

Article

Self-Efficacy of Pre-Service Physical Education Teachers Toward Inclusion in Saudi Arabia

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Abstract: This study aims to determine the differences in levels of self-efficacy toward inclusion in general physical education (PE) classes among Saudi pre-service PE teachers. It also aims to evaluate the effect of independent variables with the covariate of attitude scores on participants' self-efficacy toward including students with intellectual disabilities (ID), physical disabilities (PD), and visual impairments (VI). In total, 260 pre-service PE teachers enrolled in a university in Saudi Arabia completed the Arabic version of the self-efficacy scale for a physical education teacher education major toward children with disabilities. Repeated-measures multivariate analysis of covariance (MANCOVA) revealed that self-efficacy was highest towards including students with intellectual disability in general PE class and lowest towards students with physical disabilities. Having previous experience of observing a PE teacher teaching a student with a disability significantly influenced participants' self-efficacy. Participants' attitudes toward inclusion were only significant with participants' self-efficacy toward students with physical disabilities. The findings suggest that observing a role model significantly predicts self-efficacy toward the inclusion of students with a disability.

Keywords: pre-service teacher; inclusive education; inclusive physical education; students with disabilities

1. Introduction

The United Nations Sustainable Development Goal Four (SDG-4) aims to ensure inclusive and equitable quality education for all [1]. It is focused on providing high-quality education and ensuring that all students (including those with disabilities) are provided with highly motivated, well-supported, and well-qualified teachers [2]. Qualified and well-prepared teachers are vital in implementing a successful inclusive education [3]. Over the past few decades, many countries have supported the increased inclusion of students with disabilities by enacting legislation and policies and adapting their education systems to adopt inclusive education in schools [4]. However, implementing inclusive education effectively to improve student outcomes as well as enhancing teachers' self-efficacy when teaching inclusive classes remains challenging. Self-efficacy of teachers plays a key role in the process of educational inclusion. Pre-service physical education (PE) teachers' self-efficacy towards inclusive education, and determining the most effective drivers of this population's self-efficacy, is necessary to ensure that they successfully understand the philosophy of inclusion and are able to become successful practitioners on inclusive education in real-world educational contexts [5], which corresponds to education for sustainable development [1].

Self-efficacy has been found to be an effective predictor of performance [6] and has either a direct or indirect influence on behavior [7]. Self-efficacy is defined as “people’s beliefs about their capability to exercise control over their own level of functioning and over events that affect their lives” [6] (p. 257). Self-efficacy theory asserts that individuals’ beliefs about their capacity to perform a task successfully influences their behavior, thoughts, and action; this provides a useful and meaningful theoretical framework to investigate and measure self-confidence [8]. Therefore, self-efficacy theory has proved successful in measuring pre-service teachers’ self-efficacy towards inclusive education. In pedagogical terms, teacher self-efficacy is defined as teachers’ own belief and confidence in their ability to impact their students’ learning [9,10].

The level of self-efficacy was found to be one of the most important elements for successful inclusion in general PE [11]. Hence, in recent years, the role of teachers’ level of self-efficacy towards teaching inclusive classes has received increased attention across several disciplines. Indeed, the literature has mainly identified poor levels of self-efficacy among teachers in inclusive contexts [2,11,12]. This has led to a large amount of research investigating the factors that affect PE teachers’ understanding of inclusion [13] and the factors that affect their level of self-efficacy towards inclusion [11]. Prior academic preparation about teaching students with disabilities in inclusive PE settings has been identified as one of the most effective factors impacting PE teachers’ beliefs toward inclusion [14]; therefore, investigating pre-service PE teachers’ self-efficacy towards the inclusion of students with disabilities will help to formulate better ways of raising their self-efficacy and to overcome the obstacles in successful implementation of inclusion in PE, such as lack of experience in dealing with people with disabilities [15], and inadequate professional training [16]. This will ensure that when these pre-service PE teachers begin work in inclusive schools, they will be able to produce more positive educational outcomes than previously.

The literature has identified several variables that may impact pre-service PE teachers’ self-efficacy towards including and teaching students with disabilities in general PE classes. For example, Bandura’s self-efficacy theory [6] suggested that four sources (i.e., mastery experience, vicarious experience, verbal persuasion, and physiological states) can influence individuals’ levels of self-efficacy. Koh [17] found that taking an adapted physical education (APE) course could significantly influence pre-service PE teachers’ self-efficacy towards including students with disabilities. Moreover, Tschannen-Moran and Hoy [18] reported that prior contact with either a family member or close friend with a disability plays a role in raising teachers’ awareness about the needs of people with disabilities. Hutzler, Zach, and Gafni [19] indicated that self-efficacy towards including students with disabilities in PE is strongly related to attitudes. Alnahdi [20] suggested that more research is needed to examine the influence of having a friend or family member with a disability on teachers’ self-efficacy.

