McKay 2013). Hence, Allport's (1954) contact theory framed the development of the PSD program in the belief that under key conditions there can be a reduction in prejudicial beliefs. Research has identified four conditions (Allport, 1954) as significant to the PSD program: (1) equal status, (2) cooperative activities, (3) meaningful interactions, and (4) support from authority (McKay, 2018).

The PSD program consists of 19 activity cards, which are divided into four categories: (1) respect for sporting achievement, (2) respect and acceptance of individual differences, (3) sport as a human right, and (4) empowerment and social support in sport (IPC, n.d.-b). Program planners pick which activity cards they will implement in their event based on participant needs, available resources, and time. The program requires intimate and meaningful interactions with Para athletes that are equal in status (abilities are not viewed in a hierarchy), cooperative where Para athletes and participants work together toward a common goal, and support from authority (school leaders), which is needed in order to bring this program to participants.

Existing PSD attitude studies have focused on attitudes of children (Liu et al., 2010; McKay 2015, 2018, 2019, 2021, 2023; Panagiotou et al., 2008; Xafopoulous et al., 2009) and college-aged students without disabilities (McKay et al., 2022) toward individuals with disabilities. Findings thus far have shown that participation in a PSD program can positively impact attitudes towards individuals with disabilities. One gap in the literature that remains is the application of PSD as a means of PD for PE teachers (Leake et al., 2023). Therefore, this study aimed to examine physical educators' attitudes toward teaching students with disabilities in general PE after participating in a PSD-PDP. The research question guiding this investigation was: How does participating in a PSD-PDP impact attitudes of PE teachers toward teaching students with disabilities? The hypothesis suggests that engaging in a PSD-PDP, which facilitates meaningful interaction with individuals with disabilities while imparting transferable pedagogical skills, will lead to enhanced teacher attitudes toward teaching students with disabilities in the general PE setting.

Conceptual Framework

The ABC Model of Attitude (Rosenberg & Hovland, 1960) was chosen as the conceptual framework due to its comprehensive and interrelated components, which are central to attitude formation and expression. The model consists of three components: (a) affective, (b) behavioral, and (c) cognitive. Previous research has demonstrated the utility of the ABC Model of Attitude in studying attitudes, both in the context of students (Mazana et al., 2018) and teachers (Svenningsson et al., 2021). The affective component pertains to emotional responses or feelings towards an object, varying from pleasurable to ambivalent to unpleasant. For example, a teacher may feel apprehensive about an experience. The behavioral component represents intentions to act in a particular manner, such as a teacher's intention to apply acquired knowledge. While the cognitive component involves the knowledge and beliefs individuals hold about the object. A cognitive example could be a teacher who learned pedagogical knowledge about inclusive PE.

Through the direct experience of participating in the program, participants acquired first-hand knowledge and understanding, thus influencing their attitudes. By framing the research questions within the ABC Model of Attitude, we explored how the PSD-PDP influenced physical educators' attitudes toward teaching students with disabilities and whether the program effectively challenged any pre-existing attitudes towards inclusive general PE.

Methods

Research Approach

A hermeneutic approach was used in this study to explore participants' attitudes toward teaching students with disabilities in the general PE class after participating in the PSD-PDP. Hermeneutics is the practice of interpretation, specifically derived from spoken or written word (Paterson & Higgs, 2005). The goal of utilizing hermeneutics in this study was to seek a common understanding of the impact of the participants through the use of spoken and written artifacts. The phenomenological approach pairs nicely with hermeneutics due to its goal of seeking to understand and describe individual experiences (Moustakas, 1994).

This combination will allow the researchers to identify themes and commonalities between participants' interpretations of their experiences through descriptive, reflective, and interpretive methods of inquiry (McKay, 2023).

Participants and Intervention

Twenty-seven PE teachers from a central Virginia school division participated in the PSD-PDP. Out of the 27 participants, 13 identified as male, 13 as female, and one person did not disclose their gender. Participants ranged from 23-51 years old (M_{age} = 36.88), and 100% reported as white. Years taught ranged from 1-28 years ($M_{teaching}$ = 11.23), with 17 participants reporting a secondary school placement and ten reporting an elementary school placement. Three participants (12%) completed graduate training in adapted PE, although all three were currently serving as general PE teachers. None of the participants identified as having a disability. All 27 participants reported that they have students with disabilities in their general PE classes. Permission to conduct the study was granted by the researcher's university review board and the selected school division. Information was sent to participants via email, and consent forms were collected at the start of the data collection phase.

The PSD-PDP was hosted on a professional development day for all teachers in the identified school division. Two sessions were offered, one in the morning and one in the afternoon. Each session was 180 minutes in length. The PD program consisted of five stations that were derived from the existing PSD curriculum (IPC, n.d.-b), which included sitting volleyball, two wheelchair basketball stations, goalball, and athlete story. Participants were divided into small-groups of five to seven participants and rotated through each station. The wheelchair basketball stations were led by one Paralympian from the Team USA Men's Wheelchair Basketball team and two National Wheelchair Basketball Association Players. The athlete story station was led by a Team USA Women's Alpine Skiing Paralympian with a visual impairment. Goalball was led by a doctoral student with goalball coaching experience. Sitting volleyball was led by a college professor with expertise in adapted PE. This station differed from traditional PSD implementation by integrating application of the STEP model

(Space, Task, Equipment, and People) to teach participants a method for modifying physical activities to meet varying skill levels within a class (Roibas et al., 2011). While participants played sitting volleyball, they were simultaneously taught the STEP model. Prior to the event, station leaders met with the researcher to discuss their assigned station, lesson plans, and overall expectations. In addition to directing their stations, the Para athletes shared their own PE experiences and shared suggestions for physical educators when accommodating students with disabilities in PE.

Data Collection

Data were collected through written reflections and semi-structured focus groups. Immediately following the final station, participants were given written reflective prompts (see Table 1.1) to individually reflect on the PD program and make sense of their experience before engaging in a group discussion. Prompts were designed based on past PSD reflective guides (McKay et al., 2019). Twenty-seven written reflections were completed. The word count of participant responses ranged from 36 to 208 words (SD = 37.45), with an average word count of 92.

Table 1.1

Written Reflection Prompts

1. Tell me about your experience of participating in the PSD-PDP today.
2. Which station was the most impactful to you? 2A. Specifically, why was this station so impactful?
3. What assumptions, if any, did you have about individuals with disabilities before this PD program? 3A. How have those assumptions been challenged today?

Trained research assistants facilitated focus groups, which consisted of five to seven participants. Additionally, a research assistant was assigned to each participant group as they rotated through the stations during the PD program and participated alongside participants in all activities. This allowed the research assistants to establish a level of trust with the participants before diving into group discussions and decrease any possible

researcher-participant power imbalances. The interview guide was developed based on the ABC Model of Attitude (Rosenberg & Hovland, 1960). Questions were designed to elicit responses that targeted each component of the model. See Table 1.2 for the focus group interview guide. A total of eight focus groups were conducted. The duration of focus group discussions ranged from 14 minutes and 22 seconds to 38 minutes and 39 seconds. The mean duration was approximately 24 minutes and 10 seconds. All focus groups were audio recorded and subsequently transcribed verbatim. Analysis of the number of pages in audio transcriptions revealed a range of 6-15 pages and a mean of 10 pages (SD = 3.16).

Table 1.2

Focus Group Interview Guide with Follow-up Questions

1. If you could summarize your experience today in one word, what word would it be and why?

2. Thinking about your assumptions beforehand, did anything change for you today?
    3A. Why do you think it changed?
    3B. Was this due to a specific speaker or station?

3. If you could go back to one of the presenters right now, is there a question you wish you asked?
    4A. Why did you not ask this question?
    4B. Did someone ask a question that resonated with you?

4. What impacted you the most from this experience?
    5A. Was that different than before?
    5B. Is there anything you would do differently moving forward?

5. Research has consistently shown that PE teachers generally have favorable attitudes towards including students with disabilities. However, PE teachers consistently say they need more training in how to accommodate students in their classes.
    6A. How do you think today's training will impact your teaching when you have students with disabilities in your PE classes?
    6B. Did today's training better prepare you to accommodate students with disabilities in PE?
        i. What specifically helped you?
        ii. What do you think you might do differently when you have a student with a disability come to your PE class?

6. Based on this experience, how does this impact your teaching?
    7A. What would you do differently and why?
    7B. What would you credit that to from today?

7. Are there any areas you still feel you need additional training when it comes to teaching and accommodating students with disabilities?

8. What was the value of this experience for you?

Data Analysis

Written reflections and focus group transcripts included a three-phase data analysis process. First, the data were read and reread to establish a level of understanding and familiarity with the content (Smith & McGannon, 2018). Next, data were deductively coded based on the three components of the ABC Model of Attitude (Rosenberg & Hovland, 1960): (1) affective, (2) behavioral, and (3) cognitive. The affective dimension considered feelings and emotions towards teaching students with disabilities. The behavior component referred to an individual's actions or intentions when teaching a student with a disability. Lastly, the cognitive component consisted of a person's perception of understanding towards teaching a student with a disability. Once the data were organized into these three categories, inductive coding took place to identify sub-themes within each component. Inductive coding is the practice of examining the data and allowing for the emergence of themes, categories, and patterns (Creswell & Creswell, 2018). Once sub-themes were identified they were then compared to existing literature on the topic. Members of the research team coded separately and then came together for a consensus.

Results

Thematic analysis revealed a total of five interrelated themes within the affective, behavioral, and cognitive components of attitude: (a) "you're trying to accommodate everyone, and so it's hard"; (b) "putting yourself in other people's shoes"; (c) "I definitely want to use these ideas"; (d) "It made me think about all of my students"; (e) "not talking is the hurtful action". Categorization of themes was carried out by matching them with the corresponding component of the ABC Model of Attitude. To protect anonymity, a number was assigned to each participant, and any identifying information was replaced with generic descriptors. Person-first language has been used by the author, but participant statements were reported using their own language.

Affective

"You're trying to accommodate everyone, and so it's hard": Perceived barriers of successful inclusion

This theme sheds light on the barriers that participants encounter when attempting to teach students with disabilities in general PE. Participants shared personal examples illustrating how class size and personnel concerns impact their ability to provide an equitable learning environment for students with disabilities.

Participants expressed concerns about the impact of large class sizes on creating inclusive learning environments. Participant 1 shared their experience, stating:

> You do try to get everyone involved, and sometimes you get in the midst, you have a class of 35, and you get going, and you don't want to say you forget about the kid with disability, but you don't include them as much as you could. And that does bother me at the end of class, I was like, "Oh man, I could've done more." But then again, you're trying to accommodate everyone, and so it's hard.

The sheer number of students in the class posed challenges for the teacher to meet the needs of the student with a disability. Participant 2 shared a similar sentiment:

> We have a double 6th Grade class where they bring in all of [the severe disability class] together. And so, we both already have 30- you know, 32 kids, and then they bring in five more, and-- Oh, they're great. And we try to include them. [...] I wish we could have a small-- like if they're going to bring in these students to put them in a single class or something.

Another significant barrier identified by the participants related to personnel concerns, both in terms of quantity and quality. First, regarding the quantity of teachers, having a high student to teacher ratio increases risks to student safety. Participant 16 explained:

> We had a girl who was in a wheelchair, and she got adapted PE services, but then she would come into our classes as well, which is great. We had 80 kids in that class. Like just our class sizes in general. I think inclusion is so important, but sometimes it's really really difficult from a safety perspective to have the ideal inclusion that we want to have because we just have so many kids moving at the same time. And that's a personnel problem. Like we need more people.

Next, the quality of personnel is highlighted. Participant 17 described an experience where a teaching assistant assigned to assist a student with a disability in PE would sit on the bleachers, rather than engage with the student.

> Like, you talk to the TA [teaching assistant], nothing changes. You talk to the TA's teacher and they're trying their hardest but they can't come down and make the TA get off their phone. It becomes another person you have to manage.

Behavioral

"Putting yourself in other people's shoes": Considering another person's perspective

"Putting yourself in other people's shoes" emerged as one of the most prominent themes, as it was discussed in seven of the eight focus groups and arose in many written reflections. Participants discussed how each station was challenging, but in turn, heightened their appreciation for the skills required to be successful. Participant 8 explained "I had moments of frustration because I played [basket]ball in college and am a varsity coach, to know that I couldn't make a simple pass. It takes a lot of upper body strength." Through these frustrations and realizations, many participants began to consider how students with disabilities are experiencing PE.

