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ARE AUSTRALIAN PRE-SERVICE PHYSICAL EDUCATION TEACHERS PREPARED TO TEACH INCLUSIVE PHYSICAL EDUCATION?

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Abstract: Australian pre-service physical education (PE) teachers must be prepared for the reality of teaching in inclusive classrooms. Past studies have indicated that the amount of academic preparedness can affect pre-service PE teachers' intentions to successfully teach in inclusive settings. The current study measured these intentions in a sample of pre-service PE teachers from two different universities. This modified survey required participants to respond to two separate scenarios: one teaching inclusive PE to a student with attention deficit hyperactivity disorder, and one to a student with autism. All participants completed an adapted PE unit with an embedded practicum of different lengths. Findings indicated that pre-service teachers' who experienced the larger adapted PE practicum had more favourable intentions towards teaching students with both disabilities compared to the other cohort. Implications of this research to improve Australian PE teacher training are discussed and recommendations are made.

Introduction

Since legislation (Disabilities Standards for Education: Australian Government, 2005), inclusivity for students with disabilities (SwD) in Australian mainstream schools has become the norm rather than the exception. Inclusive practice is not restricted to the academic classroom but also encompasses other areas of the typical school day, such as physical education (PE). Exposure to PE curricula provides SwD access to age-appropriate motor skill development instruction (Obrusníková, Válková, & Block, 2003), situations that foster social skills (Bailey, 2005), and education exposure which might aid in addressing disparities in health literacy (Ouellette-Kuntz, 2005). Yet, despite these benefits, inclusivity does not always translate to full participation in all aspects of educational settings (Beckett, 2009, Berlach & Chambers, 2011, Lavani, 2013). Of many structural barriers to full inclusivity (i.e. resources, curriculum) is the presence of ableism, which is thinking that disability is a tragic within-person difference. Thus, in this view, individuals separate people as 'normal' or a lesser ideal 'other' (Cologan, 2014). Such views are associated with attitudes and beliefs that might be acculturated in organisations such as pre-service teacher training (Cologan, 2014). To this end, negative attitudes might predict lesser intentions to modify or accept individualised instruction in PE classrooms. To date there is a paucity of literature specific to Australian pre-service PE teacher attitudes and intentions to teach SwD (Martin & Kudlacek, 2010). Thus the aim of this study was to investigate if differences in pre-service PE teachers' preparation influenced their attitudes and intentions to teach SwD.

A person's action is determined by behavioural intentions, which in turn are influenced by an attitude towards the behaviour and subjective norms (Ajzen, 1991). In addition to attitude towards the behaviour and subjective norms, in the theory of planned behaviour (TPB), perceived behavioural control can influence intention as well. This reciprocal relationship exists for positive attitudes and inclusive practices in education (Carlson, Hemmings, Wurf, & Reupert, 2012). In a study of Australian primary and high school classrooms, Carlson et al. reported that teacher attitudes were central to inclusive practice. This relationship between attitudes and behaviour suggests that inclusive attitudes can create the conditions for engaging in inclusive practice, which in turn results in more inclusive attitudes. Yet this research was not specific to the PE classroom.

