



Preparing Undergraduate Physical Education Teachers for Inclusion Through an Adapted Physical Education Unit

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ABSTRACT

Completing an Adapted Physical Education (APE) unit is recognised as beneficial in teacher preparation, yet limited research has explored the experiences of undergraduate physical education (UGPE) teachers who have completed such units. This study explored how participation in an APE unit enhanced UGPE teachers' ability to meet the needs of students with a disability, with a focus on what they learned and how it shaped their teaching practice. Findings from focus groups and an online questionnaire revealed that participation in an APE unit helped to improve the UGPE teachers' knowledge, attitudes and competencies in teaching students with a disability. UGPE teachers improved their knowledge of inclusion and diversity, were able to recognise favourable professional growth in themselves as teachers, a process of transformation that acted as a catalyst for an ongoing trajectory of learning and through enhanced self-efficacy, they became more confident and competent in teaching practical activities. Importantly, the experience also cultivated more positive attitudes towards students with disability. The study underscores the need to embed APE units within UGPE degrees and highlights the value of designing curricula that integrate theoretical foundations with substantial practical components.

Keywords: Adapted Physical Education, Inclusion, disability, physical education

INTRODUCTION

The inclusion of students with a disability in mainstream physical Education (PE) has become increasingly widespread across international contexts (Wood et al., 2025). With an increase in the number of students presenting with a disability, teachers face challenges (Bertills & Björk, 2024) and express concerns citing a perceived lack of competence, preparation (Bowman & Harrison, 2025; McGrath et al., 2019), knowledge and experience (Apelmo, 2022) when teaching PE to students with a disability. Arroyo Rojas and Hodge (2024, p.2) claimed that teachers may feel ill-equipped teaching PE to disabled students due to a "lack of thorough training to effectively educate students with disabilities." It is recognised, however,

that UGPE teachers who have participated in an APE unit where they develop skills and knowledge related to disability and inclusion, will have a better and more positive attitude towards working with disabled students (Akuffo Darko et al., 2022; Morley et al., 2021; Wilson et al., 2022). Preparing UGPE teachers to meet the needs of students with a disability is a priority for teacher education.

Adapted Physical Education Units

Internationally, units (i.e., subject or course) are usually part of a sequence leading to an accredited Certificate, Diploma or Degree program. It is recognised in the literature that an APE unit designed to prepare UGPE teachers to teach students with disabilities can be a beneficial part of their teacher education program (Akuffo Darko et al., 2022; McNamara et al., 2022). Although limited, there is some literature available that offers guidance on the content of such an APE unit.

Some of the suggested topics for inclusion in an APE unit are conceptualisations of disability and inclusion; history and legislation; biological components of disability; motor development; universal design for learning; assessment; advocating for individuals with disabilities; and teaching strategies (Arroyo Rojas &

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Bruno, 2020; Hodge, 2024; Wilson et al., 2022). Other key topics evident are professional leadership, working with communities and family relationships (Lytle et al., 2010).

Inclusive pedagogies are also a focus for APE units and there are some recurring ideas in the literature about the things UGPE teachers should be able to implement in their practice. These include the ability to adapt activities; modify content; manage disruptive behaviours; participate in consultation and co-teaching; write reports and create an IEP; access and evaluate relevant resources; plan curriculum; embed research in practice; understand learning styles; and use non-verbal communication techniques (Akuffo Darko et al., 2022; Cumming & Gilanyi, 2023; Maher & Haegele, 2022).

There is acknowledgement that UGPE teachers must have experience of working in a practical setting teaching students who have a disability (An, 2021; Arroyo Rojas & Hodge, 2024; Celestino et al., 2024; Johnson, 2022; Layne & Blasingame, 2018; Mauerberg-deCastro, 2016). What types of practicum experiences are beneficial for UGPE teachers, the context for the practical experience and duration required for optimal benefits is unclear (McNamara et al., 2022).

While guidance is available in the literature that outlines the suggested content for an APE unit consensus on what this content might be (topics, pedagogy and practice) is mostly absent in the literature. There is an expanding body of research that explores UG and in-service PE teachers' experiences of teaching disabled students (Lorusso & Richards, 2018; McGrath et al., 2019; Morley et al., 2021), however, limited information is available regarding aspects of the content of an APE unit that UGPE teachers recognise as helpful when teaching disabled students. Thus, the aim of this study was to improve UGPE teachers' ability to meet the needs of students with a disability by exploring their experiences of participating in an APE unit with a view to developing a deeper understanding of what the students learned and how it contributed to their work teaching students with a disability.