> Getting out of your comfort zone [in goalball] was cool and interesting. Again, just seeing what a kid experiences was really cool for me. And just thinking about what I can do when they come into the classroom better than what I've done. (Participant 1)

The same sentiment was echoed by Participant 6, "wheelchair basketball allowed me to experience a little bit of what they go through each day in PE and using their wheelchair." Participant 20 goes on to explain this experience, "allowed me a sense of what some of my students with disabilities may experience in my class."

For some, this experience facilitated a profound shift in awareness leading to a recognition of the privileges they possess as someone without a disability. Through this recognition, participants were then able to gain valuable insight into the perspective of individuals with disabilities.

> The challenges that I face on a daily basis are so different than the challenges that

they may face on a daily basis. So, by putting myself kind of in their shoes for just a moment in time is very eye-opening. (Participant 24)

The experience had a transformative impact on participants' overall perspectives on kindness and compassion. Participant 27 summarized the importance of the experience by explaining:

> Just putting yourself in other people's shoes, and we should try to remember that more on a daily basis. I think that's more of what it is. And being nicer too. A little kinder to one another, and a little more helpful to one another.

The experience compelled participants to reflect on their daily interactions with others, leading to a heightened sense of empathy and intention to approach everyone with increased compassion.

"I definitely want to use these ideas": Desire to modify and incorporate Para sport

The theme of "I definitely want to use these ideas" (Participant 6) underscores the enthusiasm of participants to modify and incorporate Para sport into their classes following the PD program. This theme was also found in all but one focus group and was included in written reflections. Participants expressed their excitement about the opportunity to learn from the Para athletes and the practical applications of the strategies learned.

Participants expressed a desire to bring the local wheelchair basketball team into their schools so their students could have a similar experience to what the participants had just gone through with similar outcomes. Participant 1 explained "I think they would get the same things out of it as we did honestly. I think it would be good for them." The participant quotations show the teachers' interest in providing their students with the opportunity to learn from and interact with the athletes to promote a more inclusive school culture. Participant 24 agreed, "It would be amazing to bring [the wheelchair basketball team] to all of our schools."

In addition to wheelchair basketball, participants also wanted to incorporate goalball and sitting volleyball into their general PE classes. The following quotes illustrate how the participants saw immediate value in incorporating Para sports into the general PE curriculum: "I feel like there are a lot of activities that I can instantly bring into my classroom.

I mean, even starting as early as this week." (Participant 19); "Goalball was really cool because everyone can play and it is something I will use and also relates to a kid in my school." (Participant 26); "Seated volleyball was the one I feel I would like to try with my students for them to experience a more level skill field." (Participant 9).

During the focus group discussions, participants brainstormed on how to implement the strategies or Para sports learned. One conversation led to the idea of modifying a sport that was not highlighted during the event. Participant 25 shared, "Right now, we're doing badminton and I kind of want to lower all of the nets and make them do that and see how that goes." The conversation showcased their willingness to experiment with new ideas to foster inclusivity in PE.

Cognitive

"It made me think about all of my students": Making modifications is not just for the benefit of students with disabilities

This next theme, "It made me think about all of my students" (Participant 8), reflects the transformative impact of the presentation of the STEP model (Space, Task, Equipment, and People) as a method for modifying physical activities to meet the needs of students at different skill levels. Participants embraced the STEP model by recognizing its value in adapting activities to diverse skill levels. As expressed by Participant 5, "This is great not just with the lens of students with disabilities, but this stuff is great for all kids." The participants learned that the STEP model offers a universal approach to creating inclusive physical activities for all students. Participant 3 shared, "It gave me a chance to learn some of the different things that we can do. How to adapt to not only the adapted kids, but to our other students too." The same sentiment was shared time and time again:

> We were able to see how what we're doing in the classroom can always be adapted to something better, especially for some of our kids that have those disabilities, or some kids that just don't have those skills yet. (Participant 10)

Participants came to realize that making modifications for students with disabilities was not an extra task to be taken on because they have students with disabilities. Instead, it

is an integral part of effective teaching for all students. Making modifications for students with disabilities should not be perceived as an additional burden, but rather as an opportunity to address the diverse needs and abilities of all learners.

“Not talking is the hurtful action”: Understanding their role in facilitating conversations about disability

The theme “Not talking is the hurtful action” (Participant 7) revolves around a powerful story shared by one of the athletes. At the end of each station, the athletes were asked to share their answers to the question, “what do you wish PE teachers knew?” One athlete shared with each group how for generations, parents have discouraged children from asking individuals with disabilities questions, fearing that their children may come across as rude. However, this pattern of not allowing children to interact and ask individuals with disabilities questions has inadvertently led to the exclusion of individuals with disabilities and perpetuates the misconception that they are different and should not be engaged with. This example seemed to have resonated with participants, prompting self-reflection on their role in facilitating conversations with individuals with disabilities as parents and as teachers. Participant 22 summarized what was learned:

> You’re subconsciously relaying the message, “don’t talk to them.” I had never thought of it that way. And if you do that over and over again, that’s probably why we feel nervous to talk about [disability] or feel like we’re going to hurt their feelings. Because for so long we’ve been, you know, don’t say, don’t be rude, don’t ask them questions about it. And over time, just makes you feel differently.

The athletes' story deeply resonated with the participants, prompting self-reflection on their upbringing and roles as parents. Participant 27 shared, "As parents or as adults have we inadvertently shut down some powerful conversations by trying to be what I thought was polite and respectful? But hearing them talk. Now we know." Participant 25 further emphasized the transformative effect of the athletes' insight and began to understand how to start these conversations:

> I remember my son, one time, asking about someone in a wheelchair, "Mommy, what happened? It's kind of sad." And he wasn't being disrespectful, he was just curious. And [athlete] was saying, “Don't stop kids from interacting and asking” because we're teaching our kids that's not a positive interaction, then don't interact. I never thought of it that way. And that totally flipped things for me. And I'm like, wow, here I was thinking I was being polite and not being disrespectful. And some people might not like to be approached but to ask, "Is it okay for my child to ask you questions?"

Participants continued to unpack what they learned about the impact of discouraging children from engaging with individuals with disabilities. Participant 18 went on to explain the impact of discouraging these conversations, “At some point, you’re teaching prejudice by not letting kids ask or be curious about things.”

> As a mom, like my kids when they were younger, it would be like, “what's wrong?” “Don't talk, they can hear you.” Just like we're in the grocery store, just grab what you need, you know? I'm like, wow. That sets them up for being like, leave them alone, they're on the side- unintentionally. (Participant 21)

During the focus groups, the athlete’s perspective prompted a deeper consideration of inclusive teaching practices. Participant 5 reflected:

> Another bit from the conversation of like, ask the kid. You know, we can do stuff to make modifications. But do we always check in with the student to see if that's the best thing for them? They may have some other ideas.

These insights collectively emphasized the participants' newfound understanding of their role in facilitating conversations with individuals with disabilities. They realized that encouraging open dialogue and engagement with individuals with disabilities is vital for fostering a more inclusive learning environment.

Discussion

The purpose of this study was to examine physical educators' attitudes toward teaching students with disabilities in general PE after participating in a PSD-PDP. This is the first study that has utilized PSD as a PD program for PE teachers. Participants’ written

reflections and statements revealed the impression the experience had on their attitudes towards teaching students with disabilities.

The first theme, “You’re trying to accommodate everyone, and so it’s hard,” breaks down the perceived barriers that participants have encountered when trying to effectively include a student with a disability into general PE. Participants were not asked to describe the barriers they perceived towards implementing inclusive education but many of them brought the topic under their own volition. When describing the reality of teaching inclusive PE, participants felt “it’s so hard” (Participant 14). These statements were coded as affective according to the ABC Model of Attitude (Rosenberg & Hovland, 1960), due to participants’ feelings of difficulty of implementation.

The barriers described by participants are in agreement with past research that has examined barriers to inclusive education in the PE setting. When investigating the barriers that teachers describe when teaching students with visual impairments, Lieberman et al. (2002) found large class sizes and lack of qualified teachers were common reported barriers. Wilhelmsen and Sørensen (2017) similarly found that large class sizes are a barrier, but went on to report lack of collaboration with teaching assistants as an additional barrier. It would seem further pre-service and in-service education is needed to help PE teachers overcome the perceived barriers, which should include information on how to work with teaching assistants.

The second theme, “putting yourself in someone else’s shoes,” describes in what ways taking part in this training caused participants to consider the perspectives of individuals with disabilities. Experiencing the world from the standpoint of an individual belonging to a minority group (i.e. ability, racial, sexual orientation) can lead to a reduction in prejudice towards these populations (Galinsky & Moskowitz, 2000). Perspective-taking is an action in which individuals shift their perspective to evaluating the potential thoughts and feelings of another person. Therefore, these statements were coded as behavioral according to the ABC Model of Attitude.

Participants expressed how this immersive experience allowed them to step into the shoes of students with disabilities. By participating in a variety of Para sports, they gained a glimpse into possible challenges that students with disabilities encounter in PE. This experience prompted deep reflections on their past teaching practices and made them question whether they had fully considered the needs and perspectives of their students with disabilities. Participants realized that a one-size-fits-all approach to teaching PE may inadvertently exclude students with disabilities from accessing the class.

It is essential to clarify that the intention of this PD program was never to simulate having a disability. Disability simulations have faced criticism due to their potential to perpetuate harmful stereotypes and overlook the diverse experiences of individuals with disabilities (Ma & Mak, 2022). By consciously avoiding any attempts at simulating disabilities and shifting the focus towards genuine engagement with Para sports and Para athletes, this approach fostered a greater awareness of the challenges faced by athletes with disabilities and encouraged a proactive mindset among participants to implement modifications in their classes. Any perspective-taking that occurred was grounded in authentic experiences by playing various Para sports and interacting with the athletes.

The theme "I definitely want to use these ideas," emerged from participants' desire to modify and incorporate Para sport into their teaching practices. According to the ABC Model of Attitude, these quotes were coded as behavior, indicating that participants were in the preparation stage of the Transtheoretical Change Model (Prochaska & Velicer, 1997). The preparation stage is defined as when an individual intends to take action. The decision to utilize the STEP model for activity modifications and teach Para sports was driven by their experience of learning from the athletes and playing these Para sports. Participants expressed their enjoyment and sense of fun during the learning process, which influenced their decision to integrate these activities into their teaching. Their experiences with Para sports had a profound impact on their perspectives regarding teaching and inclusion, leading them to consider the potential benefits of these activities for students with disabilities and their peers alike.

The decision to use the STEP model and teach Para sports was further influenced by participants' newfound understanding towards individuals with disabilities. The experience of engaging in Para sports facilitated increased empathy, which allowed participants to put themselves in the shoes of individuals with disabilities, thus aligning with the earlier theme of "Putting yourself in someone else's shoes." As participants gained a deeper appreciation of the abilities and challenges faced by individuals with disabilities, they recognized the potential of these activities to foster empathy and understanding among all students. Their belief in the transformative power of these experiences for students' social and emotional learning led them to embrace the idea of incorporating Para sports into their teaching.

The teaching strategies described can enhance inclusivity by providing a platform for students with disabilities to participate and showcase their abilities. Furthermore, these strategies foster a sense of community by promoting interaction and collaboration among all students (Johnson & Johnson, 2009). The willingness of participants to explore and implement innovative teaching approaches signifies their commitment to promoting positive attitudes towards disability. Their decision represents a step towards cultivating a generation of physical educators who are more attuned to the diverse needs of their students.

The theme “It made me think of all my students,” highlights that modifying activities for students with disabilities is not an extra burden for few, but an essential aspect of effective teaching for all students. Participants came to this realization by playing sitting volleyball and experiencing the application of the STEP model in real time. Quotes within this theme were coded as cognitive as they reflected the participants’ learning about a more holistic approach to applying modifications in PE. This theme not only emphasizes the importance of modifying physical activities but also sheds light on the broader notion that students with disabilities are more similar to students without disabilities than they are different.