Despite the increased research on teachers’ self-efficacy levels in Western societies [5,14,21,22], limited studies have been conducted in Eastern societies [23]. Although teachers’ level of self-efficacy is a significant predictor of successful inclusion [8,11,12], there is a lack of research on inclusion in PE in the Saudi Arabian context. Therefore, the current study will establish baseline data of Saudi pre-service PE teachers’ level of self-efficacy towards teaching students with disabilities. It seeks to reveal pre-service PE teachers’ self-efficacy inadequacies so that they can be overcome in order to achieve a better standard of inclusive PE in schools.

Like many other countries (e.g., the United States, Spain, United Kingdom, Australia, and South Korea), Saudi Arabia has implemented several policy and legislation reforms to promote inclusive education [24]. In Saudi Arabia, inclusive education in schools was established in the 1980s with the number of inclusive schools increasing each year [25]. Despite the increased number of inclusive schools in Saudi Arabia, general education teachers refuse to include students with disabilities in their classes [26]. This may be the result of teachers’ inability to accommodate students with disabilities in their classes, including PE classes, as Block and Obrusnikova’s [27] systematic review suggests. In fact, there is a body of evidence supporting the relationship between teachers’ levels of self-efficacy and their ability to provide high-quality inclusive education [8].

Considering the aforementioned, this study will (a) determine the differences in levels of self-efficacy of Saudi pre-service PE teachers toward inclusion of students with intellectual disabilities, physical disabilities, and visual impairments, and (b) evaluate the effects of independent variables (e.g., experience in teaching PE to students with disabilities, enrolled in an APE course, experience in observing a PE teacher teaching students with disabilities) with covariate of attitude on scores of self-efficacy toward teaching students with different disabilities in general PE classes.

2. Materials and Methods

2.1. Participants

The participants were 260 male pre-service PE teachers aged between 19 and 31 ($M = 22.01$, $SD = 1.54$) enrolled in the second, third, and fourth year of a physical education teacher education (PETE) program in a university in the Eastern region of Saudi Arabia. Only male pre-service PE teachers were included in the study because there were no PETE programs for female students in Saudi Arabia at the time of data collection.

2.2. Measures

2.2.1. Demographic Form

The demographic form covered the following information: (i) participant's age, (ii) academic year, (iii) whether they have a family member with a disability, (iv) whether they have a friend with a disability, (v) experience teaching students with disabilities, (vi) whether they have taken an APE course, (vii) whether they have observed a PE class involving students with disabilities, and (viii) their experience of having been persuaded to teach a PE class for students with disabilities.

2.2.2. Self-Efficacy Scale for Physical Education Teacher Education Majors toward Children with Disabilities (SE-PETE-D; Block, Hutzler, Barak, Klavina, 2013)

The Arabic version of the self-efficacy scale for physical education teacher education majors toward children with disabilities (SE-PETE-D) [28] was utilized to examine participants' level of self-efficacy towards including and teaching students with disabilities. This questionnaire was translated and validated from the original English version to Arabic by Hutzler and Daniel-Shama [11].

The SE-PETE-D consists of 33 questions divided into three sections: (a) 11 questions are related to teaching students with intellectual disabilities, (b) 12 questions are related to teaching students with physical disabilities, and (c) 10 questions are related to teaching students with visual impairments. Each section begins with a description of a student with one disability and participants were asked to rate their confidence in their ability to implement tasks such as creating a safe environment, modifying equipment, instructing peers, and modifying instructions for the student. Examples of questions are: 'How confident are you in your ability to create a safe environment for Ahmed when you learn sports skills?' and 'How confident are you with the ability to modify sports equipment to help Ahmed learn sports skills?' Responses were made on a five-point Likert scale ranging from 1 (no confidence) to 5 (complete confidence). To make the questionnaire more relevant to the Saudi context and better suit the population of this study, minor modifications were made, which included changing names used in the original version to more popular Saudi names (e.g., from Ashton to Ahmed), the term 'high school' to 'middle school', and the grades of students from 'ninth grade' to 'third year'.

