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Physical Educators' Beliefs and Self-Reported Behaviors Toward Including Students With Autism Spectrum Disorder

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With an increase in the presence of students with autism spectrum disorder (ASD) in the general physical education (GPE) classroom, understanding the current state of GPE teachers' beliefs and behaviors for including these students is warranted. The current study aimed to examine the beliefs and self-reported behaviors of GPE teachers' inclusion of students with ASD. In addition, the study examined potential factors affecting their inclusion behaviors. Using a national stratified random sample, participants were 142 current GPE teachers who submitted surveys anonymously online. Results from a regression analysis indicate that teachers' experience, graduate coursework in adapted physical education (APE), and perceptions of strength in undergraduate training in APE significantly predicted their self-reported behavior for including students with ASD. Although the participant response rate is considerably low, this study provides some support toward the importance of teacher education programs for inclusion training.

Keywords: physical education, disability, inclusion

There has been a steady increase in the number of students with disabilities placed in the general education classroom for the majority of their school day. According to the U.S. Department of Education (2012), the percentage of students with disabilities who spent more than 80% of their school day in the general education classroom rose from 31.7% in 1989 to 56.8% in 2007. There has also been a rise in the incidence of autism spectrum disorders (ASD). The most current reports indicate that ASD now affects 1 in 68 children, which represents a 123% increase in the previous 8 years (Centers for Disease Control and Prevention, 2014). With these figures, it is reasonable to assume that the presence of students with ASD in the general physical education (GPE) classroom has also become common.

Under federal law, brought about by the Individuals with Disabilities Education Improvement Act (IDEA; 2004), individuals with disabilities are guaranteed

access to free and appropriate public education in the least restrictive environment. In regard to physical education, IDEA regulations specify that schools must provide opportunities for students to participate in GPE classes or, in some cases, specially designed physical education if it has been determined by the Individual Education Program team. In general, students with and without disabilities are provided comparable opportunities to participate in physical education (U.S. Government Accountability Office, 2012). According to the Government Accountability Office report, data from the 2005 Youth Risk Behavioral Survey estimate that students with and without disabilities spend similar amounts of time engaged in physical activity per physical education class. It was further reported that most students with disabilities who were enrolled in physical education were taking classes alongside their same-age peers without disabilities. With a known presence of students with disabilities in the GPE classroom, efforts to understand teachers' beliefs and behaviors regarding inclusion are warranted. Researchers interested in inclusion have begun to look into factors contributing to teachers' beliefs and behaviors; however, most research has focused on attitudes, leaving much room for additional evidence while trying to predict teachers' behaviors.

Students with ASD have varied and complex needs. In many cases, there are substantial impairments in social interaction and communication, which can be problematic in the general education setting. Research into inclusion of students with ASD in physical education is limited; however, GPE teachers have continued to express varied and somewhat negative feelings toward the practice of inclusion (Block & Obrusnikova, 2007). In general, there is agreement that physical educators have more positive attitudes toward teaching students with mild disabilities than teaching those with severe disabilities (Casebolt & Hodge, 2010; Conatser, Block, & Gansneder, 2002; Hodge, Ammah, Casebolt, Lamaster, & O'Sullivan, 2004). Other studies have indicated that GPE teachers hold more favorable beliefs toward including those with learning disabilities as opposed to those with emotional and behavioral disorders (Obrusnikova, 2008). Teacher-related variables such as training have also been examined in relation to their inclusion beliefs. Early research on GPE teachers' attitudes found relationships between previous coursework in disability and attitudes (Rizzo, 1985) and perceived competence and attitudes (Rizzo & Vispoel, 1991; Rizzo & Wright, 1988). More recently, Obrusnikova (2008) extended this research, linking perceived competence and adapted physical education (APE) coursework. While these studies have provided evidence supporting teacher education as a link to positive attitudes and perceived competence in teaching students with disabilities, perceptions of inadequate training and lack of support are prominent complaints among GPE teachers (e.g., Hodge et al., 2009; LaMaster, Kinchin, Gall, & Siedentop, 1998; Lieberman, Houston-Wilson, & Kozub, 2002). Furthermore, there remains a paucity of evidence in regard to teacher's inclusion behaviors (e.g., modifying instruction, activities, or equipment) and how they are linked to teacher training, attitudes, confidence, and intentions.