By embracing the concept of modification, teachers can break down barriers that might have been perceived to separate students with disabilities from their peers without disabilities. Rather than focusing solely on differences, this shift in mindset encourages

educators to recognize the diverse strengths and abilities of all students. This perspective encourages teachers to focus on universal design principles, where instructional approaches and physical activities are designed to meet the needs of all learners (Lieberman & Houston-Wilson, 2018). This shift can contribute to dispelling misconceptions and stereotypes about disability, promoting a more inclusive society beyond the classroom.

The theme "Not talking is the hurtful action" assumed significant importance as it arose organically during the training when an athlete shared a profound insight. This theme revolved around the idea that discouraging children from interacting and asking questions of individuals with disabilities perpetuated negative stereotypes and reinforced exclusionary behaviors. The power of this theme lay in the realization that by avoiding conversations and interactions with individuals with disabilities, it has been inadvertently communicated to children that they should not engage with individuals with disabilities, fostering an atmosphere of misunderstanding and isolation.

Engaging in difficult conversations, even if they make individuals uncomfortable, proved crucial in fostering growth and understanding. By acknowledging their discomfort, participants recognized the need to learn more and expand their perspectives. Through this theme, they were prompted to reflect on their roles as teachers and parents in modeling inclusive behaviors. By actively facilitating conversations about disability and encouraging interactions with individuals with disabilities, educators and parents can effectively break down barriers and challenge stereotypes, setting a powerful example for the next generation.

The cognitive aspect of the ABC Model of Attitude was evident in this theme as participants learned about the impact of their actions and gained a deeper understanding of the importance of facilitating conversations about disability. By recognizing the negative consequences of not talking and discouraging interactions, participants underwent a cognitive shift, leading to a greater awareness of the need for open dialogue and understanding.

Together, these five themes compose a comprehensive summary of these PE teachers’ attitudes towards teaching students with disabilities after participating in this PD

program. Participants' affective, behavioral, and cognitive responses culminated in a more empathetic and inclusive outlook. Their willingness to engage in difficult conversations and explore innovative teaching strategies reflects a commitment to modeling inclusive behaviors for the next generation. By embracing the significance of making modifications and the transformative power of perspective-taking, educators have the potential to break down barriers and promote a more inclusive society both within and beyond the classroom. This study sheds light on the multifaceted nature of attitude, emphasizing the importance of continuous learning and self-reflection for developing physical educators who are committed to providing an equitable learning environment for students with disabilities.

Limitations

With any research study, limitations exist. Participants in this study may not be representative of the population of PE teachers. It is important to note that 100% of participants reported their race as white, and none self-identified as having a disability. Results could be biased due to the lack of diversity within this participant pool. Research studies should strive to gather more diverse participant groups so varying perspectives are heard. Within a population there are varying biases, patterns of reasoning, and lived experiences (Henrich et al., 2010) that can impact how one would have experienced this PD program. Future research should be intentional to recruit a diverse group of participants.

Furthermore, this three-hour PD program lacked follow-up training and longitudinal data collection to assess its enduring impressions on the participants. The question of whether this program had any lasting influence on its participants or if they implemented Para sports into their general PE classes remains unknown. Future research endeavors should incorporate longitudinal data collection techniques to shed light on these aspects.

Conclusion

This study investigated the influence of the Paralympic School Day as a professional development program on physical educators' attitudes towards teaching students with disabilities in general PE. The five interrelated themes that emerged highlighted the complexities of attitude formation and change. Participating in the PSD-PDP influenced

attitudes by exposing perceived barriers to inclusive education, fostering empathy and understanding through perspective-taking, and encouraging teachers to modify activities and incorporate Para sports for the benefit of all students. The program effectively prompted a reevaluation of previously held attitudes, fostering self-reflection, moments of discomfort, and a commitment to inclusive teaching practices. By embracing continuous learning and innovative teaching strategies, physical educators can create inclusive learning environments that celebrate the diverse abilities of all students. The study emphasizes the importance of professional development and self-reflection to cultivate empathetic and inclusive educators, contributing to a more inclusive educational experience for students with disabilities and their peers.

References

Allport, G. W. (1954). *The nature of prejudice*. Addison-Wesley.

Block, M. E., Kwon, E., & Healy, S. (2016). Preparing future physical educators for inclusion: Changing the physical education teacher training program. *Journal of the Brazilian Association of Adapted Physical Activity*, *17*(1), 9–12. https://doi.org/10.36311/2674-8681.2016.v17n1.02.p9

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Durden-Myers, E. J., & Keegan, S. (2019). Physical literacy and teacher professional development. *Journal of Physical Education, Recreation & Dance*, *90*(5), 30–35. https://doi.org/10.1080/07303084.2019.1580636

Galinsky, A. D., & Moskowitz, G. B. (2000). Perspective-taking: Decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology*, *78*(4), 708–724. https://doi.org/10.1037/0022-3514.78.4.708

Haegele, J. A., Hodge, S., Filho, P. J. B. G., & de Rezende, A. L. G. (2018). Brazilian physical education teachers' attitudes toward inclusion before and after participation in a professional development workshop. *European Physical Education Review*, *24*(1), 21–38. https://doi.org/10.1177/1356336X16662898

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. *Nature*, *466*(29). https://doi.org/10.1038/466029a

Hersman, B. L., & Hodge, S. R. (2010). High school physical educators' beliefs about teaching differently abled students in an urban public school district. *Education and Urban Society*, *42*(6), 730–757. https://doi.org/10.1177/0013124510371038

International Paralympic Committee. (n.d.-a). Education. https://oldwebsite.paralympic.org/the-ipc/education

International Paralympic Committee. (n.d.-b). Paralympic School Day. https://www.paralympic.org/the-ipc/paralympic-school-day

Johnson, D. W., & Johnson, R. T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. *Educational Researcher*, *38*(5), 365–379. https://doi.org/10.3102/0013189X09339057

Kavanaugh, T. C., Tomaka, J., & Moralez, E. (2021). Professional preparedness and psychosocial beliefs as predictors of quality physical education and recreation services to students with disabilities. *Therapeutic Recreation Journal*, *55*(4), 414–431.

Leake, M., Block, M., & McKay, C. (2023). Using Paralympic School Day as a model for an adapted physical education professional development for physical educators. *The Physical Educator*, *80*(3), 263–277. https://doi.org/10.18666/TPE-2023-V80-I3-11533

Lieberman, L.J., & Houston-Wilson, C. (2018). Strategies for inclusion: A handbook for physical educators (4th ed.). Champaign, IL: *Human Kinetics*.

Lieberman, L. J., Houston-Wilson, C., & Kozub, F. M. (2002). Perceived barriers to including students with visual impairments in general physical education. *Adapted Physical Activity Quarterly*, *19*(3), 364. https://doi.org/10.1123/apaq.19.3.364

Liu, Y., Kudláček, M., & Ješina, O. (2010). The influence of Paralympic School Day on children's attitudes towards people with disabilities. *Acta Gymnica*, *40*(2), 63–69.

Ma, G., & Mak, W. (2022). Meta-analysis of studies on the impact of mobility disability simulation programs on attitudes toward people with disabilities and environmental in/accessibility. *PLoS ONE*, *17*(6), 1–24. https://doi.org/10.1371/journal.pone.0269357

Mazana, M. Y., Montero, C. S., & Casmir, R. O. (2018). Investigating students' attitude towards learning mathematics. *International Electronic Journal of Mathematics Education*, *14*(1). https://doi.org/10.29333/iejme/3997

McKay, C. (2013). Paralympic School Day: A disability awareness and education program. *Palaestra*, *27*(4), 14–19.

Mckay, C. (2018). The value of contact: Unpacking Allport's contact theory to support inclusive education. *Palaestra*, *32*(1), 21–25.

McKay, C., Block, M., & Park, J.Y. (2015). The impact of Paralympic School Day on student attitudes toward inclusion in physical education. *Adapted Physical Activity Quarterly*, *32*(4), 331–348. https://doi.org/10.1123/APAQ.2015-0045

McKay, C., Haegele, J., & Block, M. (2019). Lessons learned from Paralympic School Day: Reflections from the students. *European Physical Education Review*, *25*(3), 745–760. https://doi.org/10.1177/1356336X18768038

McKay, C., Kirk, T. N., & Leake, M. (2023). "I Thought It Was Going to Be Trash": Rural High School Students' Disability-Related Perception Change Following Paralympic School Day. *Journal of Teaching in Physical Education*, *42*(4), 728–736. https://doi.org/10.1123/jtpe.2022-0163

McKay, C., Park, J.Y., & Block, M. (2018). Fidelity criteria development: Aligning Paralympic School Day with contact theory. *Adapted Physical Activity Quarterly*, *35*(2), 233–242. https://doi.org/10.1123/apaq.2017-0064

McKay, C., Park, J.Y., & Block, M. (2021). Exploring the variables associated with student attitudes toward inclusion in physical education after taking part in the Paralympic School Day programme. *International Journal of Inclusive Education*, *25*(3), 329–347. https://doi.org/10.1080/13603116.2018.1550117

McKay, C., Park, J. Y., & Haegele, J. (2022). Contact theory as the theoretical basis of the Paralympic Skill Lab: A measurement of implementation fidelity. *Palaestra*, *36*(3), 44-49.

Moustakas, C. (1994). *Phenomenological research methods*. Sage Publications, Inc.

Ogu, O. C., Umunnah, J. O., Nwosu, K. C., & Gloria, I. C. (2017). Perception of physical educators toward teaching students with disabilities in an inclusive class setting in Nigeria. *Palaestra*, *31*(1), 23–31.

Opfer, V. D., & Pedder, D. (2010). Benefits, status and effectiveness of Continuous Professional Development for teachers in England. *The Curriculum Journal*, *21*(4), 413–431. https://doi.org/10.1080/09585176.2010.529651

Orlic, A., Pejcic, B., Lazarevic, D., & Milanovic, I. (2016). The predictors of students' attitude towards inclusion of children with disabilities in physical education classes. *Fizicka Kultura*, *70*(2), 126–134. https://doi.org/10.5937/fizkul1602126O

Panagiotou, A.K., Evaggelinou, C., Doulkeridou, A., Mouratidou, K., & Koidou, E. (2008). Attitudes of 5th and 6th grade Greek students toward the inclusion of children with disabilities in physical education classes after a Paralympic education program. *European Journal of Adapted Physical Activity*, 1(2), 31–43. https://doi.org/10.5507/euj.2008.007

Parker, M., Patton, K., & Tennehill, D. (2017). Professional development experiences and organizational socialization. In K. Andrew, R. Richards, & K. L. Gaudreault (Eds.), *Teacher socialization in Physical Education: New perspectives* (1st ed., pp. 98–113). Routledge. https://doi.org/10.4324/9781315679471

Paterson, M., & Higgs, J. (2005). Using hermeneutics as a qualitative research approach in professional practice. *The Qualitative Report*, *10*(2), 339-357. https://doi.org/10.46743/2160-3715/2005.1853

Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American Journal of Health Promotion*, *12*(1), 38–48. https://doi.org/10.4278/0890-1171-12.1.38

Qi, J., Wang, L., & Ha, A. (2017). Perceptions of Hong Kong physical education teachers on the inclusion of students with disabilities. *Asia Pacific Journal of Education*, *37*(1), 86–102. https://doi.org/10.1080/02188791.2016.1169992

Reina, R., Healy, S., Roldan, A., Hemmelmayr, I., & Klavina, A. (2019). Incluye-T: A professional development program to increase the self-efficacy of physical educators towards inclusion. *Physical Education and Sport Pedagogy*, *24*(4), 319–331. https://doi.org/10.1080/17408989.2019.1576863

Rekaa, H., Hanisch, H., & Ytterhus, B. (2019). Inclusion in physical education: Teacher attitudes and student experiences. A Systematic Review. *International Journal of*

Disability, Development and Education, *66*(1), 36–55. https://doi.org/10.1080/1034912X.2018.1435852

Roibas, A. C., Stamatakis, E., & Black, K. (2011). *Design for sport*. Farnham, United Kingdom: Gower.

Rosenberg, M. J. , & Hovland, C. I. (1960). *Cognitive, affective, and behavioral components of attitudes*. In M. Rosenberg , C. Hovland , W. McGuire , R. Abelson , & J. Brehm (Eds.), Attitude organization and change (pp. 1-14). New Haven, CT: Yale University Press.