Within research based on the TPB, physical educators' (practicing and pre-service) attitudes towards teaching SwD have shown to predict their intentions to include SwD in a general PE setting (i.e., Hodge & Jansma, 1999; Oh et al., 2010). For example, there is a large body of research based on the original Physical Educators' Attitude Toward Teaching the Handicapped (PEATH: Rizzo, 1984) survey. The most recent of which is the Physical Educators' Intention Toward Teaching Individuals with Disabilities (PEITID: Oh et al., 2010). Research using these inventories has manipulated a number of variables that might influence practicing and pre-service physical educators' attitudes towards including SwD in a general PE class. These variables have included gender (Folsom-Meek, Nearing, Groteluschen, & Krampf, 1999; Rowe & Stutts, 1987), perceived competence (Hodge et al., 2002), practicum types (Rowe & Stutts, 1987; Hodge & Jansma, 1999; Hodge et al., 2002), academic major (Folsom-Meek et al., 1999; Folsom-Meek, Groteluschen, & Nearing, 1996) severity of disability (Folsom-Meek & Rizzo, 2002, Kowalski & Rizzo, 1996; Rizzo & Kirkendall, 1995; Rizzo & Vispoel, 1991; 1992), disability labels (Tripp & Rizzo, 2006), teaching experience (Rowe & Stutts, 1987), amount of practicum experience (Hodge & Jansma, 1999; 2000), and types of academic preparation (West, 2009; Folsom-Meek et al., 1999; 1996; Stewart, 1990). The two variables that have produced the most robust findings over time have been the amount of pre-service training hours, and the severity of student disability. Nonetheless, these data are germane to the North American context. To the best of our knowledge there has only been one Australian investigation into the intentions of pre-service PE teachers to teach SwD in an inclusive PE setting (Martin & Kudlacek, 2010). In an examination of differences in attitudes towards including SwD in PE classes between university year groups and subject majors, no significant differences were found in this study. It should be noted that this study did not use the PEITID survey, but a survey based on the TPB derived for use in the Czech Republic (Kudlacek, Valkova, Sherrill, Myers, & French, 2002). Therefore the applicability of comparison to the findings of the North American data is limited.

Following the work of Rizzo and colleagues, we were interested in the effect of teacher training on Australia pre-service PE teachers' intentions to include SwD into PE classrooms. Specifically we were interested in PE teachers' intentions for two of the most common disabilities, attention deficit hyperactivity disorder (ADHD) and autism. In line with the more robust findings from previous literature in relation to training of pre-service teachers we predicted that a more comprehensive exposure (academic work plus a larger, more varied practicum experience) to SwD training for pre-service physical educators' would result in significantly more favourable intentions towards including students with ADHD and students with autism in PE classes.

Method

Participants

Participants were pre-service PE teachers ($N=56$) enrolled in introductory adapted PE units from either the University of Tasmania (UTAS) or Latrobe University at Bendigo (LUB). All courses were K-12. The LUB participants ($n=25$: female=14, male=11) were in their third and fourth year of teacher education, and UTAS participants ($n=31$: female=13, male=18) were in their third year of their teacher education. The criteria established for inclusion were: a) offer a PE degree b) offer an introductory adapted PE course with a corresponding practicum component c) a unit coordinator willing to ask students involved in the introductory adapted PE course to participate, and d) a unit coordinator willing to aid in the distribution of surveys. Each participant provided informed consent in accordance with the Human Ethics Committee procedures from both universities.

Academic preparation for teaching SwD

Both groups completed an introductory adapted PE unit with embedded practicum at university, although, each group received different pedagogical experiences. This was the only experience afforded based on teaching SwD in either programme. The UTAS group's pedagogy included lecture content (13 hours) on disability sports, pedagogical content knowledge (assessment, behaviour management), and experiential activities (developmentally appropriate games and adapted aquatics). Content knowledge included specific disability content concerning autism spectrum disorders, intellectual disabilities, sensory conditions, and neuromuscular conditions. The UTAS cohort also participated in a five-hour practicum at a specialist school for SwD. This experience included observational learning and teacher-assisted learning. Assessment for the unit included responding to a case study vignette about a hypothetical SwD, producing an annotated bibliography of a specific disability, and a final exam.

The LUB cohort's adapted PE learning experience consisted of 13 hours of lecture content consisting of labelling theory, development of an individualised program, program support group strategies, medical and safety considerations, understanding SwD, individual program goals, and modifying participation. Specific disabilities content covered: physical disability, visual impairment, severe behaviour disorder, hearing impairment, intellectual disability, and autism spectrum disorder. The LUB group participated in a 40-hour practicum located in segregated and inclusive school-based PE classes. Pre-service teacher practicum responsibilities included observational learning, assisted teacher learning, one-on-one instruction for a SwD in the class, and lesson development for this student. LUB participants were assessed through a presentation and a reflection of their practicum experiences. The presentation involved the participants presenting an adapted PE lesson for their SwD for the one-on-one component of their practicum. The lesson included a warm up, skill development, and a group game. The second assessment, the practicum experience reflection, involved assessing the plan, implementation, and evaluation of their PE unit including SwD within their school practicum setting. The characteristics, cause, etiology, prognosis, implications for PE, recommended activities, effective teaching strategies, and positive behaviour management strategies were all included in this assignment.