An Adapted Physical Education (APE) unit is offered within the Bachelor of Physical Education and Sport Science program to prepare future teachers to effectively support the participation of students with disabilities in physical education. This program is delivered at a large metropolitan university in Australia, which enrolls approximately 31,000 higher education students across multiple campuses. The degree is taught in an intensive Block Model (BM) curriculum where students study one

subject at a time and complete units over a 4-week period.

The majority of students who complete the degree go on to study a Master of Teaching and upon graduation teach in a school as a PE teacher. For clarity these tertiary PE students will now be referred to as UGPE teachers. The Inclusion and Diversity in Physical Activity Unit (now referred to as an APE unit) is taught in the first year of the degree and it examines all facets of inclusion and diversity with a specific focus on the practical experience of working with students with a disability in a physical activity setting.

The unit is taught in 11 x 3-hour sessions over four weeks (11 sessions a total of 33 hours) and the key concepts taught are diversity and inclusion in physical activity settings. The UGPE students are fully immersed in the unit as they study only one unit at a time. The practical components of the unit are a duration of two hours each week (8 hours total for the unit) and this includes:

- Visits to Special Schools in the area.
- Active participation in a Goalball (game for the blind), Wheelchair Basketball or Football.
- Practical sessions to learn how to modify activities for greater inclusion.
- Conducting a practical physical activity or 'sports day' at a local special school.
- Planning and delivering three practical physical activity sessions for local special schools held at the university.

The unit is designed to encourage UGPE teachers to use the content and knowledge gained in the unit and apply it to their experiences in practical settings. Four assessment tasks are completed in this unit: a case study; preparation for practical sessions; a group practical session delivery; group presentation reflecting of the practical experiences. The premise of this unit is to empower the UGPE teachers and give them confidence and skills to create an inclusive teaching environment.

MATERIALS AND METHODS

In order to attend to the complexities of exploring UGPE teachers' experiences of learning in an APE unit mixed methods was selected as the methodology. What distinguishes mixed methods is the intentional or planned use of diverse methods" (Bamberger, 2012, p. 3). This diversity makes it possible to "come to a richer, deeper understanding of the social phenomena being studied" (Greene, 2012, p.756). The approach seeks to offer insights and develop understandings to guide

further learning, teaching and research (Greene, 2005). In this study conversations from the focus groups and descriptive statistics from an online questionnaire intersect, as this provided a way to capture and unpack students' experiences of learning in the APE unit. Creswell and Plano Clark (2018) describe this approach to research, as a convergent parallel design, where quantitative and qualitative strands of research are performed independently and their results are brought together in the overall analysis and interpretation.

Participants: A cohort of UGPE teachers ($n = 122$) who were completing the APE unit in the Bachelor of Physical Education and Sport Science were invited to participate in the research and asked to complete a questionnaire pre and post-completion of the unit. In total, 86 participant responses, 70% of the total cohort, were collected pre-commencement of the unit, and 60% ($n=74$) were collected post the unit. 29 students completed the questionnaire at both pre- and post-data collection points (Table 1).

Table 1: UGPE teachers' responses to pre and post-questionnaire

UGPE teachers gender	Number of respondents pre-unit response	Number of respondents post-unit response
Male	50	45
Female	17	16
Other	2	0
Did not respond	17	13
Total	86	74

More males than females were enrolled in the unit, and there was also a higher number of students in the 18–25 age group. The average age of the students completing the pre and post-questionnaire was 21.1 years. Table 2 indicates the UGPE teachers' responses to the questionnaire pre and post-completion of the unit by age.

Table 2: UGPE teachers' responses by age group

UGPE teachers' Age Group	Number of respondents Pre-questionnaire	Number of respondents Post-questionnaire
18–24	61	56
25–34	6	4
35–44	2	1
Did not respond	17	13
Total	86	74

A total of 22 UGPE teachers were involved in the focus groups. The participants were all in the first year of the Bachelor of Physical Education and Sport Science. All had recently completed the Inclusion and Diversity in Physical Activity unit. Three separate focus groups were conducted on three separate days. There was a higher proportion of male participants than female participants in the focus group sessions (see Table 3).