Teacher behavior is a complex construct, and some studies have used theory in attempt to better understand teachers' inclusion behavior and factors that influence it. Two prominent behavioral theories, self-efficacy theory (SET; Bandura, 1997) and the theory of planned behavior (TPB; Ajzen, 1991), have been used recently in the inclusion literature in APE. According to Bandura's (1997) SET, efficacy beliefs

are a major basis of action, and perceptions of self-efficacy refer to individuals' beliefs in their own capabilities to organize and carry out the necessary actions to produce a given attainment. Thus, under SET, the beliefs one holds in regard to one's ability to accomplish a task will affect one's level of motivations, affective states, and actions. TPB (Ajzen, 1991) was developed to predict and explain human behavior in specific contexts and has received attention in a variety of disciplines including health and physical activity behaviors and, more, recently physical education and inclusion (Armitage & Conner, 2001; Hausenblas & Carron, 1997; Jeong & Block, 2011; Kozub & Lienert, 2003). A central factor in TPB is intention, which is assumed to capture motivational factors influencing behavior. The theory proposes a model in which the three belief constructs of attitudes, subjective norms, and perceived behavioral control predict a person's intentions to perform a specific behavior. Under TPB, intentions are the precursors of behavior, and both TPB and SET have been demonstrated to be useful in the emerging research on inclusion of students with disabilities in physical education.

Efforts to link GPE teachers' inclusion beliefs and behaviors have begun to take shape in the literature. Qualitative studies have provided rich description of GPE teachers' beliefs and behaviors relative to inclusion and teaching students with disabilities. Hodge et al.'s (2004) investigation of experienced GPE teachers found that participants held positive beliefs toward inclusion and regularly interacted with their students with disabilities, yet still expressed lack of training and supports as challenges to their ability to effectively teach students with disabilities. In a similar qualitative investigation, researchers described inclusion behaviors such as modification and verbal interaction, along with varied teacher confidence and preparation (Ammah & Hodge, 2005). In recent quantitative studies examining teachers' self-reported inclusion behaviors, Jeong and Block (2011) used TPB to measure teaching behavior through questions regarding specific inclusive teaching practices such as repeating directions, adapting for safety, and providing extra instruction. Results indicated a positive relationship between attitudes, intentions, and behaviors, with intentions significantly predicting teachers' self-reported inclusion behaviors. Using SET, Taliaferro (2010) found evidence that GPE teachers' self-efficacy beliefs toward including a student with autism predicted self-reported inclusion behaviors. Similar to Jeong and Block, Taliaferro measured behavior with questions regarding inclusive teaching techniques such as modifying equipment and providing extra instruction.

Thus far, the literature has supported the existence of relationships between GPE teachers' beliefs and behaviors. However, there remains a need for further development of quantitative examinations investigating predictive relationships between teachers' training and behavior. Furthermore, to our knowledge, to date, there have been no studies using random sampling procedures. Due to the use of convenient sampling for the majority of prior research in this field, we have yet to grasp a representative example of what GPE teachers believe and how they behave in relation to including students with disabilities and, more specifically, students with ASD. Therefore, with use of the TPB and SET as a guiding basis, the purpose of the current study was twofold. First, we aimed to provide a description of current GPE teachers' beliefs and self-reported behaviors toward including students with ASD, and, second, we examined the potential factors affecting their self-reported inclusive behaviors.

Method

Participants

There were 233 GPE teachers from a stratified national random sample of 3,000 public schools in the United States who participated in an online survey. Initial data screening indicated that 30 participants either quit the survey after the first page or did not meet criteria of “currently teaching physical education” and “have taught at least one student with ASD in your physical education classes.” Next, it was determined that surveys with more than 20% of the questions unanswered would be excluded due to the likelihood that these participants either quit the survey or skipped multiple questions. Final analysis included 142 GPE teachers.

The mean age of the sample was 46 years ($SD = 9.2$, range 25–63), with 63% being women. Ninety-nine percent of the participants indicated that they were certified to teach physical education in their home state. In regard to the participants’ teaching experience, the mean was 18 years ($SD = 9.3$, range 1–37), with 69% currently teaching GPE at the elementary level, 29% at the middle or junior high school level, and 18% at the high school level. Percentages do not add up to 100 because some indicated teaching at more than one level. The current study was approved by the investigators’ institutional review board. All participants read informed-consent statements and agreed to participate in the study.

Instruments

An online survey was used to elicit information on GPE teachers’ beliefs and behaviors regarding the inclusion of students with ASD. In addition to basic demographics such as number of years teaching, age, and school level, participants were asked to rate their perceptions of support from other professionals including the adapted physical education specialist, the teacher’s assistant, the special education teacher, and/or the physical therapist. Specifically, participants were given a list of the four other relevant professionals, asked “Do you feel you have support from the following,” and were asked to answer “yes,” “no,” or “don’t know.” Finally, participants’ training experiences were also surveyed. Of interest were how many APE courses (both undergraduate and graduate) participants had taken and how well they felt that these courses had prepared them to include students with ASD. Their perception of how well the courses prepared them was recorded by choosing “not at all,” “fairly well,” “very well,” or “N/A.” Participants were also asked the number of in-service trainings they had attended in which information on ASD was presented.