Instrument

To test our first hypothesis we used the original version of the PEITID survey. This survey contains a vignette about a student with ADHD being included in a general PE curriculum (Table 1). After reading the vignette, participants responded to 35 belief

statements by demonstrating their level of agreement using a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). To test our second hypothesis, we modified the original survey by adding to the original vignette a vignette portraying a student with autism being included in a general PE classroom (Table 1). We then used the same 35 belief items and agreement scale. These data were scored separately for each disability vignette across the six factors associated with the TPB: behavioural beliefs (BB), attitudes towards the behaviour (ATB), normative beliefs (NB), subjective norms (SN), control beliefs (CB), and perceived behavioral control (PBC).

ADHD Vignette - Assume for a moment that you have just been told that a student named Hannah, who has attention deficit hyperactivity disorder (ADHD), has just transferred from another school into yours and will be attending your PE class starting next week. Last year your school system began a countywide PE testing program based on the state standards. Hannah is physically fit and she is an active participant. Her gross motor skills are in the above average range. Her eye-hand coordination is adequate for a 9 year old. Hannah is beginning to develop the decision making ability to execute skills in game situations.

Autism Vignette - Assume that a student named Sarah, who has autism, from a local segregated school has just started in your inclusive school and will be attending your PE class starting next week. Last year your school system began a countywide PE testing program based on the state standards. Sarah appears to be fit although she has low muscle tone and does not like to participate with the rest of the class. Her gross motor skills are average for a 9 year old, but her eye-hand coordination is that of a typically developing 6 year old. Due to lack of group play experience Sarah has not developed the decision making ability to execute motor skills in game situations.

Table 1. Survey Vignettes.

Procedures

At the conclusion of the adapted PE unit, both groups were handed an information sheet and informed about the nature of the study, but not informed that the researchers were examining differences between University pre-teacher training programmes. To do so would have added possible contamination to the data (i.e., social desirability associated with a university). Once informed consent was obtained from each participant, the unit coordinator distributed the survey. Absent participants received by mail, a copy of the information sheet, consent form, and survey with a stamped addressed return envelope. The overall response rate for this data collection was 82%. The survey took approximately 30 minutes to complete.

Data Analysis

Reliability

Reliability correlation coefficients were calculated for the original Likert scale responses and the six-factor structure (ADHD vignette) to measure consistency and accuracy of the PEITID. Furthermore, this was calculated for the modified version of the survey (autism vignette) to test the reliability of this revised portion. Cronbach's alpha coefficient was used as an index of overall reliability, as it is the recommended measure of consistency for attitude scales (Thomas & Nelson, 2001). Alpha for the responses to the 35 ADHD vignette belief statements was 0.84, and was 0.71 for the summative six factors. The 35 autism vignette belief statements revealed an alpha coefficient of 0.83, and 0.75 for the

summative six factors. These coefficients are similar to past reports of reliability using the PEITID to measure intentions for teaching SwD in PE (e.g., Oh et al., 2010).

Inferential Statistics

Independent samples t-tests were run using group (UTAS, LUB) as the independent variable for each of the six TPB factors (BB, ATB, NB, SN, CB, and PBC), separately for the ADHD and autism surveys. This allowed us to statistically analyze our hypothesis concerning the academic preparation and its effect on the intentions of our sample to include students with specific disabilities. Alpha was set at 0.05 with a Bonferroni adjustment for multiple t-tests (Keppel, 1991). All statistical procedures were carried out utilizing SPSS software (version 21). Given the use of a 7-point scale to measure attitudes, intentions, and beliefs, and the guidelines for assessing the meaningfulness of effect sizes between groups in educational settings (Coe, 2002), we set an *a priori* effect size of 0.80 or above as a limit for meaningfulness (47% non-overlap). We used this effect size to guide any recommendations about changing pre-service teacher education training as any change would involve additional costs associated with adding training into curriculums for pre-service teachers.