According to Hutzler and Daniel [11], the Arabic version of the SE-PETE-D demonstrated good internal reliability with a Cronbach's alpha of 0.96 for the intellectual disabilities subscale, Cronbach's alpha of 0.97 for the physical disabilities subscale, and Cronbach's alpha of 0.98 for the visual impairments subscale. The Kaiser-Meyer-Olkin (KMO) index for the three SE-PETE-D subscales (i.e., intellectual disabilities, physical disabilities, and visual impairments) were 0.957, 0.956, and 0.987,

respectively. Moreover, Barlett's test of sphericity chi-square was statistically significant in the three SE-PETE-D subscales.

2.2.3. Attitudes Toward Inclusion in Physical Education (ATIPE; Hutzler, Zach, Gafni, 2005)

The Arabic version of the Attitudes Toward Inclusion in Physical Education (ATIPE) [19] was used to measure participants' attitude toward inclusion in PE. This questionnaire was translated from the original English version to Arabic by Hutzler and Daniel-Shama [11].

The ATIPE scale contained 15 statements (i.e., 11 statements negatively worded and 4 positively worded) that refers to beliefs toward inclusion such as: 'The PE teacher does not have knowledge and skill to teach a child with sensorimotor disability' (negatively worded) and 'Children with disabilities can profit a lot from PE classes' (positively worded). Responses are made on a four-point Likert scale (no neutral attitude) ranging from 1 (not at all agree) to 4 (absolutely agree). The score on ATIPE is expressed by the mean value of the responses to all the items and a higher score refers to more positive attitudes toward including students with disabilities in PE classes. According to Hutzler and Daniel-Shama [11], the ATIPE demonstrated good internal reliability with a Cronbach's alpha of 0.93. The KMO index for the ATIPE was 0.937. Moreover, Barlett's test of sphericity chi-square was statistically significant in the ATIPE.

2.3. Procedure

After securing research ethical approval from the University of Malaya Research Ethics Committee (UM.TNC2/UMREC—452) and permission from the Ministry of Education in Saudi Arabia, we invited second, third, and fourth year pre-service PE teachers in a Saudi university to participate in this study. Of the 700 eligible participants, 260 (37.1%) agreed to participate. The response rate is considered high in questionnaire research as 10%–20% is typical [29]. Information sheets were distributed to all participants and those who agreed to participate after reading the information sheet were given the consent form to sign. The participants could withdraw from the study at any time. We then distributed the demographic form, SE-PETE-D, and ATIPE.

2.4. Data Analysis

Exploratory factor analysis (EFA) was performed to identify the valid items in the Arabic version of the SE-PETE-D and ATIPE to ensure that they were appropriate for the participants in this study. An EFA was conducted using the principal component analysis extraction approach based on Field's [30] recommendations, followed by a Varimax rotation to maximize the sum of the variance.

Mean and standard deviation were computed for the overall SE-PETE-D and ATIPE. Pearson Product-Moment correlation coefficient analysis was used to determine the correlation between SE-PETE-D subscales and ATIPE toward the inclusion of students with disabilities in general PE. After checking that the assumptions were met, a repeated measures MANCOVA used to determine the difference in multiple scores (i.e., self-efficacy towards intellectual disabilities, physical disabilities, and visual impairments) with the impact of co-existence factors (e.g., experience in teaching PE to students with disabilities; enrolled in an APE course) and attitude as a covariate [31]. A post hoc analysis was used for pairwise comparisons. The Statistical Package for the Social Sciences (SPSS) software version 22.00 (SPSS Inc., Chicago, IL USA) and SmartPLS [32] were utilized to run all statistical analyses. The significance level was set at $p < 0.05$.

3. Results

3.1. Reliability and Validity

The EFA revealed three main components related to each subscale of the SE-PETE-D; these achieved cumulative eigenvalues of 72.29%. Moreover, the results indicated one main component relevant to the ATIPE, which achieved a cumulative eigenvalue of 99.70%. The reliability of SE-PETE-D and

