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Developing pre-service teacher efficacy during PETE programmes: helping pre-service teachers find their way

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ABSTRACT

Physical education (PE) teacher efficacy describes the belief, skills, and competency to facilitate teaching and learning activities within a PE setting. This is important because highly efficacious teachers have a significant impact on learning outcomes for students. This makes teacher efficacy a significant factor in the development and retention of teachers. Yet, despite international consensus on its importance, practical strategies to develop pre-service teacher efficacy, during PE teacher education (PETE) programmes, have been underexplored. As PE teacher educators working in higher education (HE), we have built on existing research, including our own, to introduce an alternative anthropological perspective on how PE teacher educators can develop pre-service teachers' efficacy. Specifically, this conceptual paper advances the development of pre-service teacher efficacy using a 'wayfinding' approach. Wayfinding refers to the skilled actions individuals develop as they navigate physical, social, and temporal spaces to find their own way. Thus, shifting the development of efficacy from a decontextualised and competency-based development process, to one where efficacy is cultivated and grown in professional learning contexts and communities. Through this, we position pre-service teachers as wayfinders who are actively navigating landscapes of a PETE programme, with PE teacher educators providing guidance throughout the journey. To enact this reconceptualisation, we provide illustrative examples so that PE teacher educators can guide pre-service teachers to find their way through three important PETE programme constructs: (1) school experience placements (SEP), (2) advanced subject knowledge (ASK), and (3) professional learning communities, including role models (PLC). This approach may improve the design and curricular content of future PETE programmes and support PE teacher educators' ability to develop efficacious pre-service teachers.

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Continuing professional development; physical education teacher education; pre-service teacher efficacy; PE teacher educator; wayfinding

Introduction

Teacher efficacy is commonly understood as the belief in ability to facilitate teaching and learning activities (Biddle & Goudas, 1998; Magill et al., 2024; Zach et al., 2012), in addition to the judgement to manage and perform daily teacher related obligations (Woolfolk Hoy & Spero, 2005). Teachers with a higher teacher efficacy demonstrate a greater tendency to adopt student-centred teaching

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and learning approaches (Sum et al., 2018) and are more likely to incorporate the use of evidence-based pedagogical approaches (Georgiou et al., 2020; Hattie, 2023). This is important because efficacious teachers can provide more effective learning experiences (Georgiou et al., 2020) resulting in improved student outcomes (Barni et al., 2019). While research suggests that pre-service teachers often enter physical education teacher education programmes (PETE) with a level of teacher efficacy informed by prior learning (Braksiek, 2022; Erbas et al., 2014; Magill et al., 2023; Zach et al., 2012), there is limited evidence exploring the longitudinal development of pre-service teacher efficacy during three-year PETE programmes. However, Magill et al. (2024) found that despite this initial level of efficacy, there was no significant change in pre-service teacher efficacy from the beginning to the end of a three-year programme across six higher education (HE) institutions in England. This suggests a practical knowledge gap between the importance of pre-service teacher efficacy and its development during these programmes.

When pre-service teachers enter PETE programmes, they enter the professionalisation phase of the teacher socialisation in PE framework (Lawson, 1983a), which often involves access to advanced subject knowledge, including teaching and learning methods, and learning experiences gained through school experience placements (Richards & Gaudreault, 2017). Yet, early studies suggest that PETE programmes may have a limited influence on the beliefs and dispositions of pre-service teachers (Brouwer & Korthagen, 2005; Schempp & Graber, 1992; Stran & Curtner-Smith, 2009) due to the powerful influences gained prior to a PETE programme (e.g. acculturation phase). In response to this, and the practical knowledge gap identified above, this paper aims to assist PE teacher educators as they endeavour to develop pre-service teacher efficacy during the professionalisation phase. We do not do so on the basis that PETE programmes are ineffective at producing high-quality PE teachers, and nor do we seek to castigate PE teacher educators. Rather, as PE teacher educators ourselves, working in HE, we seek to build upon existing empirical research (e.g. Magill et al., 2023; Magill et al., 2024; Zach et al., 2012) to support how PE educators may guide the development of pre-service teacher efficacy.