Results

Intention To Teach Students With ADHD

For the original version of the survey (ADHD vignette) effect sizes between cohorts across all factors ranged from 0.29 to 0.90. Only one of the factors, ATB, significantly distinguished between the two groups (Table 2). The LUB cohort reported a significantly more positive attitude, $t(54) = 3.27, p=0.002$, toward teaching a student with ADHD than the UTAS cohort. In terms of effect size for this factor, the LUB’s mean score for ATB of teaching a student with ADHD is approximately equal to the 70th percentile for the UTAS cohort. While the BB factor had a meaningful effect size, there were no statistically significant differences noted between the groups.

	UTAS (n=31)	LUB (n=25)	Effect size (Cohen’s d)
Behavioral beliefs	4.61 (0.96)	5.03 (0.67)	0.84
Attitude toward behaviour	5.63 (1.12)	6.45** (0.62)	0.90
Normative beliefs	5.61 (1.05)	6.01 (0.82)	0.42
Subjective norm	4.77 (0.59)	4.95 (0.62)	0.29
Control beliefs	3.88 (0.93)	4.19 (0.78)	0.36
Perceived behavioural control	5.53 (1.10)	6.04 (0.82)	0.52

Table 2. Theory of Planned Behaviour Factors for the ADHD Vignette*.

* Values are represented as means (SD).

**Indicates the LUB was significantly higher than the UTAS cohort ($p < 0.05$).

Intention To Teach Students With Autism

For the autism version of the survey, effect sizes between cohorts across all factors ranged from 0.17 to 0.84 (Table 3). Although two factors (BB and ATB) were significantly different between the cohorts, the ATB factor, $t(54) = 2.45, p=0.02, d=0.67$, did not reach our *a priori* effect size ($d=0.80$) cut off. The LUB cohort had significantly more positive BB, $t(54) = 3.15, p=0.003$, about being able to teaching a student with autism than the UTAS cohort. Apart from the BB factor, all other effect sizes between the cohorts were deemed to lack meaningfulness.

	UTAS (n=31)	LUB (n=25)	Effect size (Cohen's d)
Behavioural beliefs	3.98 (0.78)	4.64** (0.78)	0.84
Attitude toward behaviour	5.33 (1.28)	6.07** (0.86)	0.67
Normative beliefs	5.47 (1.07)	5.72 (0.93)	0.24
Subjective norm	4.79 (0.63)	4.90 (0.63)	0.17
Control beliefs	3.41 (0.78)	3.74 (0.79)	0.42
Perceived behavioural control	4.89 (1.08)	5.47 (1.03)	0.54

Table 3. Theory of Planned Behaviour Factors for the Autism Vignette*

* Values are represented as means (SD).

** Indicates the LUB was significantly higher than the UTAS cohort ($p < 0.05$).

Discussion

The purpose of this study was to investigate if Australian pre-service PE teachers' beliefs, attitudes, and intentions about teaching inclusive PE to SwD was influenced by the amount of academic preparation they received during their PE pre-service teacher training. In this study we compared two university cohorts with differing amounts of pre-service teacher training associated with SwD and found that both groups in general had favourable dispositions towards teaching SwD. Nonetheless, the university cohort who received more pre-service training in teaching SwD had more favourable beliefs, attitudes, and intentions than the less-trained cohort. This finding is in agreement with past research (Hodge & Jansma, 1999), which indicated that increased education and experience is effective in PE teachers having more favourable dispositions towards including SwD in PE. Although, for the two examined disabilities in our study, different differences in intentions were observed between cohorts.