Table 3: UGPE teacher focus groups gender analysis

UGPE teacher focus group	Female	Male	Total
Group 1	2	5	7
Group 2	3	3	6
Group 3	2	7	9
Total Participants	7	15	22

Quantitative Methods

The PEITID-11 questionnaire was used to examine the attitudes and intentions of the UGPE

teachers enrolled in the unit (Adapted PE unit). Permission was gained to use the PEITID-11 questionnaire from the University Ethics Committee and by contacting the author via email. The PEITID-11 is a self-reporting questionnaire that gives a preamble vignette about a student, who has ADHD, before requiring participants to respond to questions based on the vignette. The questionnaire also includes a series of 35 statements that require participants to reflect on their beliefs on how they would teach students with a disability in their mainstream classes. Each of the questions has a 7-point Likert scale ranging from 1 strongly disagree to 7 strongly agree that the participants responded to. There is also one open-ended question where students were asked to record what modifications, if any, they would make to accommodate the student with a disability in their PE classes.

Qualtrics software was used to facilitate access to the questionnaire and record the data pre the students beginning and post-completion of the unit. As the unit was taught on three occasions (or over three, four-week blocks), data was collected pre and post each unit offering. Benefits of using the PEITID-11 questionnaire via Qualtrics included being able to collect the questionnaire results in real time and then being able to export the data to SPSS for analysis. Qualtrics provided participants with convenient access to the questionnaire, allowing completion on either a computer or mobile device through an intuitive, user-friendly platform.

Qualitative Methods

Focus groups were chosen to support the questionnaire data as this allowed for insights into the ‘lived experiences’ of the UGPE teachers who were teaching disabled students in a physical activity setting (Nagle & Williams, 2011). Six focus group questions were developed that asked the UGPE teachers to reflect upon their learning, particularly the skills they believed they had acquired, things they had learned about themselves through the teaching experience, the importance of what they had learned, whether the teaching experience had prepared them for teaching participants with a disability in the future and any lightbulb moment they had during the experience (see Appendix A).

Quantitative Data Analysis

Using the questionnaire results from the pre-test period as a baseline, the post-questionnaire results enabled an evaluation of what, if any, changes occurred and if this could be attributed to the knowledge, skills and experience gained during the unit of study. The quantitative data were analysed using SPSS software to compare the demographic variables of age and gender, and prior experience of working with people with a disability and whether participants had previously completed any APE units, relative to their responses to the PEITID-11 questionnaire subscales of Normative beliefs, Behavioural beliefs, Control beliefs, Attitude, Intention, Subjective norm and Perceived behavioural control. Standard deviations and means were calculated for all specific variables (e.g., gender, age, etc).

The pre and post-questionnaire results were analysed using repeated measures t-tests to compare the pre and post-data, and p-values were calculated to determine the statistical significance of differences over time for each of the PEITID-11 sub-scales. Comparisons using independent samples t-tests were made within the pre-test data in relation to gender, previous experience in an APE unit and previous experience working with students with a disability, to determine any statistically significant differences at pre-test for the demographic and experiential variables. Comparisons using independent samples t-tests were made within the post-test data in relation to gender, previous experience in an APE unit and previous experience in working with students with a disability to determine any statistically significant differences at post-test for the demographic and experiential variables.

Qualitative Data Analysis

A thematic analysis was undertaken of the focus group transcripts. Each of the focus group recordings was transcribed into a Word document. The analysis allowed for the identification of patterns of themes that were evident in the focus group transcripts (Braun & Clarke, 2006, 2019). While there is no clear procedure on how a researcher should go about conducting a thematic analysis (Attride-Stirling, 2001; Braun & Clarke, 2019; Tuckett, 2005). It can be argued that many types of analysis are, in fact, thematic in nature. For the purpose of this research, the thematic analysis was completed using a six-step framework designed by Braun and Clarke (2006), using the following steps: Become familiar with the data; generate codes; search for common themes; review themes; define the themes; and write up the analysis.