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. https://doi.org/10.1186/s12887-016-0544-7

Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology*, *11*, 101–121. https://doi.org/10.1080/1750984X.2017.1317357

Spencer-Cavaliere, N., & Watkinson, E. J. (2010). Inclusion understood from the perspectives of children with disability. *Adapted Physical Activity Quarterly*, *27*(4), 275–293.

Svenningsson, J., Höst, G., Hultén, M., & Hallström, J. (2022). Students' attitudes toward technology: Exploring the relationship among affective, cognitive and behavioral components of the attitude construct. *International Journal of Technology and Design Education*, *32*, 1531–1551. https://doi.org/10.1007/s10798-021-09657-7

Taliaferro, A., & Harris, N. P. (2014) The effects of a one-day workshop on physical educators' self-efficacy toward inclusion of students with autism. *Palaestra*, *28*(3), 38–43.

Tarantino, G., Makopoulou, K., & Neville, R. D. (2022). Inclusion of children with special educational needs and disabilities in physical education: A systematic review and meta-analysis of teachers' attitudes. *Educational Research Review*, *36*, 100456. https://doi.org/10.1016/j.edurev.2022.100456

Wilhelmsen, T., & Sørensen, M. (2017). Inclusion of children with disabilities in physical education: A systematic review of literature from 2009 to 2015. *Adapted Physical Activity Quarterly*, *34*(3), 311–337. https://doi.org/10.1123/apaq.2016-0017

Wilson, W.J., Haegele, J.A., & Kelly, L.E. (2020). Revisiting the narrative about least restrictive environment in physical education. *Quest, 72*(1), 19–32.

Xafopoulos, G., Kudlacek, M., & Evaggelinou, C. (2009). Effect of the intervention program “Paralympic School Day" on attitudes of children attending international school towards inclusion of students with disabilities. *Acta Universitatis Palackianae Olomucensis*, *39*(4), 63–71.

Physical Educators' Self-Efficacy in Teaching Students with Disabilities Following a Paralympic School Day Professional Development Program

Abstract

This study examined physical educators' self-efficacy (SE) when teaching students with disabilities in general physical education (PE) after participating in a Paralympic School Day professional development program (PSD-PDP). Thirty-six PE teachers participated in the PSD-PDP. A mixed-method approach with unequal weighting (quantitative emphasis) was used. Data were collected through administration of the Self-Efficacy Scale for Physical Education Teacher Education Majors towards Children with Disabilities (SE-PETE-D) and written reflections. A one-group pretest-posttest design was used when analyzing the quantitative survey data. Survey data were analyzed using paired samples *t*-tests to examine changes in SE mean scores. Written reflections were completed immediately following the PSD-PDP. Qualitative data were analyzed in two phases, first deductively by characteristics of Sensemaking Theory followed by inductive coding. Qualitative data was used to provide further explanation of changes observed in survey data. Results indicate a statistically significant increase in SE survey scores following the PSD-PDP at all levels. Written reflections revealed themes related to challenging prior assumptions and a greater understanding about the ease and possibilities of implementing inclusive teaching strategies. These themes illustrated the effectiveness of the PSD-PDP in improving PE teachers' SE when teaching students with disabilities in the general PE setting.

***Keywords**:* Adapted physical education, disability sport, para sport, inclusion

Introduction

The integration of students with disabilities into general physical education (PE) classes has reached an all-time high, with an impressive 97% of U.S. schools enrolling these students in such classes (Centers of Disease Control and Prevention, 2019). With the surge in general PE placements over the past few decades, it is imperative that PE teachers value students with disabilities and create a welcoming environment (Haegele & Maher, 2023) in addition to implementing adaptations and modifications to ensure equitable access to all activities (Wilson et al., 2019). When implemented properly and intentionally, students with disabilities can experience the subjective feelings of belonging, acceptance, and value within general PE settings (Haegele & Maher, 2023; Spencer-Cavaliere & Watkinson, 2010). Unfortunately, PE teaching practices have remained generally unchanged often resulting in ineffective support for students with disabilities within the general PE setting (Block, Obrusnikova, & Lloyd, 2020; Holland & Haegele, 2021). As a result, students with disabilities have consistently reported negative PE experiences (Holland & Haegele, 2021). One reason for the negative experiences of students with disabilities in general PE is that PE teachers report that their pre-service training did not adequately prepare them to teach students with disabilities in general PE classes (Hersman & Hodge, 2010; Shields & Synnot, 2016; Wilson et al., 2020). This lack of training has contributed to low levels of self-efficacy when teaching students with disabilities and their ability to implement inclusive educational practices (Haegele et al., 2018; Ogu et al., 2017; Orlic et al., 2016).

Self-Efficacy Theory

Self-efficacy theory (Bandura, 1977) is a theoretical framework that has been used to evaluate individuals' perceived self-confidence. Self-efficacy (SE), originally defined as the "conviction that one can successfully execute the behavior [which] will lead to certain outcomes" (Bandura, 1977, p. 193), is a task- and situation-specific form of self-confidence. The way one approaches a task is influenced by their SE (Block et al., 2013). In the context of this study, PE teachers with high SE are more likely to meet the educational needs of students with disabilities than those with low SE. Physical educators with high SE should

also hold more positive attitudes toward teaching students with disabilities than PE teachers with low SE, as attitudes have been found to be strongly influenced by one's perceived SE (Bandura, 1977, 1993, 1997; Hutzler et al., 2003). Two of the most important factors of successful inclusion are the attitude and SE of the PE teacher when teaching students with disabilities (Block et al., 2016; Li, 2020; Obrusnikova & Block, 2020; Özer et al., 2013).

Professional Development Programs

Professional development programs (PDP) offer a solution to address lack of pre-service training. Teachers have the most interaction with students, control over what and how content is taught, and the climate of the learning environment (King & Newman, 2001). For these reasons, improving teachers' knowledge and skills are essential to improving the educational experience of students (Desimone et al., 2006). Professional development (PD) programs have become standard practice within school divisions to improve teaching practices with the goal of improving student achievement (Kennedy, 2016). Yet, PE-specific PD programs are rarely offered (Durden-Myers & Keegan, 2019).

A new area of research has emerged in the field as a result of ongoing requests from PE teachers for PD opportunities and a well-documented need for further training to adequately support students with disabilities in general PE classes. To date there have been four studies that have sought to examine the influence of PD programs that focus on improving attitudes and SE of PE teachers when teaching students with disabilities. Taliaferro and Harris (2014) examined the impact of a one-day workshop on attitudes and SE of PE teachers working with students with autism, but they ultimately did not find significant results from the program. Haegele and colleagues (2018) organized a two-day PD program aimed at influencing teacher attitudes toward teaching students with disabilities, but also did not yield significant results. In contrast, Reina et al. (2019) reported significant improvement in SE and beliefs toward inclusion from their PD program, which consisted of six three-hour sessions over a three-week period. Additionally, Leake and colleagues (2024) conducted a one-day PD program that resulted in significant improvements in attitudes toward teaching students with disabilities.

The two studies that did not yield significant results (Haegele et al., 2016; Taliaferro & Harris, 2014) utilized traditional methods which included lectures, discussions, and hands-on demonstrations using supplemental materials. Reina et al. (2019) and Leake et al. (2024) found significant results and were the only studies to include meaningful interactions with Para athletes. Both studies had participants learn and play Para sports that were taught by Para athletes. This intentional and meaningful interaction between participants and Para athletes is in accordance with Allport's (1954) contact theory, which suggests that positive contact with members of a minority group can lead to a reduction in prejudicial beliefs in members of the majority group. In the context of these studies, interaction with individuals with disabilities can result in a decrease of prejudicial beliefs in those without disabilities. By learning from and playing with Para athletes, teachers were able to develop necessary pedagogical skills and gain a deeper understanding for the importance of making general PE accessible for students with disabilities.

Paralympic School Day

Paralympic School Day (PSD) is a school-based program developed by the International Paralympic Committee (IPC) to raise awareness and foster understanding of individuals with impairments through interactions with Para athletes (IPC, n.d.-a; McKay, 2013). The PSD program is grounded in Allport's (1954) contact theory, suggesting that individuals without disabilities may have an increase in awareness and understanding toward individuals with disabilities after interacting with this population. Through this program, participants are able to challenge and reconceptualize their previously held beliefs (McKay et al., 2019). For more information about hosting a PSD event, visit https://www.paralympic.org/the-ipc/paralympic-school-day. McKay (2013) provides a detailed resource for hosting a school-based event and Leake and colleagues (2023) provide information specific to facilitating a PSD-PDP.

Most of the existing PSD research has focused on attitudes of children and college-aged students toward individuals with disabilities (Liu et al., 2010; McKay 2015, 2018, 2019, 2021, 2022, 2023; Panagiotou et al., 2008; Xafopoulous et al., 2009). Using the

PSD program as the basis for a PDP, one study explored its influence on PE teachers' attitudes toward students with disabilities (Leake et al., 2024). Findings have shown that the PSD program can positively influence student and teacher attitudes toward individuals with disabilities. Attitudes have been the only variable studied thus far in relation to the PSD program. None of the previous PSD research has focused on SE of PE teachers.

Research Purpose

This study aims to examine physical educators' SE when teaching students with disabilities in the general PE class after participating in a PSD-PDP. The PSD-PDP was developed to provide additional training to PE teachers to teach students with disabilities more effectively in the general PE setting. The guiding research question was: How does participating in a PSD-PDP influence self-efficacy of PE teachers when teaching students with disabilities in the general PE class? The hypothesis was that participating in a PSD-PDP would improve PE teacher SE when teaching students with disabilities in the general PE class.

Conceptual Framework

Sensemaking theory was chosen to frame this study due to its approach to assigning meaning to new information through associations with prior knowledge (Weick, 1995). The sensemaking process 'makes sense' of new information by reducing the complexity of the information (Starbuck & Milliken, 1998; Weick, 1995). This process accounts for both cognitive and emotional aspects of one's experience in an interaction with the environment (Ng & Tan, 2009). Experiences are "turned into a situation that is comprehended explicitly in words and that serves as a springboard to action" (Taylor and Van Every, 1999, p. 40). Sensemaking is where meanings are made, which inform and constrain one's self and action (Helms-Mills, 2002).

Sensemaking consists of seven components (Weick, 2005; Woodland, 2019): (1) retrospective, (2) social, (3) identity, (4) cues, (5) ongoing, (6) plausible, and (7) enactment. At its core, sensemaking is *retrospective*, requiring reflection on past behaviors and

experiences. *Social* underscores the need for individual and collaborative reflection on an experience. Sensemaking is shaped by interactions with others and influenced by social dynamics. Sensemaking is focused on each individual's *identity*, meaning they are to consider their perception of themselves and their abilities. *Cues* refer to the extraction of relevant information from the environment, which aids in the process of learning and understanding. Sensemaking is an *ongoing* process where individuals continuously reinterpret and refine their understanding of events over time. The extent to which individuals believe information to be *plausible* reflects their perception of its credibility. When information is perceived as plausible, individuals are more likely to deem it credible and trustworthy. *Enactment* refers to the actual implementation of learned information into individuals' lives. This involves putting knowledge gained through the sensemaking processes into action. Together, these seven components contribute to the sensemaking process of shaping an individual's understanding of their experiences and guide their actions moving forward.

For the purposes of this study, the ongoing and enactment components were not included during analysis. The PDP in this study was a one-day event that did not include ongoing instruction or additional opportunities for reflection. Similarly, enactment was excluded because this study lacked follow-up observations of teachers to assess whether the information learned during the PSD-PDP was implemented into their teaching practice.

Method

Design

This study used an embedded mixed-methods design, where there was a secondary data source that served to support the primary data source (Creswell, 2014). The weighting was unequal with an emphasis on the quantitative survey data. A one-group pretest-posttest design (Chan & Holosko, 2020) was used to examine PE teachers' SE of teaching students with disabilities in general PE classes before and after participating in the PSD-PDP. Qualitative data were collected following the PSD-PDP to provide context to the SE survey results. Quantitative and qualitative data were collected, analyzed, and interpreted concurrently.