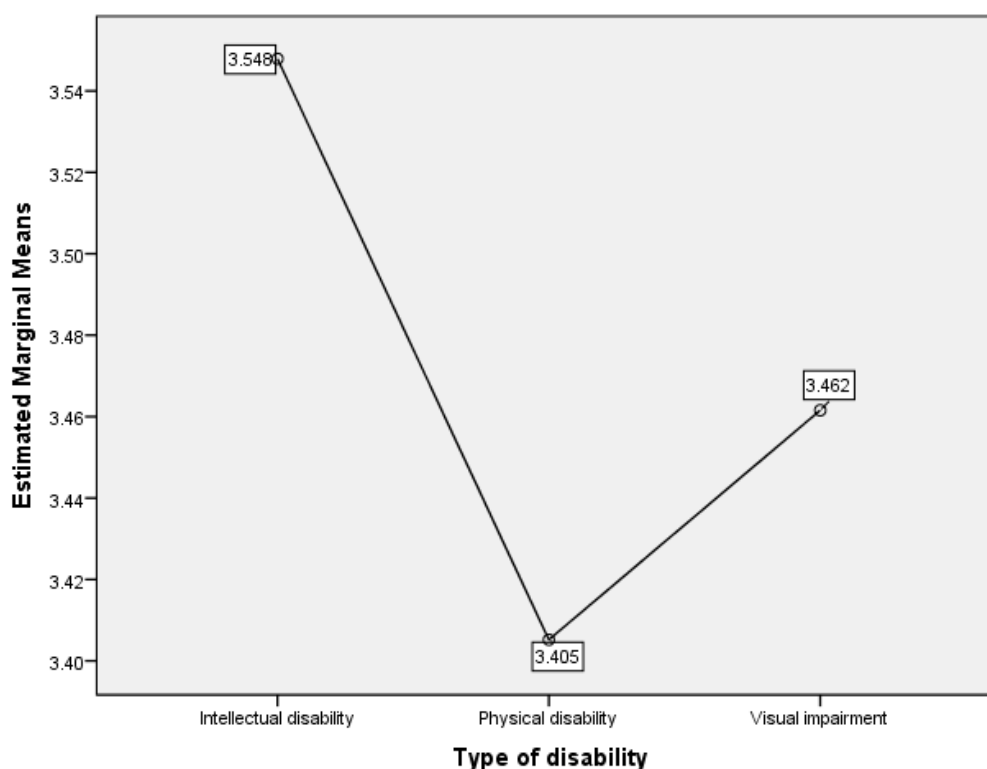
ATIPE was examined using Cronbach's alpha. The results indicated good internal consistency for the ATIPE with a Cronbach's alpha of 0.981 and for the SE-PETE-D with Cronbach's alpha of 0.971, 0.941, and 0.965 for the intellectual disabilities, physical disabilities, and visual impairments subscales, respectively [33]. One item related to the visual impairment subscale (i.e., 'How confident are you in your ability to look for Ahmed's peers to help him during the fitness test?') was deleted because its loading was less than 0.30 [34]. The overall Cronbach's alpha for the SE-PETE-D subscales was 0.964, which is considered acceptable [33].

3.2. Demographic Characteristics

A total of 260 male pre-service PE teachers participated in the study. More than half (56.2%) the participants were in their fourth year with 15% in their second year and 28.8% in their third year of study. Participants who have previous experience in teaching students with disabilities scored higher overall on the SE-PETE-D and ATIPE (4.07 ± 0.69 ; 3.46 ± 0.10 , respectively) than those without previous experience (3.03 ± 0.69 ; 2.17 ± 0.33). Table 1 shows additional information relevant to the participants' background, self-efficacy, and attitude.

3.3. The Difference in the Level of Participants' Self-Efficacy Toward Inclusion of Students with Intellectual Disabilities, Physical Disabilities, and Visual Impairments in General PE Classes

Figure 1 depicts the differences in levels of pre-service PE teachers' self-efficacy towards teaching students with intellectual disabilities, physical disabilities, and visual impairments in PE classes. The level of self-efficacy towards teaching students with physical disabilities showed the lowest mean self-efficacy score (3.40), whereas the highest score was for self-efficacy towards teaching students with intellectual disabilities (3.55).



Covariates appearing in the model are evaluated at the following values: Attitude_score = 33.76

Figure 1. Differences in levels of self-efficacy towards students with intellectual disabilities, physical disabilities, and visual impairments.