The primary researcher conducted a thorough reading of each transcript and coded them according to the relevance to the research question - What did UGPE teachers learn from their experience of participating in an APE unit? An open coding method was used which involved no pre-set codes but, rather, the codes were developed and modified as the focus group transcripts were analysed. Coding the transcripts involved identifying and labelling sentences, words or phrases with similar meanings (Belotto, 2018; Graneheim & Lundman, 2004). Once the primary researcher completed the initial thematic analyses, the themes were shared with the other researchers to ensure interrater reliability (Belotto, 2018). The other researchers carefully used the presented codes to analyse the focus group transcripts and then meetings were set to discuss, debate and agree on a set of appropriate codes with an inter-rater reliability of approximately 80%. This process of discussion and refinement around the coding was repeated until consensus was reached. Five themes were identified after a thorough thematic analysis of the focus group transcripts. The themes that were identified are: improved knowledge of inclusion and diversity; personal growth as a facilitator or professional; and improved self-efficacy. The key themes that emerged were “not necessarily dependent on quantifiable measures but rather on whether [it] they captured[s] something important in relation to the overall research question” (Braun & Clarke, 2006).

RESULTS

Quantitative results

Analysis of the 122 UGPE teachers who completed the PEITID-11 questionnaire indicated that 29 completed both of the pre and post-unit versions. The sample of 29 participants who completed both the pre and post-questionnaire demonstrated higher post-mean scores in each category, indicating a more positive intent towards working with people with a disability. Results for the subscales of attitude and intention revealed significant differences between pre and post-test scores (see Table 4).

In addition, the results of independent samples t-tests conducted within each of the pre and post-test periods were used to compare participants who had previously not completed an APE unit to those who had completed an APE unit (Table 5). There was no significance found in the pre-questionnaire data compared to the post-questionnaire data; however, in most instances, the data indicated there was an increase in the mean scores towards a more positive view of working with people with a disability post-completion of the unit.

Table 4: Pre and post-unit overall scores (n = 29)

PEITID Domains	Pre/Post	Mean	t	p
Normative beliefs	Pre	5.3621	-.996	.953
	Post	5.6103		
Behavioural beliefs	Pre	4.0460	-.227	.840
	Post	4.1178		
Control beliefs	Pre	4.5862	-.058	.908
	Post	4.5977		
Attitude	Pre	6.3793	-2.551	.005*
	Post	6.7931		
Intention	Pre	6.5345	-2.152	.015*
	Post	6.7931		
Subjective norm	Pre	6.4483	-1.222	.097
	Post	6.6724		
Perceived behavioural control	Pre	4.7069	-.502	.816
	Post	4.8190		

*Indicates significance ($p < 0.05$)

Table 5: Previous adapted courses pre and post completion of the unit

PE courses	Adapted	N	Mean	t	p	N	Mean	t	P
Normative beliefs	Yes	25	5.528	0.572	0.679	45	5.5422	-1.023	0.495
	No	32	5.3906	0.565		17	5.7882	-1.028	
Behavioural beliefs	Yes	25	4.08	0.92	0.905	45	4.1	0.928	0.296
	No	32	3.8281	0.912		17	3.8529	0.89	
Control beliefs	Yes	25	4.68	1.693	0.816	44	4.572	0.161	0.808
	No	32	4.3958	1.696		17	4.5392	0.159	
Attitude	Yes	25	6.5067	0.686	0.905	45	6.6222	0.557	0.43
	No	32	6.375	0.697		17	6.5294	0.663	
Intention	Yes	25	6.62	0.656	0.835	45	6.6778	0.999	0.626
	No	32	6.5313	0.657		17	6.5294	1.047	
Subjective norm	Yes	25	6.5	-0.239	0.718	45	6.4778	0.033	0.192
	No	32	6.5469	-0.241		17	6.4706	0.041	
Perceived behavioural control	Yes	25	4.61	-0.944	0.107	45	5.5422	1.411	0.601
	No	32	4.8125	-0.915		17	5.7882	1.335	

In this phase of the study the results indicated that participants had more favourable intentions and attitudes towards working with people with a disability at the completion of the APE unit. Attitude and intention were two of the subscales of the questionnaire data that showed significant differences between the pre and post test data (See Table 4). Attitude and intention, according to (Ajzen, 1991), are the predictors of behaviours. More favourable attitudes and intentions may indicate that behaviours will be more inclusive. This finding is consistent with previous research that has indicated that pre-service teachers that are given access to high quality inclusive PE units will demonstrate more favourable attitudes and intention towards people with a disability (Ellis et al., 2012; Pedersen et al., 2014).