Participants’ self-efficacy in their ability to include a student with ASD was measured using the Physical Educators’ Self-Efficacy Toward Including Students with Disabilities-Autism (PESEISD-A, version 8.2) scale created by Taliaferro, Block, Harris, and Krause (2011). The instrument asks participants to answer questions in relation to a description of a student with a moderate level of autism. The description of ASD was modified from the DSM-IV-TR (American Psychiatric Association, 2000) definition to apply to a physical education setting. In the development of the PESEISD-A, Taliaferro et al. presented evidence for validity and reliability along with support for self-efficacy as a significant predictor of self-reported behavior. Self-efficacy explained 14% of the variance in behavior. Validity evidence

was revealed in the results of an exploratory factor analysis with a one-factor solution accounting for 57% of the variance in self-efficacy scores and reliability estimates with a high level of internal consistency (Cronbach's $\alpha = .93$, and test-retest reliability $r = .86$). Using this scale for the current study, participants were asked to rate their degree of confidence in their ability to perform each of 10 tasks when including students with ASD in GPE classes. Teaching tasks included items such as "promote social interactions," "modify rules," "modify instructions," and "manage behaviors." As per Bandura's (2006) guidelines, participants responded on a scale of 0 to 10, with a score of 0 indicating *cannot do at all*, a score of 5 indicating that the participant *moderately can do*, and a score of 10 indicating that the participant is *highly certain can do*. To score for the measure of self-efficacy, responses were summed across all 10 items and then divided by the total number of self-efficacy items answered. In the current study, Cronbach's alpha coefficient was used to measure internal consistency of the 10-item scale, and it was .92.

In an effort to measure teachers' attitudes, intentions, and self-reported behavior toward including a student with ASD, the survey included questions from a modified version of Jeong and Block's (2011) instrument Teachers' Beliefs and Intentions toward Teaching Students with Disabilities (TBITSD). Survey modification for the current study was minimal and consisted of changing the type of disability of the student included from a student with an intellectual disability to a student with ASD. Although the original instrument was created to measure teachers' beliefs and behaviors for including students with intellectual disabilities, questions regarding behavior refer to making individual modifications, which are not unique to intellectual disabilities.

Jeong and Block's (2011) study used the TPB and provided evidence of validity and reliability for measures of constructs in TPB. In their study, a factor analysis was conducted for direct and indirect measures of attitude, subjective norm, and perceived behavioral control. For items of direct measure, their analysis indicated a three-factor structure where the first factor, referring to the direct measure of attitude, accounted for 35.29% (reliability was .90 using Cronbach's alpha). Items of indirect measure of attitude also indicated a three-factor structure where the first factor, referring to behavioral beliefs (as an indirect measure of attitude) accounted for 20.92% (reliability was .85 using Cronbach's alpha). All items on this section of the survey were answered using a 7-point Likert-type scale. There were three questions of direct measure for attitude, and the score was calculated by finding the mean. Questions in this section ask the participant about teaching a student with ASD in their physical education class and whether they considered it to be *extremely harmful* (rated 1) to *extremely beneficial* (rated 7), *extremely bad* to *extremely good*, and *extremely worthless* to *extremely useful*. Indirect measurement of attitude included measuring behavioral beliefs and outcome evaluations, again with respect to their teaching students with ASD in their physical education class. In other words, participants were asked to respond indicating the likely outcome of the behavior followed by their evaluation of the outcome. For example, "Teaching students with ASD in my physical education class would positively change how students without disabilities will feel about students with ASD (*unlikely* rated 1 to *likely* rated 7), followed by "Changing how students without disabilities feel about students with ASD would be *extremely worthless* (rated 1) to *extremely valuable* (rated 7). To obtain a score for the indirect measure of attitude, belief scores were

multiplied by their relevant evaluation scores. The resulting products were then summed across all beliefs to create an overall attitude score. While both indirect and direct measures of attitude were surveyed, only direct measures demonstrated acceptable reliability (direct measures Cronbach's $\alpha = .92$; indirect measures Cronbach's $\alpha = .58$). Therefore, only direct measures were included in final analyses.

Questions regarding teachers' intentions and behaviors toward including students with ASD were also adopted from Jeong and Block's (2011) TBITSD. Four items including statements such as "I plan to include" and "I am determined to include" were used for measuring intentions. Intention was calculated as the mean of the four intention items' scores. Internal-consistency analysis indicated acceptable reliability (Cronbach's $\alpha = .92$). Behavior was measured based on an 8-item scale related to GPE teachers' self-reported inclusion behaviors. The scale included a list of eight instructional and curricular items, which were preceded with the question stem "With the students with autism that you taught, how often did you do the following individual modifications for these students?" The eight items were "repeat directions," "assign a peer tutor," "change the rules of a game," "adapt for safety," "give child adapted equipment," "extra instruction on skill," "modify assessment," and "give special reinforcement." Participants responded on a 7-point scale (1 = *not at all* to 7 = *always*). Reliability analysis on the behavior scale's items indicated acceptable internal consistency (Cronbach's $\alpha = .84$).