Table 1. Participants' self-efficacy and attitude overall mean scores by the independent variables. PE: physical education

Independent Variable		Mean (SD) OR n (%)	Overall Self-Efficacy	Overall Attitude	Tests of Between-Subjects Effects
			M ± SD	M ± SD	
Mean age, years (SD)		22.01 (1.54)			
Academic year	2nd/3rd	114 (43.8)	3.11 ± 0.70	1.89 ± 0.78	
	4th	146 (56.2)	3.10 ± 0.76	2.12 ± 0.83	
Having a family member with a disability	No	219 (84.2)	3.05 ± 0.72	2.25 ± 0.46	F(1253) = 22.082, $p = 0.000$, $\eta p^2 = 0.080$
	Yes	41 (15.8)	3.42 ± 0.73	2.31 ± 0.47	
Having a friend with a disability	No	208 (80)	3.04 ± 0.74	2.25 ± 0.46	F(1253) = 42.836, $p = 0.000$, $\eta p^2 = 0.145$
	Yes	52 (20)	3.38 ± 0.66	2.30 ± 0.47	
Enrolled APE course	No	57 (21.9)	3.13 ± 0.75	2.21 ± 0.38	
	Yes	203 (78.1)	3.10 ± 0.73	2.27 ± 0.48	
Having an experience teaching students with disabilities	No	242 (93.1)	3.03 ± 0.69	2.17 ± 0.33	
	Yes	18 (6.9)	4.07 ± 0.69	3.46 ± 0.10	
Observed a PE teacher teaching students with disabilities	No	159 (61.2)	2.58 ± 0.29	2.21 ± 0.39	F(1253) = 1350.321, $p = 0.000$, $\eta p^2 = 0.842$
	Yes	101 (38.8)	3.93 ± 0.38	2.34 ± 0.54	
Have been persuaded to teach PE to students with disabilities	No	213 (81.9)	3.03 ± 0.70	2.25 ± 0.44	F(1253) = 2.848, $p = 0.093$, $\eta p^2 = 0.011$
	Yes	47 (18.1)	3.45 ± 0.79	2.29 ± 0.55	

The results presented in Figure 1 show that there was a mean difference between the three dependent variables (i.e., intellectual disabilities, physical disabilities, and visual impairments). Table 2 shows the results of the post hoc test using the Bonferroni correction (pairwise comparisons).

Table 2. Pairwise Comparisons between the self-efficacy scale for physical education teacher education majors toward children with disabilities (SE-PETE-D) subscales.

		M_{diff}	SE	p^b	95% CI for Difference ^b	
					LB	UB
Self-efficacy—ID	Self-efficacy—PD	0.140 *	0.053	0.027	0.012	0.268
	Self-efficacy—VI	0.098 *	0.038	0.030	0.007	0.189
Self-efficacy—PD	Self-efficacy—ID	−0.140 *	0.053	0.027	−0.268	−0.012
	Self-efficacy—VI	−0.042	0.053	1.000	−0.171	0.086
Self-efficacy—VI	Self-efficacy—ID	−0.098 *	0.038	0.030	−0.189	−0.007
	Self-efficacy—PD	0.042	0.053	1.000	−0.086	0.171

ID: intellectual disability, PD: physical disability, VI: visual impairments, *: the mean difference is significant at the 0.05 level, ^b: adjustment for multiple comparisons: Bonferroni.

As shown in Table 2, there was a mean significant difference between self-efficacy towards teaching students with intellectual disabilities and both self-efficacy towards teaching students with physical disabilities ($M_{diff} = 0.140$, $p = 0.027$) and self-efficacy towards teaching students with visual impairments ($M_{diff} = 0.098$, $p = 0.030$). However, the results indicate that there was no mean significant difference between self-efficacy towards teaching students with visual impairments and self-efficacy towards teaching students with physical disabilities ($M_{diff} = 0.042$, $p = 0.053$).

3.4. Correlation between SE-PETE-D Subscales and ATIPE

A Pearson Product-Moment correlation coefficient analysis (Table 3) was conducted to determine the correlation between SE-PETE-D subscales and ATIPE toward the inclusion of students with disabilities in general PE. The correlations between the instruments were significant and small [35]. Moreover, the correlation between the ATIPE and self-efficacy toward teaching students with physical disabilities $r(260) = 0.18$, $p < 0.003$ showed the highest correlation compared to the other subscales. In terms of the correlations between the three subscales of self-efficacy, the results indicated that the correlation between self-efficacy towards teaching students with intellectual disabilities, and self-efficacy towards teaching students with visual impairments $r(260) = 0.94$, $p < 0.01$ showed the highest correlation compared to the other subscales.

Table 3. Correlations between self-efficacy subscales and Attitudes Toward Inclusion in Physical Education (ATIPE).