Equally important to note was that all the participants showed more favourable responses to the post completion questionnaire, indicating that they all had experiences that created a more favourable response to working with people with a disability (see Table 4). This outcome is important as previous studies involving PE teachers have also indicated that they often feel under-prepared and ill-equipped to include students with a disability in their physical education classrooms due to lack of experience, lack of pre-service education training and lack of appropriate equipment.

Qualitative results

Three key themes emerged from an analysis of the focus group transcripts; these are presented in the following results.

Improved knowledge of inclusion and diversity: This theme relates to the students' knowledge of diversity and inclusion as a whole and the experience of how to work with people with a disability. One student commented that they learnt three key things that enhanced their knowledge of disability and inclusion:

Three things that I've learnt is that first of all, disability is not a limitation, it's just a barrier that we have to work around. The second thing is to just have an open mind that everyone is different in their own ways, so see the person not the disability. And lastly, that as I guess future Phys Ed teachers, we should all be looking to include everyone within every activity and session (Respondent 1, Focus Group 2).

Another student echoed the view that they learned to see students as individuals and to focus on their abilities and what they could do rather than what they were not able to do:

... the unit also taught us how to focus on the students' abilities rather than the disability. Being able to see them as individuals (Respondent 3, Focus Group 2).

Participants in the focus group also made comments suggesting they had increased their knowledge of how to make modifications to their teaching, so that students with a disability could be included in activities:

We can just modify things, either add another element so it's a little bit of a different game but it's still the same kind of idea (Respondent 2 in Focus Group 1).

In all three focus groups, participants' responses were positive about their experiences in the unit. The data revealed that through the development of improved knowledge of inclusion and diversity the UGPE teachers had a better understanding of disability.

Personal growth as a professional

The second theme relates directly to the way an UGPE teacher perceived that they had grown professionally and changed through participating in an APE unit. One respondent commented:

I think it [the experience] gives you an insight on how unpredictable kids are (Respondent 2, Focus Group 3).

Through teaching children with a disability this UGPE teacher gained the insight that children can be unpredictable and this realisation added to their growth as a teacher. Additionally, respondents' personal growth as a professional came through their ability to reflect on their experiences and how their learnings may be useful in the future:

I just think I've learnt things that have worked well and what hasn't worked well, so you can draw on that in the future if I was to have a student in the mainstream class (Respondent Focus 1, Group 3).

Exposure to students with a disability was important to the UGPE teachers' growth and one indicated they would have welcomed the experience much earlier in their learning:

... to be exposed to them [students with a disability] was just great. It's almost like what we needed earlier on. So you can get a taste for a few different things and I loved it (Respondent 7, Focus Group 3).

Also evident was the sense of reward and accomplishment that respondents felt when working with disabled students:

So I think throughout the session, I just enjoyed it more and personally I was getting really engaged and loving it because I didn't think I was going to get that much reward out of it and I really did. It was only four sessions but I was like, 'This is pretty amazing.' I think internally, it was just enjoyment. I learnt that I can enjoy it as much as I could (Respondent 5, Focus Group 1).

Improved self-efficacy

The third theme identified was improved self-efficacy. This related to the UGPE teachers' belief in their capacity and ability to teach students with a disability. When reflecting on the unit a student commented:

I was really scared at the start. I had this, I don't know, this really weird fear in me even though I did a unit before but I just figured this one will be harder but like when we taught the sessions, it was easier because we had support and the activities were broken down

whereas at the [school name withheld], I felt like I would have a heart attack if someone just fell over and all that (Respondent 8, Focus Group 2).

The student's initial anxiety about teaching students with a disability eased once they discovered the process was less challenging than anticipated, as they had developed the skills to break down activities within a supportive environment. The ability to draw on theoretical understandings to plan, prepare, teach and provide feedback in a practical teaching context was another factor supporting self-efficacy:

It's very important but I think mainly it's the practical side of it, like having the students come to us so we went to the school rather than just sitting in the classroom talking about strategies. I mean I really think that's just a key difference that will help you maybe get a job or work with students who have disabilities rather than a teacher who just learnt about it in the classroom (Respondent 2, Focus Group 1).