Positionality

In interpretive endeavors it is crucial to acknowledge researcher positionality as our values, intentions, and personal experiences can influence how we perceive and interpret data (Sparkes & Smith, 2014). The research team delved into their own positionality to examine its potential impact on the research process. Composed of four members - three females (Marie Leake, Dr. Cathy McKay, and Dr. Abby Fines) and one male (Dr. Martin Block), all identify as White and nondisabled - the team's collective interests, converge around understanding perceptions of disability and disability sports. This dedication is reflected in their teaching, research, and service endeavors. Each member has previously been involved with past PSD programs in their practice and research to foster attitude change. Mindful of their own backgrounds, they recognize how their experiences shape the lens through which they interpret and derive meaning from participants' perspectives and experiences.

Participants

The PSD-PDP was hosted on a professional development day for all teachers in the targeted school division located in central Virginia. Thirty-six teachers participated in this study. Nineteen participants identified as male and 17 as female. Thirty-three of the 36 participants identified their race as white, two reported as African American, and one participant did not disclose their race. Participant ages ranged from 24-56 years old (M_{age} = 37.92). Two participants (5.56%) identified as having a disability, although the nature of the disability was not collected for this study. Years taught ranged from 1-30 years ($M_{teaching}$ = 12.64), with 21 participants teaching at the secondary level, 13 at the primary level, and two teaching K-12 adapted PE. Five participants (13.89%) that were employed as full-time PE teachers, did not receive any undergraduate or graduate level training in physical education teacher education. Five participants (13.89%) completed graduate training in adapted PE, although only two of the five were working as adapted PE teachers and the remaining three

were serving as general PE teachers. All 36 participants reported that they have students with disabilities in their general PE classes.

The researcher's university institutional review board and the selected school division granted permission to conduct this study. Funding for this study was provided by a Virginia multi-university collaborative grant. Information regarding the study was sent to participants via email, and consent forms were collected prior to the start of the PSD-PDP.

Intervention

Two sessions of the PSD-PDP were offered, one in the morning with secondary PE teachers and one in the afternoon with primary PE teachers. Each session lasted 120 minutes, which included time for data collection at the start and end of each session. The PDP consisted of four stations that were pulled from the existing PSD curriculum (IPC, n.d.-b): wheelchair basketball, sitting volleyball, goalball, and athlete story. Participants were divided into small groups of six to seven participants and rotated through each station. Each station lasted approximately 20 minutes.

The wheelchair basketball station was led by three National Wheelchair Basketball Association Players and the director of a local non-profit adaptive sports club. Sitting volleyball was led by a university professor who has expertise in adapted PE. In addition to sitting volleyball, this station included a discussion on modifying PE activities to accommodate children with disabilities using the STEP model (Space, Task, Equipment, and People; Robias et al., 2011). Goalball was led by a Team USA Men's Goalball Paralympic Medalist and a university professor with expertise in adapted PE who also had experience as a coach at a sports club that served athletes with disabilities. The athlete story station was led by a local adaptive sport athlete and facilitated by another university professor with expertise in adapted PE and several years of experience directing and researching PSD programs. Prior to the PSD-PDP, station leaders met with the lead researcher to discuss the objectives of their assigned station, lesson plans, and overall expectations. At the conclusion of each station, the Para athletes discussed their personal PE experiences along with their suggestions for teaching students with disabilities in PE.

Data Collection

Data were collected in two phases. During the first phase, which occurred before the start of the PSD-PDP, the SE-PETE-D pretest was completed. The second phase occurred following the final station of the PSD-PDP, during this time the SE-PETE-D posttest and written reflections were completed.

Quantitative Data Source. The SE-PETE-D was administered at the start of the PSD-PDP, before participants began interacting with the Para athletes or stations, and immediately following the final station. To preserve anonymity, participant data were linked through the use of self-identifiers.

The Self-Efficacy Scale for Physical Education Teacher Education Majors towards Children with Disabilities (SE-PETE-D; Block et al., 2013) was used to assess changes in PE teacher SE of teaching students with disabilities in the general PE class before and after participating in the PSD-PDP. This questionnaire has been used with pre-service and in-service teachers around the world (Nowland & Haegele, 2023). The questionnaire is organized into four parts, three of which are SE scales organized by disability grouping (intellectual, physical, visual impairment) and a respondent demographic section. For the purposes of this study, the intellectual disability section of the questionnaire was not used, as the PSD-PDP focused on physical disabilities and visual impairments. Each disability section is preceded by a vignette that describes a student with the corresponding disability, which is followed by 10-12 questions divided into three subscales: (1) fitness testing, (2) teaching sport skills, and (3) facilitating gameplay. See Figure 1 for example vignette and sample of questions. Participants use a 5-point Likert scale to indicate their level of confidence to effectively teach the student with a disability in the varying situations (1 - no confidence to 5 - complete confidence). Higher scores reflect a higher perceived confidence to meet the needs of the student in the general PE class.

Figure 1

SE-PETE-D Example Vignette and Questions

Description of a Student with a Physical Disability
Ashton is a high school student with a spinal cord injury. He cannot walk, so instead he pushes himself in his wheelchair to get around. Ashton likes playing the same sports as his classmates, but he does not do very well when playing the actual game. Even though he can push his wheelchair, he is slower than others and tires after pushing his chair for only 1-2 minutes. He can pass and serve a volleyball, but not far enough to get it over the net. He can catch balls tossed straight to him. However, he does not have the upper body strength to shoot a basketball high enough to make a regulation basket. Because he cannot use his legs, he cannot kick a soccer ball, but he can push the ball forward with his chair.
Questions A–D: You are conducting physical fitness testing with your 9th grade physical education class of 30 students that includes Ashton.
A. How confident are you in your ability to create individual goals for Ashton during fitness testing? B. How confident are you in your ability to modify the test for Ashton? C. How confident are you in your ability to instruct peers to help Ashton during fitness testing? D. How confident are you in your ability to make the environment safe for Ashton during fitness testing?

The final part of the questionnaire includes questions designed to collect demographic information about the participants such as age, gender, type of college program attended, degree obtained, years taught, and experience teaching students with disabilities in the general PE class (Block et al., 2013).

Qualitative Data Source. Qualitative data were collected during the second data collection phase through the use of written reflections. Following the final station of the PSD-PDP, participants responded to written reflective prompts (see Figure 2) to individually reflect on the PD program and begin to make sense of their experience. Past PSD research reflective guides were used to design prompts (Leake et al., 2024; McKay et al., 2019). Thirty-six written reflections were completed. Responses ranged from 12–106 words, with an average word count of 41 words.

Figure 2

Written Reflection Prompts

1. What is your biggest takeaway from participating in this in-service today?

2. How has this experience impacted the expectations you hold for students with disabilities?
3. What assumptions, if any, did you have about individuals with disabilities before this in-service?
    3A. How have those assumptions been challenged today?

Data Analysis

Quantitative and qualitative data analyses were done independently and later converged and synthesized in the Discussion section.

Quantitative Data Analysis. Descriptive statistics were expressed as mean (M), mean change (MΔ) and standard deviation (SD), and standard deviation change (SDΔ). Due to the small sample size, Shapiro-Wilk tests along with visual examination of histograms was used to determine normality. To address the research question, whether participating in a PSD-PDP influenced the self-efficacy of PE teachers when teaching students with disabilities in the general PE class, paired samples *t*-tests were conducted. Practical significance were determined by eta-square (η^2), as a measure of effect size for mean differences with the following interpretation: <0.02, small; between 0.02 and 0.26, medium; and >0.26, large (Pierce, Block, and Aguinis 2004). Reliability of all scales and subscales were assessed by Cronbach's Alpha calculation, accepting scores over 0.70 as acceptable (Nunnally & Bernstein, 1994). Pearson's correlation coefficients were calculated to determine strength and direction of relationship between each scale and subscales, using $p < 0.05$ as the cut off. Inter-item correlation was used to examine the extent to which items were measuring the same construct of self-efficacy (See Appendix C; Röschel et al., 2021). Item-total correlation was used to examine correlations between each item and the total score (See Appendix D; Raharjanti et al., 2022). Data analysis methods were adopted from Wilson and colleagues (2021). Statistical analysis was performed using Statistical Package for Social Sciences (version 28.0 for Mac, SPSS Inc, Chicago, IL, USA).

Qualitative Data Analysis. Written reflections were analyzed using a three-phase approach by the first and third authors. First, authors independently familiarized themselves with the data to develop a level of understanding with the data source (Smith & McGannon, 2018).

Next, data were deductively coded based on five components of Sensemaking Theory (Weick, 1995): (1) retrospective, (2) social, (3) identity, (4) cues, and (5) plausible. The *retrospective* component requires reflection on past behavior or beliefs before engaging in the PSD-PDP. The *social* component consisted of statements where participants were able to reflect individually or collaboratively. The act of completing written reflections meets the social component of Sensemaking theory, because the participants individually reflected on their experience which helps them make sense of the experience. *Identity* refers to instances where participants consider their self-perceptions of their abilities. *Cues* consist of information that help people construct meaning. The *plausible* component refers to the reasonableness of implementation. Once data were deductively coded, data were then inductively coded within each component to identify possible sub-themes. Inductive coding involves analyzing the data and allowing themes, categories, and patterns to emerge without any predetermined constraints (Creswell & Creswell, 2018). After sub-themes were identified, first and second authors came together to form a consensus.

Results

Quantitative

Descriptive Statistics. All scales and subscales saw an increase in mean scores, meaning the average score on all scales increased. All standard deviations decreased between pre- and posttests, meaning the variation in posttest scores decreased. While all scales saw increases in scores, all scales related to physical disability scored higher on both pre- and posttests than the visual impairment scales. Again, while all standard deviation values decreased, all visual impairment scales maintained higher values on pre- and posttests than the physical disability scales. This means that there is a larger amount of variance in the scales related to visual impairments and lower self-efficacy scores compared to physical disability scales.

Table 1

Descriptive Statistics (N = 36)

	M	*M*Δ	*SD*	*SD*Δ
Physical Disability				
Pretest Overall	3.64		.76	
Posttest Overall	4.16	0.52	.61	-0.16
Pretest Fitness	3.69		.83	
Posttest Fitness	4.17	0.48	.67	-0.16
Pretest Skills	3.65		.86	
Posttest Skills	4.15	0.5	.61	-0.25
Pretest Gameplay	3.59		.77	
Posttest Gameplay	4.14	0.55	.58	-0.19
Visual Impairment				
Pretest Overall	3.35		.90	
Posttest Overall	4.00	0.65	.68	-0.23
Pretest Fitness	3.56		.98	
Posttest Fitness	4.01	0.45	.70	-0.28
Pretest Skills	3.22		.99	
Posttest Skills	4.06	0.84	.73	-0.27
Pretest Gameplay	3.27		.90	
Posttest Gameplay	3.94	0.67	.70	-0.20

Notes. *M*Δ = mean change; *SD*Δ = standard deviation change.

Normality. Shapiro-Wilk tests were performed on pretest and posttest mean scores for physical disability and visual impairment scales. The Shapiro-Wilk's tests did not show evidence of non-normality for all variables (p > 0.05), aside from Posttest Overall Physical Disability mean scores (p = 0.013), as seen in Appendix A. Upon visual examination of the histogram of Posttest Overall Physical Disability mean scores, the data are negatively skewed, as the data has shifted positively toward the upper end of the scale compared to the Pretest Overall Physical Disability mean scores distribution (see Appendix B). Based on these results, we assumed normality of the data.

Scale reliability and internal consistency. Cronbach's Alpha scores for physical disability pretest scores revealed 0.93, 0.89, 0.90, and 0.86 for overall, fitness testing, skill development, and gameplay respectively. Cronbach's Alpha scores for visual impairment were 0.82, 0.73, 0.79, and 0.81 for overall, fitness testing, skill development, and gameplay respectively. Table 2, Table 3, and Table 4 show significant positive correlations among all scales and subscales (p = 0.01).

Table 2

Correlation Matrix for Physical Disability Mean Scores

	Pre Overall	Post Overall	Pre Fitness	Post Fitness	Pre Skills	Post Skills	Pre Gameplay	Post Gameplay
Pre Overall	1.00							
Post Overall	.886**	1.00						
Pre Fitness	.918**	.810**	1.00					
Post Fitness	.865**	.979**	.823**	1.00				
Pre Skills	.972**	.865**	.874**	.848**	1.00			
Post Skills	.882**	.987**	.794**	.958**	.858**	1.00		
Pre Gameplay	.890**	.788**	.669**	.730**	.821**	.799**	1.00	
Post Gameplay	.853**	.967**	.755**	.908**	.832**	.937**	.787**	1.00

Notes. **. Correlation is significant at the 0.01 level (2-tailed).