		Self-Efficacy—PD	Self-Efficacy—VI	ATIPE
Self-efficacy—ID	r	0.267 **	0.946 **	0.144 *
	p value (2-tailed)		0.000	0.020
Self-efficacy—PD	r		0.270 **	0.181 **
	p value (2-tailed)		0.000	0.003
Self-efficacy—VI	r			0.131 *
	p value (2-tailed)			0.035

* $p \leq 0.05$; ** $p \leq 0.01$.

3.5. The Effects of Independent Variables with the Covariate of Attitude on Self-Efficacy Scores towards Including Students with Intellectual Disabilities, Physical Disabilities, and Visual Impairments

A repeated measures MANCOVA was conducted to determine the difference in multiple scores (i.e., self-efficacy towards intellectual disabilities, physical disabilities, and visual impairments) with the impact of the co-existence factors (e.g., independent variables) and attitude as a covariate.

However, three independent variables (i.e., age, experience in teaching PE to students with disabilities, and enrolled in an APE course) were omitted and excluded from the final model because they did not meet the assumption.

For the first self-efficacy subscale (intellectual disabilities), the results indicated that having observed a PE teacher teaching students with disabilities had the highest impact on participants' self-efficacy scores with an estimated percentage of 90.7%. In contrast, having been persuaded to include students with disabilities in a PE class only had a very small effect on the participants' self-efficacy scores (1.7%).

For the second self-efficacy subscale (physical disabilities), having a friend with a disability had the highest impact on the participants' self-efficacy scores (30.3%), whereas having observed a PE class involving students with disabilities had the lowest significant effect (2.8%).

Finally, for the third self-efficacy subscale (visual impairments), having observed a PE teacher teaching students with disabilities had the strongest effect on participants' self-efficacy with an estimated percentage of 88.4%. This was followed by academic year (1.7%), as shown in Table 4.

Table 4. Impact of Independent Variables and ATIPE on Scores of SE-PETE-D Subscales.

Dependent Variable	Parameter	B	SE	<i>p</i>	95% CI		η^2	
					Lower	Upper		
Self-efficacy—ID	Intercept	4.677	0.139	0.000	4.403	4.950	0.817	
	Academic year	Second/Third	0.018	0.039	0.639	−0.059	0.096	0.001
		Fourth	0					
			0	0.053	0.836	−0.093	0.115	0.000
	Family member	No	0.011	0.053	0.836	−0.093	0.115	0.000
		Yes	0					
	Friend	No	−0.063	0.048	0.188	−0.157	0.031	0.007
		Yes	0					
	Observed	No	−1.975	0.040	0.000	−2.054	−1.895	0.904
		Yes	0					
Been persuaded	No	−0.106	0.050	0.037	−0.205	−0.007	0.017	
	Yes	0						
ATIPE		−0.002	0.003	0.526	−0.009	0.004	0.002	
Self-efficacy—PD	Intercept	3.649	0.216	0.000	3.223	4.074	0.530	
	Academic year	Second/Third	0.002	0.061	0.973	−0.118	0.122	0.000
		Fourth	0					
			−0.694	0.082	0.000	−0.856	−0.533	0.221
	Family member	No	−0.694	0.082	0.000	−0.856	−0.533	0.221
		Yes	0					
	Friend	No	−0.778	0.074	0.000	−0.923	−0.632	0.303
		Yes	0					
	Observed	No	−0.168	0.063	0.008	−0.292	−0.045	0.028
		Yes	0					
Been persuaded	No	−0.103	0.078	0.187	−0.257	0.051	0.007	
	Yes	0						
ATIPE		0.019	0.005	0.000	0.008	0.029	0.048	
Self-efficacy—VI	Intercept	4.572	0.158	0.000	4.261	4.882	0.769	
	Academic year	Second/Third	0.093	0.045	0.039	0.005	0.180	0.017
		Fourth	0					
			−0.010	0.060	0.870	−0.128	0.108	0.000
	Family member	No	−0.010	0.060	0.870	−0.128	0.108	0.000
		Yes	0					
	Friend	No	−0.032	0.054	0.556	−0.138	0.075	0.001
		Yes	0					
	Observed	No	−2.009	0.046	0.000	−2.099	−1.919	0.884
		Yes	0					
Been persuaded	No	−0.028	0.057	0.620	−0.141	0.084	0.001	
	Yes	0						
ATIPE		−0.003	0.004	0.362	−0.011	0.004	0.003	

Repeated Measured MANCOVA.