Procedure

The current study used a stratified random sample of GPE teachers within the United States. To account for the variety of geographic regions, the researchers randomly sampled two states from each of the six regions as designated by the American Alliance for Health, Physical Education, Recreation, and Dance (now SHAPE America). The 12 randomly sampled states included Georgia, Hawaii, Indiana, Kansas, Michigan, Mississippi, Montana, New Hampshire, Nevada, Oregon, South Dakota, and Vermont. A list of public K-12 schools in each of the 12 states was then obtained from the National Center on Education Statistics' school search Web site (<http://nces.ed.gov/ccd/schoolsearch/>). Using the total population for all 12 states and dividing each state's population by the total population, the percentage weight of each state was found. Finally, with an initial target sample size of 300 and an oversample target of 3,000, the number of schools randomly sampled from each state was found by taking the percentage weight of the given state from the total population and calculating the number that corresponded to the state's percentage weight of 3,000.

After schools were selected, the researchers conducted online searches for school Web sites and sought physical education teachers' e-mail contact information. If there was e-mail contact information for the school's principal and not for the physical education teacher, the principal was e-mailed with a request to forward the information to the physical education teacher. The online search of schools yielded 2,004 e-mail contacts. There were 12 states randomly selected; however, after initial contact was sent, one state required additional approval and was therefore unable to participate. Participants from the final sample represented 11 different states, with Michigan, Georgia, Indiana, and Oregon being the highest numbers (22.7%, 22.3%, 14.9%, and 8.8%, respectively).

Following Dillman, Smyth, and Christian's (2009) survey-research recommendations, there were four rounds of e-mails sent. The first e-mail was an initial contact with a short introduction and description of the research, indicating that there would be another e-mail in 2–3 days with a link to an online survey. Of the 2,004 emails sent, 116 bounced or came back as a "mailer-daemon," and 86 were replied to with a request to be removed from the list. There were 1,802 e-mails sent during the second round. This e-mail included a link to the survey along with an incentive to participate in the form of a coupon code to receive 10% off a purchase from a well-known physical education equipment retailer. There were two more e-mails sent out as follow-ups. The first follow-up was sent 1 week after the survey e-mail and contained a thank you for participating, as well as a reminder if the recipient had not yet taken the survey. There was a final follow-up and thank-you e-mail sent 2 weeks after the previous.

Participants completed and submitted surveys anonymously online through Survey Monkey. Once participants followed the link provided in the e-mail, they were directed to a cover-letter Web page. The cover letter provided explanation of the research and their participation, whereby they were asked to click the "continue" button indicating informed consent and to begin the survey. Before screening, 233 surveys were submitted anonymously through Survey Monkey, representing a 12.9% return rate. After data screening, there were 142 participants; therefore, the return rate for usable surveys was 7.9%. It is important to note that there was no way of tracking how many e-mail invitations actually reached their intended target, so this response rate is an approximation.

Analysis

Participants were characterized using descriptive statistics (i.e., means, standard deviations, and percentages). In addition, confidence intervals and correlations were calculated for all variables. In effort to identify potential factors affecting physical education teachers' inclusion behaviors, a multiple regression was employed. Variables were chosen based on previous research. Teachers' behavior was the dependent variable, and the independent variables were teachers' years of experience teaching, self-efficacy beliefs for including students with ASD, number of undergraduate APE courses, number of graduate APE courses, perception of the strength of their undergraduate training for inclusion, perception of the strength of their graduate training for inclusion, and number of in-service trainings with information on ASD.

Results

Data-collection and -analysis outcomes in the exploration of GPE teachers' inclusion beliefs and behaviors toward students with ASD reveal characteristics of the current study's participants, as well as important variable relationships. In addition to the number of years they had been teaching, participants were also asked how many students with ASD they had taught in previous years. It was reported that 58% of the participants had taught 1–5 students with ASD, and 21% of them had taught 6–10 students in 2010. For the year 2009, the distribution was similar, with 55% reporting to have taught 0–5 students and 21% reporting 6–10

students. Participants reported similarly when asked about years before 2009, with the majority having taught at least one student with ASD in their GPE classes. Although to our knowledge this is the only study using a national random sample, it is important to be cautious about the generalizability of the findings due to the low response rate (7.9%).

Participants were asked about their APE undergraduate and graduate coursework preparation and how well the classes prepared them for inclusion of students with ASD. The majority of the participants had taken at least one undergraduate APE class (see Table 1), and just over half indicated that the classes prepared them “very well” or “fairly well” (see Table 2). Approximately 27% of the participants had taken at least one graduate course in APE, and only 39% (95% CI 31%, 47%) indicated that the classes prepared them “fairly well.” In regard to in-service training, over half of the participants had attended at least one in-service that had information on ASD.