Table 3

Correlation Matrix for Visual Impairment Mean Scores

	Pre Overall	Post Overall	Pre Fitness	Post Fitness	Pre Skills	Post Skills	Pre Gameplay	Post Gameplay
Pre Overall	1.00							
Post Overall	.886**	1.00						
Pre Fitness	.918**	.810**	1.00					

Post Fitness	.865**	.979**	.823**	1.00				
Pre Skills	.972**	.865**	.874**	.848**	1.00			
Post Skills	.882**	.987**	.794**	.958**	.858**	1.00		
Pre Gameplay	.890**	.788**	.669**	.730**	.821**	.799**	1.00	
Post Gameplay	.853**	.967**	.755**	.908**	.832**	.937**	.787**	1.00

Notes. **. Correlation is significant at the 0.01 level (2-tailed).

Table 4

Correlation Matrix for Overall Physical Disability and Visual Impairment Mean Scores

	Pretest Physical	Posttest Physical	Pretest Visual	Posttest Visual
Pretest Physical	1.00			
Posttest Physical	.886**	1.00		
Pretest Visual	.840**	.711**	1.00	
Posttest Visual	.766**	.792**	.716**	1.00

Notes. **. Correlation is significant at the 0.01 level (2-tailed).

The effect of PSD-PDP on Self-Efficacy Levels. Paired samples t tests revealed an overall significant effect of the PSD-PDP on the physical disability self-efficacy scale and subscales: overall [$t(35) = 8.58$; $p < 0.001$; $\eta^2 = .678$, large], fitness testing [$t(35) = 6.20$; $p < 0.001$; $\eta^2 = .554$, large], skill development [$t(35) = 6.60$; $p < 0.001$; $\eta^2 = .523$, large], and gameplay [$t(35) = 6.89$; $p < 0.001$; $\eta^2 = .576$, large]. The same is true for the visual impairment scale and subscales: overall [$t(35) = 6.20$; $p < 0.001$; $\eta^2 = .523$, large], fitness testing [$t(35) = 3.40$; $p < 0.001$; $\eta^2 = .579$, large], skill development [$t(35) = 6.94$; $p < 0.001$; $\eta^2 = .248$, medium], and gameplay [$t(35) = 6.23$; $p < 0.001$; $\eta^2 = .526$, large].

Table 5

Paired Samples t Test Results

Variable	*M*	*SD*	95% CI	*t*(35)	*p*	η^2
Physical						
Overall	.51	.36	[.39, .64]	8.58	<.001	.678
Fitness	.51	.46	[.35, .66]	6.60	<.001	.554
Skill	.49	.47	[.33, .65]	6.20	<.001	.523
Game	.55	.48	[.39, .71]	6.89	<.001	.576
Visual						
Overall	.65	.63	[.44, .86]	6.20	<.001	.523
Fitness	.84	.73	[.60, 1.09]	6.94	<.001	.579
Skill	.44	.78	[.18, .71]	3.40	<.001	.248
Game	.67	.64	[.45, .88]	6.23	<.001	.526

Note. N = 36. CI = confidence interval. η^2 = Eta squared

Qualitative. Instances of the five components of Sensemaking Theory that were of main interest and application in this study were found in the written reflections. The five components were: (1) retrospective, (2) social, (3) identity, (4) cues, and (5) plausible. Participants were assigned pseudonyms in an effort to preserve anonymity.

Retrospective. The nature of engaging in written reflections is retrospective, with that said the structure of prompt three allowed researchers to get a better insight into participants' previous behavior and beliefs. Prompt three read: What assumptions, if any, did you have about individuals with disabilities before this in-service? How have these assumptions been challenged today? Responses related to previously not challenging students with disabilities, not including them, and assuming they did not want to be included. Participant reflections are included below.

Mace explained her new understanding of the importance of challenging students, "I was to assume that some activities need to be easy, but sometimes more challenging is better." Wren assumed, "[students with disabilities] should be able to not do something if they're uncomfortable with it." But now understands the key is to, "Find the correct modifications and push them to do their best."

Trey debunked his previous belief on the importance of inclusion, "After this experience I now realize students with disabilities should be included in everyday lessons as much as possible." Many participants wrongly assumed, "That [students with disabilities] don't want to participate,"(Tyson); "That they were fine with not participating," (Jenna); "They typically aren't interested in PE," (Fabio); and "They don't want to play." (Pearl). Each of these reported assumptions were followed up with statements correcting their assumptions, "They want to, but do not want to be treated differently," (Tyson); "I was wrong," (Jenna); "To always communicate or learn how to communicate with those students to meet their needs," (Fabio); and that "They want to play." (Pearl).

Social. The PSD-PDP was designed to be a collaborative and interactive experience between the participants and the presenters. The collaborative nature of this program was reflected in the written reflections. When responding to the prompt asking what their biggest takeaway from this experience was, Augustus explained that "Hearing the stories of the disabled athletes helped me realize how important it is to include them and adapt activities for them." Several participants discussed how interacting with the Para athletes helped them understand that students with disabilities who are hesitant to participate, likely do want to

participate but need more support and encouragement to get them to be involved. Noah explained, “I assumed that most students with disabilities may not want to participate in class activities. My assumptions have been challenged today by listening to people with disabilities talk about their personal experiences.” Clark echoed the sentiment by explaining how he had previously thought “[students with disabilities] would prefer to play only with others with similar disabilities.” But now understands, “Many of the demonstrators said they wish they had more inclusion in the general education setting.” Each of these challenges to previously held assumptions were made possible through interaction with Para athletes.

The component of Social includes both individual and collaborative experiences that help the individual make sense of their learning. Illustrated in the previous section, collaborative experiences with Para athletes led to a greater, and in some cases new, understanding of the perspectives of individuals with disabilities. This experience met the individual side of the social component due to the nature of participants completing written reflections. During this time, participants were able to reflect on their experience and consider how this experience influenced their beliefs and understandings when teaching students with disabilities.

Identity. Instances of references to participants’ self-perception were related to their self-efficacy and comfort in communicating with students with disabilities. Augustus reflected on how prior to this experience, he had a “lack of confidence in being able to modify activities for them.” But now understands, “Don’t overthink it - it’s pretty easy to modify and include them.” Lucy described the same change in self-efficacy, “I have a better understanding on how to help the students.” Sarah explained, “[This experience] has shown me that challenging my students is ok to do. I have always tried to do my best with including, challenging students on both sides. Made me more confident to keep doing it.” These statements relate to an increase in self-efficacy when teaching students with disabilities, whether they are more confident in their ability to modify activities or to challenge students with disabilities.

The second sub-theme seen within the Identity component was related to how participants have reconceptualized their role in facilitating communication with the student to best meet their needs. Charlie explained, “I should be open to talking more with students with disabilities to make them a part of the learning process.” Fabio echoed the sentiment, “made me more open-minded and interested in communicating with them to meet their needs.” Buddy agrees, “It made me more aware. It also has challenged me to communicate more/better.” When reflecting on his biggest takeaway from the day, Bailey acknowledged the apprehension he may have felt when talking to students with disabilities, “Not being afraid or timid to ask the student what I can do to help them.” Each of these responses illustrate how the participants have an improved stance on communicating openly with students with disabilities.

Cues. This component of Sensemaking Theory relates to new information taken in and applied to existing schema. The sub-themes of expectations and strategies were the two most common areas where information was learned. Expectations refers to a new understanding of how capable individuals with disabilities are, a need to challenge students with disabilities, and to hold them to high standards. Bella shared, “I should assume they can do more than may appear at 1st glance.” Leslie and Luna came to the same conclusion as Bella, “These students are more capable than you expect,” (Leslie) and “They are more capable than you think.” (Luna). Wren learned, “That it is very important to ‘push’ disabled students even if it gets you out of your comfort zone.” Noah shared, “What I learned from participating in the service today was that students with disabilities might actually want to be challenged.” Madison explained this experience “was a good reminder to empower all students consistently.” In relation to holding high standards for students with disabilities, Kehlani explained, “They can achieve the same goals - it just might look a little different.” Olive took away the same idea as Kehlani, “Expectations for those students are different, but no less rigorous than any other student.” The sub-theme of Expectations included a progression from reconceptualizing the capabilities of students with disabilities, to a need to challenge them just as any other student, and to hold them to high standards as well.

Participants referenced strategies they learned during the PSD-PDP that they were able to add to their pedagogical skills and knowledge. Many of the quotes relate to a better understanding that there is no one-size-fits all approach to teaching and the need for making modifications to meet students where they are. For some, the information learned came as a reminder, where for others it was new information. Lucy explained, “It was great to be given the reminders on how to use space, equipment, and peers for students with disabilities.” Mace shared that she “learned some new ideas and activities for my students.” Many participants reflected on their new understanding of the flexibility in modifying activities to make them accessible for all: “There are always more ways to modify the activity to make more students successful.” (Luna); “There are many ways to change and modify PE for all students to succeed.” (Oscar); “There are ways to modify or make things safer.” (Cole); and “There are a ton of ways to adapt! Creativity is essential!” (Buddy).

Plausible. Plausible refers to how possible it is to implement the information learned from the PSD-PDP into teaching practice. Hop shared, “I really enjoy most of these games and would use them in my general PE setting.” Pearl took it a step further and explained, “I feel like ‘normal’ students will be willing to try even without an adaptive student.” Pierce agreed with the transferability of strategies and activities learned, “It allows me to incorporate what I’ve learned into future lessons.” Kodie and Jax illustrate how possible inclusive PE can be to implement, “The sky is the limit. ALL PE should be adapted PE,” (Kodie) and, “Inclusion can be done, just takes planning and trying different things.” (Jax). Out of all 36 written reflections, only one participant (Mia) reported disagreement with the plausibility of inclusive PE, “Our general education PE classes are too large (30-50) to enable success for adaptive students.”

Discussion

This study aimed to examine the influence of participation in a PSD-PDP on the SE of PE teachers when teaching students with disabilities in general PE. Through a mixed-methods approach, we explored changes in SE and the sensemaking processes among PE teachers. The findings of this study revealed significant improvements in PE

teacher SE following participation in the PSD-PDP. Both quantitative survey data and qualitative written reflections provided valuable insights into the effectiveness of the program.

Participation in the PSD-PDP led to statistically significant improvements in PE teachers' SE in all survey scales. These improvements across the entirety of the survey highlight the broad applicability of this program. Interactions with Para athletes and collaborative learning experiences emerged as key factors influencing SE changes among participants as noted by written reflections. Additionally, the PSD-PDP provided participants with practical skills to effectively modify physical activities to meet the needs of students with disabilities.

To date, only one other study has focused on improving PE teachers' SE when teaching students with disabilities through a PDP. Reina and colleagues (2019) conducted a study aimed at evaluating the effectiveness of a PDP that utilized the Incluye-T model for inclusive physical education and sports on PE teachers' SE in this context. This program included six three-hour sessions, which were conducted over a three-week period. Notably, both studies incorporated direct interaction with Para athletes as a key component along with instruction on strategies to modify physical activity to meet the needs of students with disabilities. Similar to the current study, Reina et al. (2019) employed the same survey instrument (SE-PETE-D), though in the Spanish form (EA-PEF-AD; Reina et al., 2016), to examine changes in PE teachers' SE. At the conclusion of their three-week intervention, Reina and colleagues reported statistically significant increases in SE scores across all scales, mirroring the outcomes observed in the current study. Similar effect sizes are also observed (see Table 6) meaning both studies determined large practical significance.

Table 6

Eta squared comparisons of overall scales

Variable	η^2

Reina et al. (2019)

Physical	.678
Visual	.554
Current Study	
Physical	.523
Visual	.526

Note. η^2 = Eta squared

The current study offered unique contributions to the literature that build upon Reina et al.'s (2019) work in several ways. First, the intervention time was drastically shorter, lasting 120 minutes in duration and was able to be conducted on a single professional development day as opposed to Renia's three-week long program. Despite this abbreviated timeframe, statistically significant improvements in PE teachers' SE scores were observed, indicating the effectiveness of the intervention in enhancing teacher confidence and knowledge in teaching students with disabilities in the general PE setting. Time available for in-service teachers to participate in professional development is a recurring barrier (Morgan & Bates, 2018). For this reason, a three-week long professional development training with six three-hour sessions may not be possible in most school divisions. The PSD-PDP is an effective alternative model that can be implemented from start to finish in two hours.