The practical aspects of the unit were considered to be very valuable as it helped the UGPE teachers believe in their ability to help all students:

I think this unit has helped us a lot, like it's given us tools not just for disabled kids but how we learn about transgender people. I wouldn't have known how to deal with that but this unit has helped us, make sure that everyone is included in what we teach and what we do – so I feel like it's given us a lot of things that we can put in our toolbox, to use in the future, so I feel I've learnt a lot (Respondent 9, Focus group 2).

Completing the unit and the practical sessions also gave the UGPE teachers experiences that could be beneficial in their future teaching:

... we've already had that prior experience now when we are in the field and we are teaching, there are students in our class that do have some disabilities that we are able to draw on these experiences, and what's worked well, and what hasn't worked well (Respondent 1, Focus Group 3).

However, there was acknowledgement that although the unit gave respondents some confidence in their abilities they still felt they needed to develop more skills in the area:

So I think that the unit was great. I just feel like I didn't do enough for it to actually give me all the skills and all the knowledge and really prepare me to teach students [with a disability] in the future (Respondent 2 in Focus Group 3).

So I do think that it's given me the confidence but not all the skills that I need to teach special needs students in a mainstream class (Respondent 2, Focus Group 3).

Practical classes teaching students with a disability combined with the theoretical content of the unit enabled the UGPE teachers to find confidence in themselves and enhanced their ability to work with all students but particularly students with a disability.

DISCUSSION

The reported improvement in attitude and intentions evident in the questionnaire results, revealed the importance of the need to include an APE unit in UGPE degrees to foster more favourable behaviours towards inclusion. A change in attitude is critical to the success of embedding inclusion and improving a teacher's ability to promote inclusion (Avramidis et al., 2000; DePauw & Doll-Tepper, 2000). Therefore, a unit that promotes a positive attitude change towards inclusive behaviours is vital to making this adjustment a reality. Consistent with this, the current research is in line with other research that has demonstrated that increased experience and education in inclusive education creates PE teachers with more favourable attitudes and intentions towards working with people with a disability (Hodge & Jansma, 1999; Shevlin et al., 2013; Tindall et al., 2015). Additionally, Folsom-Meek and Rizzo (2002) found that attitude plays a major role in how PE teachers work with students with a disability. Overall, a more positive attitude will produce an increase in positive outcomes due to the implementation of inclusive practices. PE teachers who demonstrate a positive approach to inclusion will in turn be more inclusive, especially when their pre-service education includes opportunities for 'real-life' situations that foster confidence (Morley et al., 2021; Vickerman & Coates, 2009).

Completing the APE unit and participation in the accompanying practical experiences were contributory to a favourable progression in attitude and intention for the UGPE teacher participants. This improvement highlights that these future PE teachers should be more positive towards working with students with a disability (Hodge et al., 2009). As PE teachers' beliefs will influence practice (Hodge et al., 2004) the unit was designed to provide UGPE teachers with the skills, knowledge and confidence to engage in teaching students with a disability, this is particularly important.

All the UGPE teachers expressed that taking part in the APE unit, especially being involved in ‘hands on’ experiences, helped them to develop a greater understanding of inclusion, diversity and disability. This aligns with previous research showing that direct experiences with students with disabilities enhance understanding of disability and inclusive practices (Tarantino et al., 2022; Tripp & Rizzo, 2006).

Growing as a professional was evident, as the UGPE teachers were able to articulate, discuss and explain how they felt they had grown and changed as a result of completing the APE unit. The students used words like ‘insight, realisation, enjoyment’, when discussing how they felt during and after the experiences. It was evident that personal change had occurred and that UGPE teachers understood the importance of what they had learned about teaching students with a disability. UGPE teachers’ recognition of positive changes in their teaching following completion of the unit suggests that the unit’s authentic practical experiences were a key driver of this development. Having the experience of working ‘hands on’ with disabled students, by planning and preparing a session plan, organising equipment and then reflecting on the experience was seen as a valuable tool by the UGPE teachers. Participants were able to gain important adaptable teaching skills and confidence in working with students with a disability. There is no doubt that these UGPE teachers felt overall that they were more confident and competent due to their practical experiences. This finding is in line with other studies indicating that a well-designed combination of theory and practice will support students to be more confident and competent in their teaching, particularly with students who have a disability (Hutzler & Sherrill, 2007; Martin & Kudláček, 2010; McKay et al., 2017).