The participants were asked questions regarding their perceptions of support from other professionals who are typically involved in working with students with disabilities in public schools (see Table 3). When asked if their school district had an APE specialist, 65% reported “no” (95% CI 57%, 73%). However, of those that did have an APE specialist, 76% (95% CI 69%, 83%) felt that they received support from the specialist. In regard to other professionals, a clear majority felt supported by the teaching assistants, special education teachers, and physical therapists.

In addition to perceptions of support and training for inclusion, participants were asked about their self-efficacy and attitudes toward including a child with ASD in their GPE classes. The PESEISD-A (Taliaferro et al., 2011), a 10-item self-efficacy scale, was used to measure teachers’ confidence, as self-efficacy is described as a situational confidence (Bandura, 1997). Descriptive data from the measure of self-efficacy indicated that teachers held generally positive self-efficacy

Table 1 Participant Coursework and In-Service Training

Course type	None	1 class	2 classes	More than 2 classes
UG APE	18%	46%	18%	18%
Graduate APE	73%	17%	4%	6%
UG or graduate SPED	43%	23%	16%	18%
In-service	32%	26%	15%	27%

Note. UG = undergraduate; APE = adapted physical education; SPED = special education; In-service = in-service training with information on autism spectrum disorder.

Table 2 Participants’ Perception of How Well They Were Prepared in Their Undergraduate and/or Graduate Classes to Include Students With Autism Spectrum Disorder

Course level	Not at all	Fairly well	Very well
Undergraduate	42%	46%	12%
Graduate	47%	39%	14%

Table 3 Participants' Perception of Support From Other Professionals

	Yes	No	Don't know
Support from teacher assistants	72%	22%	6%
Support from special education teacher	80%	18%	2%
Support from physical therapist	49%	31%	20%

beliefs toward their ability to perform tasks associated with the inclusion of students with ASD ($M = 7.8$, 95% CI 7.6, 8.1).

Participants' attitude and behaviors were measured from the TBITSD (Jeong & Block, 2011). In regard to attitudes, descriptive data revealed a mean score of 6.65 on a scale of 1 to 7 (95% CI 6.53, 6.77). Behavior for including students with ASD was measured using an 8-item scale. Items included behaviors that are associated with inclusion, and respondents were asked how often they performed the behaviors. Responses were given on a scale of 1 (*not at all*) to 7 (*always*). Results indicated a mean of 5.42 (95% CI 5.26, 5.59).

Relationships between important variables were also examined in a correlation matrix. A small but significant relationship was found between participants' self-efficacy and self-reported inclusion behaviors ($r = .19$, $p < .05$), as well as their self-reported inclusion behaviors and their perception of the strength of their undergraduate preparation for inclusion ($r = .18$, $p < .05$; see Table 4). In addition, significant relationships between self-efficacy and attitudes and intentions were also indicated ($r = .59$, $p < .05$ and $r = .31$, $p < .05$, respectively).

A regression analysis was employed to determine what factors influenced teachers' self-reported inclusion behaviors. Independent variables included teachers' experience, self-efficacy beliefs, training, and perceptions of strength of training, with the dependent variable as self-reported behavior. Results supported the regression model's ability to reliably predict self-reported behavior, $R = .44$, $F(7, 117) = 3.89$, $p < .01$. The amount of variance in self-reported inclusion behaviors accounted for by the model as a whole was 19%. However, on examination of the beta coefficients, only experience ($\beta = .33$), graduate coursework ($\beta = .25$), and perception of quality of undergraduate training ($\beta = .19$) were significant predictors of self-reported behavior. Table 5 includes detailed statistical outcomes from a multiple regression highlighting these results.

Discussion

The purpose of this study was to examine the beliefs and self-reported behaviors of current GPE teachers' inclusion of students with ASD in their classes. Results indicated that GPE teachers generally felt supported by the special education teacher yet had wavering beliefs about their own training to include students with ASD. While relationships between belief variables such as attitudes, intentions, self-efficacy, and perceptions of support exist, the only variables that significantly predicted self-reported behavior to include students with ASD in this sample were experience, graduate coursework in APE, and perceptions of strength of undergraduate preparation for inclusion.

Table 4 Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11
1. Self-efficacy	1.00										
2. Attitude	.59**	1.00									
3. Intention	.31**	.39**	1.00								
4. Behavior	.19*	.00	-.06	1.00							
5. Experience	.20*	.08	.12	.32**	1.00						
6. Undergraduate coursework in APE	.05	.02	-.15	.06	.03	1.00					
7. Graduate coursework in APE	.06	-.01	-.10	.19*	.01	.47**	1.00				
8. Undergraduate coursework prep	.14	.15	-.07	.18*	-.11	.25**	.16	1.00			
9. Graduate coursework prep	.12	-.11	.03	.14	.14	.17	.39**	.23**	1.00		
10. Perception of support from SPED	.23**	.22**	.14	.01	.12	.07	.05	.02	.05	1.00	
11. Insrv	.23**	.18*	.14	.01	.12	.07	.05	.02	.05	.07	1.00

Note. Experience = years of experience teaching physical education; APE = adapted physical education; prep = perception of strength of preparation for inclusion; SPED = special education teacher; Insrv = in-service training with information on autism spectrum disorder.
* $p < .05$. ** $p < .01$.