Secondly, this study utilized qualitative reflections from participants, which provided valuable insights into their sensemaking processes following the program. Participants were able to contextualize their survey responses by sharing their personal experience, challenges faced, and newfound understandings. Analysis through the lens of sensemaking (Weick, 1995) revealed how meaningful interactions with Para athletes (*social*), self-perception improvements to implement inclusive educational practices (*identity*), and modification strategies learned (*cues*) played pivotal roles in improving teachers' SE when teaching students with disabilities. Participants' reflections revealed sub-themes related to challenging prior assumptions and a greater understanding about the ease and possibilities of implementing inclusive teaching strategies. These themes underscored the transformative nature of the PSD-PDP in improving PE teachers' SE when teaching students with

disabilities in the general PE setting. This qualitative component added depth to the understanding of how PE teachers perceive and navigate the complexities of teaching students with disabilities, further enriching the literature in this field.

The themes uncovered are reflected in past PSD-PDP research, which determined participation in a PSD-PDP positively influenced PE teacher attitude toward teaching students with disabilities in the general PE setting. Leake and colleagues (2024) reported themes related to greater understanding of how offering modifications to activities benefit all students, a desire to implement the strategies learned, and a reconceptualization of the teachers' role in facilitating communication with students with disabilities. Each of these themes are reflected in the current study (see Table 7 for quote comparisons). Together, the findings from this study and Leake et al. (2024) illustrate the connection between attitudes and self-efficacy, which have been determined to have a positive correlation (Bandura, 1977, 1993, 1997; Hutzler et al., 2003).

Table 7

Comparisons with past literature

	Current Study	Leake et al., 2024
Modifications benefit all students	"There are always more ways to modify the activity to make more students successful." "ALL PE should be adapted PE."	"It gave me a chance to learn some of the different things that we can do. How to adapt to not only the adapted kids, but to our other students too."
Desire to implement inclusive teaching strategies	"I really enjoy most of these games and would use them in my general PE setting." "It allows me to incorporate what I've learned into future lessons."	"I feel like there are a lot of activities that I can instantly bring into my classroom. I mean, even starting as early as this week."
Teacher's role in communicating with students with disabilities	"I should be open to talking more with students with disabilities to make them more a part of the learning process." "Ask the questions and be open to listening and making adjustments."	"Another bit from the conversation of like, ask the kid. You know, we can do stuff to make modifications. But do we always check in with the student to see if that's the best thing for them? They may have some other ideas."

Limitations and Future Research

While this study offers valuable insights into the influence of a PSD-PDP on PE teacher SE when teaching students with disabilities, it is important to acknowledge several limitations. First, the duration of the one-time two-hour training can be viewed as a limitation. It is well-established professional development programming should be ongoing (Kuranchie & Bampo, 2023). Yet, as mentioned earlier, long-term programs are not feasible in many school divisions. Future research should focus on developing a series of complementary PD trainings with consistent objectives. Each training within the series should be designed as a short, half-day program. PD coordinators would then have the flexibility to implement individual trainings from the series based on their division's PD schedules and time available. This approach would allow teachers to continually build on the progress made in previous trainings, which would promote continuous professional growth.

Another limitation was the lack of longitudinal survey data. This study intended to collect SE survey data six-weeks following the PSD-PDP, but due to a low response rate the results could not be reported. Longitudinal research using the PSD-PDP model would provide greater understanding of the long-term effects of this training on teachers' SE when teaching students with disabilities. Future studies should continue to strive to include longitudinal data and incorporate strategies to increase response rates, such as offering incentives (Sammut et al., 2021).

The lack of a randomized control group also limits the generalizability of the findings in this study. In this study, all participants were treated as one-group with all participants receiving the training. A true experimental design with a control group would allow for more robust comparisons and conclusions.

Finally, a next step using the PSD-PDP model would be to collaborate with Special Olympics and turn the focus on teaching students with intellectual disabilities. This study focused solely on physical disabilities and sensory impairments; for this reason the intellectual disability scale of the SE survey was omitted. By collaborating with Special

Olympics and focusing on intellectual disabilities, the intellectual disability scale could be included and provide a more comprehensive understanding of SE of PE teachers.

Conclusion

This study examined the influence of the PSD-PDP on PE teachers' SE when teaching students with disabilities in general PE. Survey data revealed a significant increase in SE scores on all scales, while written reflections allowed greater insight into the sensemaking process of participants. Participants credited this improvement of their perceived ability to teach students with disabilities to the meaningful interactions with Para athletes and opportunity to learn practical inclusive teaching strategies. This program effectively challenged previously held beliefs, imparted new knowledge, facilitated collaboration, and promoted self-reflection among participants. As a result, participants expressed greater confidence in their ability to implement inclusive teaching strategies to better accommodate students with disabilities in general physical education. These findings continue to support the importance of targeted professional development programming for PE teachers, enabling them to ensure that all students, regardless of ability, can participate and feel valued in PE.

References

Allport, G. W. (1954). *The nature of prejudice*. Addison-Wesley.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, *28*(2), 117–148. https://doi.org/10.1207/s15326985ep2802_3

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.

Block, M., Hutzler, Y., Barak, S., & Klavina, A. (2013). Creation and validation of the self-efficacy instrument for physical education teacher education majors toward inclusion. *Adapted Physical Activity Quarterly*, *29*, 184–205. https://doi.org/10.1123/apaq.30.2.184

Block, M. E., Kwon, E., & Healy, S. (2016). Preparing future physical educators for inclusion: Changing the physical education teacher training program. *Journal of the Brazilian Association of Adapted Physical Activity*, *17*(1), 9–12. https://doi.org/10.36311/2674-8681.2016.v17n1.02.p9

Block, M.E., Obrusnikova, I., & Lloyd, M. (2020). History of adapted physical activity and inclusion in North America. In S. Heck and M.E. Block (Eds.), *Inclusive Physical Education around the World – Origins, Cultures, Practices* (pp. 9-27). London: Taylor & Francis.

Centers for Disease Control and Prevention. (2019). *Results from the school health policies and practices study 2016*. U.S. Department of Health and Human Services.

Chan, C., & Holosko, M. J. (2020). Utilizing youth media practice to influence change: A pretest–posttest study. *Research on Social Work Practice*, *30*(1), 110–121. https://doi.org/10.1177/1049731519837357

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. (4th ed.). SAGE Publications.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Desimone, L. M., Smith, T. M. & Ueno, K. (2006). Are teachers who sustained, content-focused professional development getting it? An administrator's dilemma. *Educational Administration Quarterly*, *42*(2), 179–215. https://doi.org/10.1177/0013161X04273848

Durden-Myers, E. J., & Keegan, S. (2019). Physical literacy and teacher professional development. *Journal of Physical Education, Recreation & Dance*, *90*(5), 30–35. https://doi.org/10.1080/07303084.2019.1580636

Haegele, J. A., Hodge, S., Filho, P. J. B. G., & de Rezende, A. L. G. (2018). Brazilian physical education teachers' attitudes toward inclusion before and after participation in a professional development workshop. *European Physical Education Review*, *24*(1), 21–38. https://doi.org/10.1177/1356336X16662898

Haegele, J. A., & Maher, A. J. (2023). Toward a conceptual understanding of inclusion as intersubjective experiences. *Educational Researcher, 52*(6), 385-393. https://doi.org/10.3102/0013189X231176287

Hersman, B. L., & Hodge, S. R. (2010). High school physical educators' beliefs about teaching differently abled students in an urban public school district. *Education and Urban Society*, *42*(6), 730–757. https://doi.org/10.1177/0013124510371038

Holland, K., & Haegele, J. (2021). Perspectives of students with disabilities toward physical education: A review update 2014-2019. *Kinesiology Review*, *10*(1), 78–87. https://doi.org/10.1123/kr.2020-0002

Hutzler, Y. (2003). Attitudes toward the participation of individuals with disabilities in physical activity: A review. *Quest*, *55*, 347–373. https://doi.org/10.1080/00336297.2003.10491809

International Paralympic Committee. (n.d.-a). Education. https://oldwebsite.paralympic.org/the-ipc/education

International Paralympic Committee. (n.d.-b). Paralympic School Day. https://www.paralympic.org/the-ipc/paralympic-school-day

Kennedy, M. M. (2016). How does professional development improve teaching? *Review of Educational Research*, *86*(4), 945–980. https://doi.org/10.3102/0034654315626800

King, M., & Newmann, F. (2001). Building school capacity through professional development: Conceptual and empirical considerations. *International Journal of Educational Management*, *15*, 86–94. https://doi.org/10.1108/09513540110383818

Kuranchie, A., & Bampo, J. (2023). Continuous professional development for public school teachers: Benefits and concerns. *Journal of African Education, 4*(1), 137–158. https://doi.org/10.31920/2633-2930/2023/v4n1a6

Leake, M., Block, M., & McKay, C. (2023). Using Paralympic School Day as a model for an adapted physical education professional development for physical educators. *The Physical Educator*, *80*(3). https://doi.org/10.18666/TPE-2023-V80-I3-11533

Leake, M., Fines, A., Block, M., & McKay, C. (2024). Physical educators' attitudes toward teaching students with disabilities after a Paralympic School Day professional development program. *Journal of Teaching Physical Education*. In press.

Li, C. (2020). Self-efficacy theory. In J.A. Haegele, S.R. Hodge, & D.R. Shapiro (Eds.), *Routledge handbook of adapted physical education* (pp. 313–325). Routledge.

McKay, C. (2013). Paralympic School Day: A disability awareness and education program. *Palaestra*, *27*(4), 14–19.

McKay, C., Block, M., & Park, J.Y. (2015). The impact of Paralympic School Day on student attitudes toward inclusion in physical education. *Adapted Physical Activity Quarterly, 32*(4), 331–348. https://doi.org/10.1123/APAQ.2015-0045

McKay, C., Haegele, J., & Block, M. (2019). Lessons learned from Paralympic School Day: Reflections from the students. *European Physical Education Review*, *25*(3), 745–760. https://doi.org/10.1177/1356336X18768038

McKay, C., Park, J.Y., & Block, M. (2018). Fidelity criteria development: Aligning Paralympic School Day with contact theory. *Adapted Physical Activity Quarterly*, *35*(2), 233–242. https://doi.org/10.1123/apaq.2017-0064

McKay, C., Park, J.Y., & Block, M. (2021). Exploring the variables associated with student attitudes toward inclusion in physical education after taking part in the Paralympic School Day programme. *International Journal of Inclusive Education*, *25*(3), 329–347. https://doi.org/10.1080/13603116.2018.1550117

McKay, C., Park, J. Y., & Haegele, J. (2022). Contact theory as the theoretical basis of the Paralympic Skill Lab: A measurement of implementation fidelity. *Palaestra*, *36*(3), 44-49.

Helms-Mills, J. (2002). Making sense of organizational change. Routledge. https://doi.org/10.4324/9780203451199

Morgan, D. N., & Bates, C. C. (2018). Addressing the barriers of time. *Reading Teacher*, *72*(1), 131–134. https://doi.org/10.1002/trtr.1716

Ng, P. T., & Tan, C. (2009). Community of practice for teachers: Sensemaking or critical reflective learning? *Reflective Practice*, *10*(1), 37–44. https://doi.org/10.1080/14623940802652730

Nowland, L. A., & Haegele, J. A. (2023). The self-efficacy of physical education teachers to teach students with disabilities: A systematic review of literature. *Adapted Physical Activity Quarterly, 40*(4), 758–780. https://doi.org/10.1123/apaq.2022-0135

Nunnally, J., & L. Bernstein. (1994). *Psychometric Theory*. New York, NY: McGraw-Hill Higher, Inc.

Obrusnikova, I., & Block, M. E. (2020). Historical context and definition of inclusion. In J. A. Haegele, S. R. Hodge, & D. R. Shapiro (Eds.), *Routledge handbook of adapted physical education* (pp. 65–80). Routledge.

Ogu, O. C., Umunnah, J. O., Nwosu, K. C., & Gloria, I. C. (2017). Perception of physical educators toward teaching students with disabilities in an inclusive class setting in Nigeria. *Palaestra*, *31*(1), 23–31.