4. Discussion

This study focused on two research objectives: (a) determining the differences in levels of self-efficacy of Saudi pre-service PE teachers toward inclusion of students with intellectual disabilities, physical disabilities, and visual impairments; and (b) evaluating the effects of independent variables with covariates of attitude on participants' self-efficacy scores for including students with different disabilities in general PE settings.

The results show that participants had the highest level of self-efficacy towards including students with intellectual disabilities and the lowest level of self-efficacy towards including students with physical disabilities. However, this result is contrary to Jovanović, Kudláček, Block, and Djordjević's [14] findings. They found that pre-service PE teachers showed the highest self-efficacy towards teaching students with physical disabilities and the lowest self-efficacy towards teaching students with visual impairments. In contrast to earlier findings that reported the lowest self-efficacy among pre-service PE teachers' attitudes toward teaching students with visual impairments [11], the present study found no evidence of this. Comparatively, the present study's results suggest that pre-service PE teachers have a medium level of self-efficacy towards teaching students with visual impairments. A possible explanation for why participants reported the highest level of self-efficacy toward the inclusion of students with intellectual disabilities might be because they may be aware or had watched the Saudi national team for athletes with intellectual disabilities win the International Sports Federation for Persons with Intellectual Disability (INAS) World Football Championship four times (2006, 2010, 2014, and 2018). Indeed, Reina et al. [2] concluded that watching para-sports and having positive interactions with para-athletes are necessary to improve teachers' self-efficacy towards inclusive education in PE classes and foster sustainable development in education.

The present study showed that the internal relationships between all of the SE-PETE-D subscales and ATIPE were small [35]. However, the present study's results indicate weaker relationships between the SE-PETE-D and ATIPE instruments compared to Hutzler and Daniel-Shama's results with Arabic-speaking PE teachers [11]. Specifically, Arabic-speaking pre-service PE teachers have weaker associations compared to the Arabic-speaking PE teachers evaluated in Hutzler and Daniel-Shama's study [11].

The repeated-measures MANCOVA revealed that pre-service teachers' attitudes had a significant influence only on their levels of self-efficacy towards teaching students with physical disabilities. This finding is consistent with the theory of social learning, which states that attitudes are strongly related to self-efficacy [36,37]. Therefore, in light of this finding, raising pre-service PE teachers' self-efficacy towards teaching students with visual impairments and intellectual disabilities may require more specialized forms of training, as teaching those with visual impairments and intellectual disabilities presents a unique set of challenges [17,38].

The experience of observing PE teachers instructing students with disabilities had the highest impact on participants' self-efficacy scores (90.7% and 88.4%) toward intellectual disabilities and visual impairments, respectively. In accordance with this result, previous studies [15,22] have also demonstrated that observing a role model (such as peer, professor, or teacher) can positively improve PE teacher's level of self-efficacy towards including students with disabilities. It is however contrary to findings by Peebles et al. [5], who found that this type of observation was a negative predictor of pre-service PE teachers' self-efficacy in teaching in inclusive classrooms. A possible explanation for Peebles and colleagues' findings might be that their participants may have observed an unsuccessful or non-similar model, which could have harmed their self-reported self-efficacy. Bandura [6] indicated that once the models and the observer have a high level of similarity, significant impacts will occur.

The literature shows mixed results in terms of improving pre-service PE teachers' attitudes toward teaching students with disabilities by providing the former with more opportunities for social contact with the latter [39–42]. This is also the case for improving pre-service PE teachers' attitudes towards teaching students with disabilities by providing pre-service PE teachers with more opportunities for private contact with friends or families with disabilities [43,44]. Several studies [18,45] have reported

that prior contact with a close friend or family member with a disability significantly enhances teachers' awareness of requirements of their students with disabilities. Other studies have shown that these effects are common across a wide range of contexts and countries [46]. For example, in relation to participants' confidence before beginning teaching students with disabilities, Tindall et al. [22] noted that Irish participants who have a family member with a disability tended to have a higher level of self-efficacy in teaching students with disabilities. Similar to previous findings, Saudi pre-service PE teachers who have a friend or family member with a disability appears to have a significantly higher level of self-efficacy only toward teaching students with physical disabilities.

Participants' academic year significantly impacts their self-efficacy towards including students with visual impairments. This is in line with Zach, Harari, and Harari's [10] results where all of the teachers surveyed had significantly greater levels of self-reported self-efficacy following one year of study, regardless of their year of study.