Table 5 Regression-Analysis Coefficients

Variable	Unstandardized Coefficients		β	<i>t</i>	<i>p</i>
	<i>B</i>	<i>SE</i>			
Experience	.03	.01	.33	3.59	.00*
Self-efficacy	.06	.06	.09	1.04	.30
Undergraduate APE	-.05	.04	-.12	-1.04	.29
Graduate APE	.17	.08	.25	2.12	.04*
Undergraduate prep	.23	.11	.19	2.12	.04*
Graduate prep	-.03	.09	-.03	-0.31	.76
Insrv	-.02	.03	-.07	-0.60	.55

Note. Experience = years of experience teaching physical education; APE = coursework in adapted physical education; prep = perception of strength of preparation for inclusion; Insrv = in-service training with information on ASD.

**p* < .05.

Although the current study used a random sampling design, the final return rate was less than 10% and indicates a large potential nonresponse bias. The scope of inference for this study is narrow, and we are limited to making any inference beyond the participants sampled. It must also be acknowledged that the responses in the current study may not be representative, as teachers with high levels of self-efficacy beliefs and positive attitudes toward and interests in inclusion may have been more willing to participate. In addition, inclusion behaviors were not actually observed but self-reported as a prediction of behavior, so caution should be used when inferring these results back to the general population of GPE teachers. The majority of the teachers in the current study revealed that they felt supported by the special education teacher in their schools. Their perception of support from the special education teacher was related to their self-efficacy and attitude toward inclusion. Previous studies have suggested that GPE teachers feel a lack of support (LaMaster et al., 1998; Lieberman et al., 2002); however, results from our study suggest that support from the special education teacher is readily available. This difference in findings may be due to changes in public schools, as LaMaster et al.'s report was from nearly 15 years ago. In addition, the growth in ASD coincides with a growing emphasis on the inclusive model of education under the Individuals with Disabilities Education Improvement Act (2004) where collaborative efforts are often used to support individual needs. Another possible reason for the difference in findings may be related to a difference in sampling methods. Lieberman et al. (2002) examined 148 participants from two different states; however, that was a convenience sample as participants were attending workshops for teaching students with sensory impairments. Results of the current study, which used national random sampling, suggest that possible collaborative efforts are being made in school settings. Not only is training future physical educators to work collaboratively with other professionals such as special education teachers important, it may also help strengthen inclusive practices in GPE settings.

Consistent with a known increase in the presence of students with ASD in the general education setting, it was found that over half of those sampled had taught at least one student with ASD in the years 2010, 2009, and prior. Furthermore, nearly a quarter of the participants reported having taught 6–10 students with ASD during those years. Clearly, the need for training in inclusive practices is warranted.

Most physical education teacher education curricula have at least one introductory APE class that students are required to complete during their training. While some studies have linked APE coursework with positive feelings toward inclusion (Hodge, 1998; Obrusnikova, 2008), there has also been evidence that teachers feel the need for more than one class (Hardin, 2005). In the current study, the majority of participants had participated in at least one undergraduate APE class, and 46% (95% CI 38–54%) indicated that their undergraduate training prepared them “fairly well” to include students with ASD. It is clear, however, that many felt their undergraduate course was not helpful, with 42% (95% CI 34–50%) reporting “not at all” when asked how well they were prepared to include students with ASD. Results from a regression analysis in the current study provide some evidence to support the claim for more than one class, indicating that after accounting for experience and perception of the strength of undergraduate training, graduate coursework in APE remains the next-strongest predictor of self-reported behavior. It is important to note that the positive perception of undergraduate and graduate APE coursework is a key predictor for physical education teachers’ self-reported inclusion behaviors. These results support the needs of quality teacher education programs that provide training in inclusion practices. If we consider that the quality of undergraduate and graduate APE coursework is key, our findings may indicate that faculty who specialize in APE should be teaching the classes. Therefore, it is of perhaps greater importance to note the need for doctoral training in APE in an effort to generate more faculty trained to enhance teacher education in APE. Assuming that the positive perception of undergraduate APE coursework is in part due to the professor’s training in APE, and graduate courses in APE are taught by professors trained in APE, our findings support earlier calls for doctoral training programs (Dunn & McCubbin 1991; McCubbin & Dunn 2000; McCubbin, Yun, Morgan, & Johnson, 2010).