Orlic, A., Pejcic, B., Lazarevic, D., & Milanovic, I. (2016). The predictors of students' attitude towards inclusion of children with disabilities in physical education classes. *Fizicka Kultura*, *70*(2), 126–134. https://doi.org/10.5937/fizkul1602126O

Özer, D., Nalbant, S., Ağlamış, E., Baran, F., Kaya, S. P., Aktop, A., & Hutzler, Y. (2013). Physical education teachers' attitudes towards children with intellectual disability: The impact of time in service, gender, and previous acquaintance. *Journal of Intellectual Disability Research, 57*(11), 1001–1013. https://doi.org/10.1111/j.1365-2788.2012.01596.x

Pierce, C. A., Block, R. A., & Aguinis, H. (2004). Cautionary note on reporting eta-squared values From multifactor ANOVA designs. *Educational and Psychological Measurement, 64*(6), 916–924. https://doi.org/10.1177/0013164404264848

Raharjanti, N. W., Wiguna, T., Purwadianto, A., Soemantri, D., Indriatmi, W., Poerwandari, E. K., Mahajudin, M. S., Nugrahadi, N. R., Roekman, A. E., Saroso, O. J. D. A., Ramadianto, A. S., & Levania, M. K. (2022). Translation, validity and reliability of decision style scale in forensic psychiatric setting in Indonesia. *Heliyon, 8*(7), e09810. https://doi.org/10.1016/j.heliyon.2022.e09810

Reina, R., Healy, S., Roldan, A., Hemmelmayr, I., & Klavina, A. (2019). Incluye-T: A professional development program to increase the self-efficacy of physical educators towards inclusion. *Physical Education and Sport Pedagogy*, *24*(4), 319–331. https://doi.org/10.1080/17408989.2019.1576863

Reina, R., Hemmelmayr, I., & Sierra-Marroquin, B. (2016). Autoeficacia de profesores de educación física para la inclusión de alumnos con discapacidad y su relación con la formación y el contacto previo. *Psychology, Society, & Education*, *8*, 93. https://doi.org/10.25115/psye.v8i2.455

Röschel, A., Wagner, C., & Dür, M. (2021). Examination of validity, reliability, and interpretability of a self-reported questionnaire on occupational balance in informal caregivers (OBI-Care) – A Rasch analysis. *PLoS ONE, 16*(12). https://doi.org/10.1371/journal.pone.0261815

Roibas, A. C., Stamatakis, E., & Black, K. (2011). *Design for sport*. Farnham, United Kingdom: Gower.

Sammut, R., Griscti, O., & Norman, I. J. (2021). Strategies to improve response rates to web surveys: A literature review. *International Journal of Nursing Studies, 123*, 104058. https://doi.org/10.1016/j.ijnurstu.2021.104058

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). https://doi.org/10.1186/s12887-016-0544-7

Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology*, *11*, 101–121. https://doi.org/10.1080/1750984X.2017.1317357

Sparkes, A. C., & Smith, B. (2014). *Qualitative research methods in sport, exercise and health: From process to product*. Routledge.

Spencer-Cavaliere, N., & Watkinson, E. J. (2010). Inclusion understood from the perspectives of children with disability. *Adapted Physical Activity Quarterly*, *27*(4), 275–293. https://doi.org/10.1123/apaq.27.4.275

Taylor, J., & Van Every, E. (1999). The emergent organization: Communication as its site and surface. Routledge. https://doi.org/10.4324/9781410602275

Wilson, W. J., Brian, A., & Kelly, L. E. (2021). The effects of online motor skill assessment training on assessment competence of physical educators. *Journal of Motor Learning & Development, 9*(1), 1–13. https://doi.org/10.1123/jmld.2020-0011

Wilson, W.J., Haegele, J.A., & Kelly, L.E. (2020). Revisiting the narrative about least restrictive environment in physical education. *Quest,* 72(1), 19–32. https://doi.org/10.1080/00336297.2019.1602063

Wilson, W. J., Kelly, L. E., & Haegele, J. A. (2019). 'We're asking teachers to do more with less': Perspectives on least restrictive environment implementation in physical education. *Sport, Education and Society*, *25*(9), 1058–1071. https://doi.org/10.1080/13573322.2019.1688279

Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: Sage.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, *16*(4), 409–421. https://doi.org/10.1287/orsc.1050.0133

Woodland, E. (2019). Professional development and teacher self-efficacy in supporting students with special needs (Publication No. 13811227) [Doctoral Dissertation, Arizona State University]. ProQuest Dissertations Publishing.

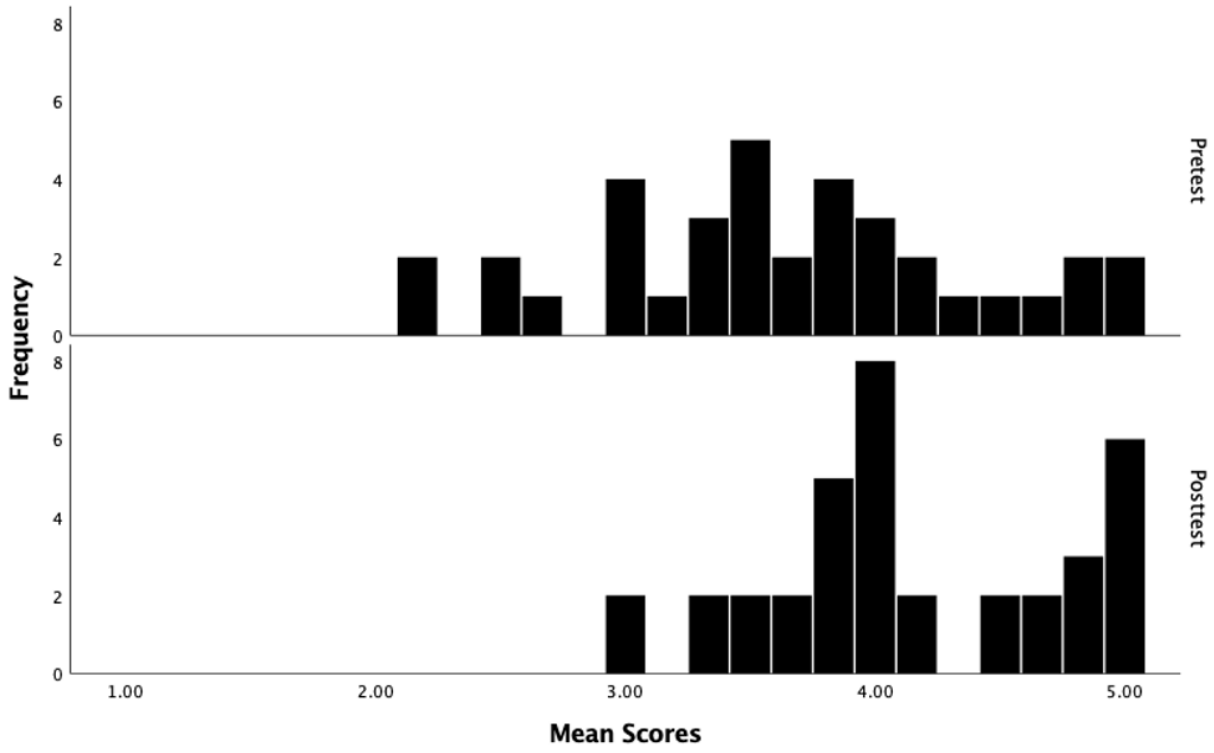
Appendix A

Shapiro-Wilk Tests on Overall Mean Scores

	Statistic	Sig.
Pretest Physical	.976	.600
Posttest Physical	.921	.013
Pretest Visual	.968	.370
Posttest Visual	.951	.106

Appendix B

Overall Physical Disability Mean Scores Distribution (N = 36)



Appendix C

Inter-Item Correlation Matrices

Table C1

Inter-Item Correlation Matrix for Pretest Physical Disability Scores

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.00											
2	.808**	1.00										
3	.578**	.679**	1.00									
4	.418*	.574**	.776**	1.00								
5	.813**	.744**	.694**	.512**	1.00							
6	.449**	.446**	.574**	.845**	.419**	1.00						
7	.700**	.686**	.623**	.610**	.850**	.631**	1.00					
8	.462**	.525**	.812**	.774**	.593**	.782**	.600**	1.00				
9	.523**	.424**	.402*	.310	.689**	.348*	.762**	.373**	1.00			
10	.488**	.461**	.496**	.522**	.678**	.549**	.841**	.500**	.811**	1.00		
11	.319	.380*	.536**	.611**	.391*	.692**	.466**	.564**	.436**	.487**	1.00	
12	.383*	.375*	.628**	.645**	.523**	.649**	.503**	.752**	.514**	.573**	.582**	1.00

Notes. **. Correlation is significant at the 0.01 level (2-tailed); *.Correlation is significant at the 0.05 level (2-tailed).

Table C2

Inter-Item Correlation Matrix for Posttest Physical Disability Scores

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.00											
2	.838**	1.00										
3	.680**	.751**	1.00									
4	.631**	.637**	.842**	1.00								
5	.874**	.705**	.633**	.579**	1.00							
6	.671**	.671**	.706**	.845**	.621**	1.00						
7	.748**	.781**	.768**	.781**	.701**	.647**	1.00					
8	.680**	.751**	.895**	.671**	.687**	.648**	.609**	1.00				
9	.705**	.682**	.485**	.461**	.766**	.563**	.683**	.543**	1.00			
10	.816**	.793**	.776**	.716**	.766**	.627**	.917**	.717**	.679**	1.00		
11	.529**	.451**	.632**	.842**	.470**	.764**	.662**	.421*	.485**	.543**	1.00	
12	.666**	.688**	.890**	.771**	.669**	.746**	.644**	.890**	.574**	.679**	.668**	1.00

Notes. **. Correlation is significant at the 0.01 level (2-tailed); *.Correlation is significant at the 0.05 level (2-tailed).

Table C3

Inter-Item Correlation Matrix for Pretest Visual Impairment Scores

	1	2	3	4	5	6	7	8	9
1	1.00								
2	.696**	1.00							
3	.583**	.648**	1.00						
4	.627**	.639**	.769**	1.00					
5	.633**	.828**	.676**	.734**	1.00				
6	.553**	.634**	.785**	.732**	.696**	1.00			
7	.616**	.520**	.411*	.474**	.573**	.464**	1.00		
8	.568**	.741**	.660**	.676**	.867**	.715**	.677**	1.00	
9	.334*	.607**	.774**	.805**	.723**	.782**	.451**	.767**	1.00

Notes. **. Correlation is significant at the 0.01 level (2-tailed); *.Correlation is significant at the 0.05 level (2-tailed).

Table C4

Inter-Item Correlation Matrix for Posttest Visual Impairment Scores

	1	2	3	4	5	6	7	8	9
1	1.00								
2	.717**	1.00							
3	.635**	.703**	1.00						
4	.716**	.700**	.784**	1.00					
5	.627**	.840**	.609**	.739**	1.00				
6	.691**	.568**	.763**	.833**	.568**	1.00			
7	.893**	.663**	.640*	.713**	.713**	.614**	1.00		
8	.782**	.878**	.690**	.679**	.823**	.509**	.762**	1.00	
9	.671*	.606**	.827**	.782**	.608**	.745**	.757**	.630**	1.00

Notes. **. Correlation is significant at the 0.01 level (2-tailed).

Appendix D

Item-Total Correlation Matrices

Table D1

Item-Total Correlations for Pretest Physical Disability Scores

Items	1	2	3	4	5	6	7	8	9	10	11	12
Total Correlation	.740	.755	.829	.806	.853	.789	.885	.821	.704	.792	.676	.754

Table D2

Item-Total Correlations for Posttest Physical Disability Scores

Items	1	2	3	4	5	6	7	8	9	10	11	12
Total Correlation	.868	.862	.890	.871	.827	.834	.875	.836	.740	.884	.727	.872

Table D3

Item-Total Correlations for Pretest Visual Impairment Scores

Items	1	2	3	4	5	6	7	8	9
Total Correlation	.755	.842	.848	.867	.897	.852	.691	.888	.833

Table D4

Item-Total Correlations for Posttest Visual Impairment Scores

Items	1	2	3	4	5	6	7	8	9
Total Correlation	.869	.859	.857	.899	.842	.813	.873	.869	.859