It was very clear that some UGPE teachers were anxious about working with disabled students. This common sentiment may have been due to their first experience in teaching; however, most respondents were able to demonstrate that the anxiety was due to the disability of the students rather than to it being their first-time teaching. Despite experiencing some anxiety at the beginning of the practical involvement, many students were able to overcome this. As Barber (2018) noted, the more UGPE teachers work with disabled students, the more comfortable they become. Some of the students, however, were able to articulate that while they felt they could teach students with a disability, they felt it was not something they would choose to do. In line with this research, studies into pre-service teacher preparation in

working with students with a disability have found that most UGPE teachers feel less anxious after having participated in an APE unit (Everhart, 2009; Oh et al., 2010; Shippen et al., 2005). Despite initial feelings of anxiousness, most pre-service teachers were more confident and prepared after completing the unit and its associated experiences.

Self-efficacy relates to a person’s understanding and beliefs about how their capabilities produce effects (Bandura, 2010). Through the series of focus groups, the respondents were able to clearly express how they had grown and changed through this experience. This change and the development of self-efficacy in the UGPE teachers was a direct result of being in a position to experience working with students with a disability and drawing on theoretical understandings in authentic conditions of practice.

CONCLUSION

This study offers new insights for theory, research and practice in teacher education. The findings lead us to conclude that in terms of practice, curriculum design in teacher education could benefit from the inclusion of an APE unit. The quantitative and qualitative evidence derived from the PEITID-11 questionnaire and the focus group discussions indicated that the participants in this study found their experiences of participating in the Inclusion and Diversity in Physical Activity unit to be beneficial. Involvement in the unit led to improved attitudes, reduced anxiety, increased confidence and greater teaching competence among the UGPE teachers.

The UGPE teachers explained that the main feature influencing their experiences of learning in the unit of study was the combination of theory and practice. While this feature is acknowledged in the literature as a contributor to the preparation of UGPE teachers (Hutzler & Sherrill, 2007; Martin & Kudláček, 2010; McKay et al., 2017) it is not explicitly evident in previous studies as the distinctive way in which learning may be influenced. This study uniquely contributes to research by identifying the specific learning components that were helpful, such as lesson planning, equipment organisation and reflection as key influences on learning outcomes.

The data sources in this study revealed that the UGPE teachers expanded their knowledge of disability and this influenced their understanding of students as individuals and altered how they perceived disabled students. This finding is important as more favourable attitudes and perceptions of students with a disability may in turn,

produce PE teachers who are more inclusive in their classes (Avramidis et al., 2000; DePauw & Doll-Tepper, 2000).

The UGPE teachers also experienced professional growth and transformation as they learned to navigate situations of practice, bring change to the classroom/learning context, learn to find enjoyment, and feel a sense of wellbeing and accomplishment. With a strong emphasis on an applied component, the findings regarding professional growth make a valuable contribution to research by highlighting that practical activities are not just about skill acquisition and knowledge development but post completion of the unit the practical activities embedded in unit design may have contributed to a trajectory for continuous learning.

Regarding theoretical understandings the study reveals the bridge between the development of attitudes and self-efficacy as this was very much present in the UGPE teachers' experiences of learning. Initial doubts and low levels of self-confidence about teaching students with a disability were reduced as they were able to draw on knowledge and skills in a supported, supervised environment. This process enhanced the UGPE teachers' belief in their ability to meet the learning needs of disabled students and helped them succeed. Feeling confident and assured was pivotal in supporting the UGPE teachers' to develop positive attitudes towards inclusion and teaching students with a disability, an important contributor to academic outcomes for all concerned.

This study highlights the value of UGPE teachers participating in authentic, practical 'hands on' learning opportunities involving students with a disability (Morley et al., 2021; Tindall et al., 2015). These experiences also bring to the surface the importance of appropriate well-structured and adequately supported supervision in helping UGPE teachers navigate authentic teaching contexts. To build on these findings further research could explore UGPE teachers' perspectives on the type and extent of supervision that most effectively supports their learning in practice. Additionally, understanding the optimal duration of practical placements needed to fully prepare teachers to meet the diverse needs of students with disabilities should be valuable. As theoretical components of APE units vary widely, future studies might also research which key concepts UGPE teachers actively draw on during practice, offering further insight into how theory translates into inclusive learning and teaching.

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CONFLICT OF INTEREST

None

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