In the current study, teachers’ years of experience was the strongest predictor of their self-reported inclusion behaviors ($\beta = .33, p < .05$). It is a fair assumption that a teacher with more years of experience will have a higher tendency toward inclusion behaviors; however, it has yet to be proven, as most studies have not looked directly at behavior, (Kudláček, Válková, Sherrill, Meyers, & Franch, 2002; Tripp & Rizzo, 2006), nor have they included experience in their prediction models (Conatser et al., 2002; Jeong & Block, 2011). Our findings suggest that teachers’ experience may be an important factor when considering behavior. Perhaps of more immediate interest is the training necessary for creating teachers with positive beliefs and behaviors toward inclusion. While it can be understood that training for inclusion will lead to feelings of preparedness and perhaps better practice, it remains unclear what specifically is needed in terms of training. Recently, Jin, Yun, and Wegis (2013) proposed a theory-based undergraduate curriculum to promote inclusion. Further studies need to investigate outcome measures such as teachers’ confidence and behaviors for including students with disabilities in relation to the type of training they received in effort to compare and/or evaluate training programs.

Belief constructs from the TPB and SET were used as a basic framework in the current study. Constructs such as self-efficacy, attitudes, and intentions have become important variables in the field of inclusion research. Earlier investigations examining GPE teachers' attitudes found evidence of relationships between teacher attitudes and student-related variables such as disability type (Obrusnikova, 2008; Rizzo, 1984; Rizzo & Vispoel, 1991) and teacher-related variables such as training and coursework (Block & Rizzo, 1995). In the current study, student-related variables were not examined; however, teachers' attitude toward inclusion was significantly related to the number of in-service trainings they had attended, along with perceived support from the special education teacher. More important, attitudes were significantly related to the teachers' intentions to include a student with ASD, which aligns with TPB and previous research (Conatser et al., 2002; Jeong & Block, 2011). Relationships between belief constructs and behaviors were less apparent.

Teachers' self-reported inclusion behaviors were found to have a low yet significant positive relationship with their inclusion self-efficacy ($r = .19, p < .05$). However, the ability of self-efficacy-predicting behaviors was not supported. In addition, behavior in this study was not related to teachers' attitudes toward inclusion or intentions to include. These findings contradict previous studies in which beliefs predicted self-reported behaviors (Conatser et al., 2002; Jeong & Block, 2011; Taliaferro, 2010). Therefore, follow-up studies including a larger random sample should be conducted to provide further evidence. In addition to relationships between teachers' beliefs and behaviors, further studies should look into outcome measures such as student behavior and how it relates to teachers' beliefs and predicted behaviors.

Summary

With the increase in the presence of students with ASD in GPE classrooms, understanding the current state of GPE teachers' beliefs and behaviors for including these students is of paramount concern. This study provides preliminary findings on the number of students and support from other professionals, as well as personal confidence regarding general physical educators and the inclusion of students with ASD in physical education. While self-efficacy, attitudes, and intentions have been seen as important and related to teachers' belief variables in previous research, clearly, teacher education stands out as crucial in this study. Our results indicate that practical experience and coursework appear as substantial resources for teachers.

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References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. doi:10.1016/0749-5978(91)90020-T

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders, text revision* (4th ed.). Washington, DC: American Psychiatric Press.
- Ammah, J.O.A., & Hodge, S.R. (2005). Secondary physical education teachers' beliefs and practices in teaching students with severe disabilities: A descriptive analysis. *High School Journal*, 89(2), 40–54. doi:10.1353/hsj.2005.0019. doi:10.1353/hsj.2005.0019
- Armitage, C.J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40, 471–499. PubMed doi:10.1348/014466601164939
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs in adolescents* (Vol. 5, pp. 307–337). Greenwich, CT: Information Age.
- Block, M.E., & Obrusnikova, I. (2007). Inclusion in physical education: A review of literature from 1995–2005. *Adapted Physical Activity Quarterly*, 24(2), 103–124. PubMed
- Block, M.E., & Rizzo, T.L. (1995). Attitudes and attributes of physical educators associated with teaching individuals with severe and profound disabilities. *The Journal of the Association for Persons with Severe Handicaps*, 20(1), 80–87.
- Casebolt, K.M., & Hodge, S.R. (2010). High school physical education teachers' beliefs about teaching students with mild to severe disabilities. *Physical Educator*, 67(3), 140–155.
- Centers for Disease Control and Prevention. (2014). Prevalence of autism spectrum disorder among children aged 8 years—Autism and developmental disabilities monitoring network, 11 sites, United States, 2010. *Morbidity and Mortality Weekly Report*, 63(SS02).
- Conatser, P., Block, M., & Gansneder, B. (2002). Aquatic instructors' beliefs toward inclusion: The theory of planned behavior. *Adapted Physical Activity Quarterly*, 19(2), 172–187.
- Dillman, D.A., Smyth, J.D., & Christian, L.M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method* (3rd ed.). Hoboken, NJ: John Wiley & Sons.
- Dunn, J.M., & McCubbin, J.A. (1991). Preparation of leadership personnel in adapted physical education. *Adapted Physical Activity Quarterly*, 8(2), 128–135.
- Hardin, B. (2005). Physical education teachers' reflections on preparation for inclusion. *Physical Educator*, 62(1), 44–56.
- Hausenblas, H.A., & Carron, A.V. (1997). Application of the theories of reasoned action and planned behavior to exercise behavior: A meta-analysis. *Journal of Sport & Exercise Psychology*, 19(1), 36–51.
- Hodge, S., Ammah, J.O.A., Casebolt, K.M., LaMaster, K., Hersman, B., Samalot-Rivera, A., & Sato, T. (2009). A diversity of voices: Physical education teachers' beliefs about inclusion and teaching students with disabilities. *International Journal of Disability Development and Education*, 56(4), 401–419. doi:10.1080/10349120903306756
- Hodge, S.R. (1998). Prospective physical education teachers' attitudes. *Physical Educator*, 55(2). Retrieved from <http://js.sagamorepub.com/pe/article/view/2274>
- Hodge, S.R., Ammah, J.O.A., Casebolt, K., Lamaster, K., & O'Sullivan, M. (2004). High school general physical education teachers' behaviors and beliefs associated with inclusion. *Sport Education and Society*, 9(3), 395–419. doi:10.1080/13573320412331302458
- Individuals With Disabilities Education Improvement Act. Public Law 108-446. 118 Stat. 2647 et seq. (2004).
- 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. PubMed doi:10.1080/02701367.2011.10599751
- Jin, J., Yun, J., & Wegis, H. (2013). Changing physical education teacher education curriculum to promote inclusion. *Quest*, 65, 372–383. doi:10.1080/00336297.2013.791869
- Kozub, F.M., & Lienert, C. (2003). Attitudes toward teaching children with disabilities: Review of literature and research paradigm. *Adapted Physical Activity Quarterly*, 20(4), 323–346.