Consistent with previous research (Kowalski & Rizzo, 1996; Rizzo, 1984; Rizzo & Vispoel, 1991; 1992), our two cohorts showed positive attitudes towards teaching SwD but there were differences based on university attended. The effect sizes between the two university cohorts for the two disabilities, was small for all but two factors associated with ADHD (ATB; BB) and one factor for autism (BB). Interestingly, while there was no significant difference for the BB factor in the ADHD scenario the effect was still meaningful. This anomaly was likely attributed to our small sample size. For the purposes of the remaining discussion we have decided to direct our attention toward the effect caused by the independent variable rather than the significant differences between the groups. We inferred that the cause of this effect size was due to the different type of educative experience between the two cohorts. The use of a comprehensive program of work at LUB might have resulted in more positive attitudes and/or BB, and hence a higher likelihood of intention and behaviour. Our conclusions are congruent with previous research (Oh et.al., 2010), who reported that BB were positively influenced by a more comprehensive training program which included additional special education coursework and practical experience teaching SwD. This type of

educative training praxis was evident in the unit work undertaken by the LUB cohort but not for the UTAS cohort. Specifically, the main point of difference between the two pre-service units was the dedicated inclusive SwD practicum. Thus, we believe that to improve pre-service PE teachers' intentions towards teaching SwD requires a more comprehensive undergraduate training program to include more practicum experience specific to teaching PE to SwD in inclusive settings that are likely to replicate what they will experience once they begin their teaching careers.

What aspect of practical experience actually influences changes in attitudes is unknown from our data. It was clear that the LUB students had more practicum time, which afforded them a range of different teaching situations. Yet, it is unclear which part of the educative process (inclusion or segregated experiences) contributed to the development of more positive attitudes. Obviously, a guided and integrated practicum should translate into higher levels of self-efficacy and familiarity with learning to effectively establish an individualised learning plan for SwD. This link has yet to be shown in the data and warrants for exploration to help curriculum design for pre-service PE teachers. Future related research studies might aim to measure the contributory factors that influence this development.

It is a consistent theme in the literature that knowledge is an enabler for inclusion rather than an inhibitor (i.e., Rizzo & Vispoel, 1991; 1992). The extra hours spent in the educative process might explain the differences in attitudes between the two cohorts. Similar to the practicum experience, there is a need to identify which aspect of pre-service teacher training provides the biggest effect. This might enable higher education institutions to develop more effective training experiences for PE pre-service teachers who will be expected to teach in inclusive settings once they begin their careers. We note with interest that there are no mandated units of work associated with adapted PE prescribed for Australian PE teacher training in any teaching registration board guidelines. In comparison, the American model of teacher registration to teach adapted PE is extensive, specific, and mandatory. We can only wonder at what the PE educative outcomes would be for SwD in Australia if such guidelines were implemented by teaching registration boards.

Taken collectively, the findings of the present study suggest that a more comprehensive pre-service PE teacher training program is warranted in Australian universities. These results suggest an increase in the amount of adapted PE practicum and additional academic preparation might positively influence pre-service PE teacher's intentions towards teaching SwD, which in turn can have a positive effect on the inclusive PE curriculum representative of 21st century schools. Our suggestion is not to delete other areas in teacher training, but to eradicate implicit ableism across HPE courses. Yet, there are limitations to our data. Our data is a snapshot of two cohorts after receiving an educative experience in adapted PE. There is no pre and post data, nor is there any data on whether the pre-service teachers' followed through with actual behaviours that supported inclusion of SwD. Moreover, our choice of instrument was limited to one particular theory to explain adequate PE teachers' attitudes and beliefs. The limitations of the TPB (Ajzen, 1991) are well documented (Armitage, 2005; Ashing-Giwa, 1999), and hence there are shortcomings to the interpretability of our data.

Given the aforementioned limitations of our study we must revisit the question of whether the TPB adequately explains intention and behaviour or if a better theory might explain observed differences in attitude and belief. In this study we were unable to discern which parts of the educative process might be related to the observed differences. Moreover, we are unable to link the educative process with the differences as no pre-measures of attitude and belief were collected in the study. Simply, the differences we observed might have existed because of other cultural factors (i.e., exposure to individuals with disabilities as part of day-to-day life) not accounted for in our study. We would urge more study using other

theoretical models such as socio-ecological approaches (i.e., Bronfenbrenner, 1979) to gain a more complete understanding of the development and reinforcement of attitudes and belief development in pre-service PE teachers.

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