In light of our findings, we argue that encouraging sustainability in education requires pre-service PE teachers to develop higher levels of self-efficacy towards inclusive teaching in order to ensure positive teaching and learning outcomes. Indeed, considering the present study's Saudi Arabian context, efforts to encourage sustainability in education are severely lacking because only seven out of 29 universities in Saudi Arabia offer specific PETE programs. This highlights the importance of Hutzler, Meier, Reuker, and Zitomer's [47] recommendation of implementing the five instrumental factors that have been shown to be effective at raising pre-service teachers' self-efficacy levels. Specifically, Hutzler et al. [47] recommend offering pre-service teachers more experience in teaching students with disabilities in a variety of contexts and observing role models teaching such students to improve the institution's inclusion-focused academic training. Moreover, treating inclusion as a process, not a binary performance goal, and specifically catering for the extent and type of students' disabilities (e.g., developing specific approaches to suit the needs of students with intellectual disabilities, physical disabilities, and visual impairments) will be beneficial. Therefore, the results of this study contribute to the literature on pre-service PE teachers' self-efficacy and form the basis of developing evidence-based recommendations to improve their level of self-efficacy towards including students with disabilities in general PE classes.

The present study reveals several implications for improving the quality of university-level inclusive education in PE. First, it is crucial to facilitate a better degree of contact and interaction between pre-service PE teachers and students with disabilities to reduce pre-service PE teachers' apprehension of including these students in PE classes. This could be achieved through coordinating ongoing outreach programs between educational facilities and schools for students with disabilities to build the former's familiarity with the latter's needs and characteristics and assuage their fears related to inclusive teaching. Second, the results also suggest the importance of providing a supportive, inclusive-focused learning environment for pre-service PE teachers within their institution. This initiative may need to be managed at the structural level (e.g., the Saudi Ministry of Education) to enable standardization and effective practice. Third, Saudi educational decision-makers should consider expanding inclusion in PE settings for students with disabilities as there is a lack of inclusive PE in Saudi Arabia at present. Fourth, the outcomes overwhelmingly show that building pre-service PE teacher's familiarity in teaching students with disabilities increases their acceptance and willingness to teach in such contexts. Fifth, more broadly, media also has a responsibility to more positively represent people with disabilities throughout empowerment and social inclusion. Specifically, encouraging students with disabilities to participate in para-sports will help to improve the way they are represented in the media and educational content.

Despite the strengths of this study, certain limitations merit discussion. First, only male participants were included in this study. Although it would have been crucial to include female participants in the study, the study was limited to male-only pre-service PE teachers because, at the time of data collection, no PETE programs were available for female students in Saudi Arabia. Due to the novelty of the context, we cannot predict how the results would be affected. However, considering previous

Saudi research, it is possible to suggest that female pre-service PE teachers' self-efficacy towards teaching students with disabilities would have likely been lower than their male counterparts [48]. It is important to highlight that female pre-service PE teachers lack experience in teaching PE in Saudi Arabia's education system and society. Therefore, this issue deserves further attention to ensure that female pre-service PE teachers are able to fulfil their potential in providing inclusive PE. Second, no data about the actual behavior of the participants in real classrooms were collected; therefore, respondents' self-reported data may not be a true reflection of what they would do when they are asked to include students with intellectual disabilities, physical disabilities, and visual impairments in general PE classes. The third limitation is that one item related to the visual impairment subscale had to be deleted due to its loading. Fourth, three independent variables (i.e., age, experience in teaching PE to students with disabilities, and enrolled in an APE course) were excluded from the final model because they did not meet the assumptions.

5. Conclusions

The present study highlights the need to improve pre-service PE teachers' level of self-efficacy towards teaching students with physical disabilities. Because participants' inclusion-based attitudes towards were significant only for their self-efficacy towards teaching these students, this highlights a need to improve educational content. Specifically, this can be achieved by offering more opportunities for practicum to enable pre-service PE teachers to gain more experience in teaching students with physical disabilities. Further, because the participants' level of self-efficacy towards including students with intellectual disabilities and visual impairments were not significantly influenced by their attitudes toward inclusion, there is a need to improve the educational approaches used in teacher training institutions to raise pre-service teachers' self-efficacy in this respect. The researchers in the current study recommend that institutions offering inclusive pre-service PE courses should improve their teaching materials and offer more opportunities for practicum to improve teachers' self-efficacy levels and attitudes toward teaching students with intellectual disabilities, physical disabilities, and visual impairments. Finally, it is urgent to include male and female participants to determine the gender effect on both self-efficacy and attitudes towards inclusion and compare it to other cultural contexts.

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