- Kudláček, M., Válková, H., Sherrill, C., Meyers, B., & French, R. (2002). [An inclusion instrument based on the planned behavior theory for prospective physical educators](#). *Adapted Physical Activity Quarterly*, 19(3), 280–299.
- LaMaster, K., Kinchin, G., Gall, K., & Siedentop, D. (1998). [Inclusion practices of effective elementary specialists](#). *Adapted Physical Activity Quarterly*, 15(1), 64–81.
- 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), 364–377.
- McCubbin, J., Yun, J., Morgan, J., & Johnson, M. (2011, June). *Preparing faculty in adapted physical education: The need persists*. Paper presented at the 2011 International Association of Physical Education in Higher Education Conference, Limerick, Ireland.
- McCubbin, J.A., & Dunn, J.M. (2000). [Preparation of leadership personnel in adapted physical education: A follow-up study](#). *Adapted Physical Activity Quarterly*, 17(4), 371–380.
- Obrusnikova, I. (2008). Physical educators' beliefs about teaching children with disabilities. *Perceptual and Motor Skills*, 106(2), 637–644. [PubMed doi:10.2466/pms.106.2.637-644](#)
- Rizzo, T.L. (1984). [Attitudes of physical educators toward teaching handicapped pupils](#). *Adapted Physical Activity Quarterly*, 1(4), 267–274.
- Rizzo, T.L. (1985). Attributes related to teachers' attitudes. *Perceptual and Motor Skills*, 60(3), 739–742. [doi:10.2466/pms.1985.60.3.739](#)
- Rizzo, T.L., & Vispoel, W.P. (1991). [Physical educators' attributes and attitudes toward teaching students with handicaps](#). *Adapted Physical Activity Quarterly*, 8(1), 4–11.
- Rizzo, T.L., & Wright, R.G. (1988). Physical educators' attitudes toward teaching students with handicaps. *Mental Retardation*, 26(5), 307–309. [PubMed](#)
- Taliaferro, A. (2010). *Validation of an instrument to explore physical educators' beliefs toward inclusion: Application of self-efficacy theory* [doctoral dissertation]. University of Virginia, Charlottesville.
- Taliaferro, A., Block, M., Harris, N., & Krause, J. (2011). *Physical educators' self-efficacy toward including students with disabilities—Autism version 8.2* [unpublished survey instrument].
- Tripp, A., & Rizzo, T. (2006). [Disability labels that affect physical educators](#). *Adapted Physical Activity Quarterly*, 23(3), 310–326.
- U.S. Department of Education National Center for Education Statistics. (2012). Table 47: Percent distribution of students 6 to 21 years old served under Individuals With Disabilities Education Act, Part B, by educational environment and type of disability: Selected years, fall 1989 through fall 2010. Retrieved December 19, 2012, from http://nces.ed.gov/programs/digest/d12/tables/dt12_047.asp
- U.S. Government Accountability Office. (2012). K-12 education: School-based physical education and sports programs (publication no. GAO-12-350).