Accordingly, we introduce the concept of wayfinding (Ingold, 2004) followed by a synthesis of the existing understanding of pre-service teacher efficacy within the context of PE. Wayfinding refers to the skilled actions individuals develop as they navigate physical, social and temporal spaces. These skills emerge as individuals engage with the cultural practices and the tools available in their environment (Heft, 2012). For example, in an educational environment, teachers learn to navigate the challenges of the classroom (e.g. behaviour, diverse learning needs and use of space) while utilising relevant tools such as lesson plans, equipment and student feedback (Heft, 2012; Woods et al., 2020b; Steinert & Leifer, 2012). This concept serves as a useful metaphor for reconceptualising pre-service teacher efficacy within PE, as it highlights the complexities of the learning environment inherent to PETE programmes. Doing so provides a shift in perspective on pre-service teacher efficacy, a significant aspect of PE teacher education.

Understanding pre-service teacher efficacy: key constructs and influences within PE

Over the last 15 years, teacher efficacy within a PE context has become a focus of scholarly activity. Recent studies have highlighted the key factors influencing teacher efficacy, including subject knowledge and experiences gained through teaching and learning environments, such as the ability to support individual learning needs and classroom management skills (Choi et al., 2020; Humphries et al., 2012; Zach et al., 2012). We have contributed to this field by conducting a study to investigate the influences impacting pre-service teaching efficacy at the beginning of three-year PETE programmes (Magill et al., 2023). Here 168 PE pre-service teachers, across six HE institutions in England, completed a series of questionnaires including a validated PE teacher efficacy scale (Zach et al., 2012) to examine pre-service teacher efficacy on entry to a three-year PETE programme. Regression analysis identified role model influences (i.e. school PE teachers, parents), and prior teaching or coaching experiences as significant predictors of pre-service teacher efficacy

on entry to a PETE programme. Additionally, within the study, Magill et al. (2023) completed focus group activities with 16 pre-service teachers at the end of their first year of the PETE programme. Pre-service teachers qualitatively reported that their teacher efficacy was influenced by the learning of advanced subject knowledge during the programme. For example, knowledge and understanding of pedagogical models supported pre-service teachers' confidence in their teaching ability as it enabled them to implement a range of teaching and learning approaches during a school experience placement. Through the focus group activities, Bandura's self-efficacy model was also used to further understand the influences impacting pre-service teacher efficacy prior to and during the first year of a PETE programme. Here pre-service teachers reported that their perception of efficacy had derived from three out of the four domains. These included task mastery, verbal persuasion and vicarious experiences. For example, pre-service teachers explained that receiving feedback from school PE teachers and or coaches concerning their practical performance (task mastery), improved confidence in their practical ability at the beginning of a three-year PETE programme. Consistent with previous literature (Lawson, 1983b; Magill et al., 2023; Richards et al., 2014), these findings from Magill et al. (2023) confirm that pre-service teachers arrive at PETE programmes with a level of teacher efficacy informed by the influences gained from prior teaching and learning experiences. Yet, in somewhat contrast to previous literature (e.g. Brouwer & Korthagen, 2005; Schempp & Graber, 1992; Stran & Curtner-Smith, 2009) the study also found that school experience placements (SEP) and the development of advanced subject knowledge (ASK) influenced pre-service teachers' developing dispositions and efficacy perceptions. A similar emphasis on school experience placements and advanced subject knowledge has been reported by Zach et al. (2012).

To aid readers, we represent these prior learning influences and important PETE programme constructs in Figure 1. For example, prior learning is represented through the human figure entering the PETE programme with their backpack of experiences and prior knowledge. Within the figure, we have also highlighted the known programme constructs important to PETE i.e. school experience placements (SEP) and advanced subject knowledge (ASK). We have also illustrated that learning is progressive, and knowledge is likely to increase throughout the programme, as indicated by the increasing size of the circles representing programme constructs (SEP, ASK). Additionally, we have

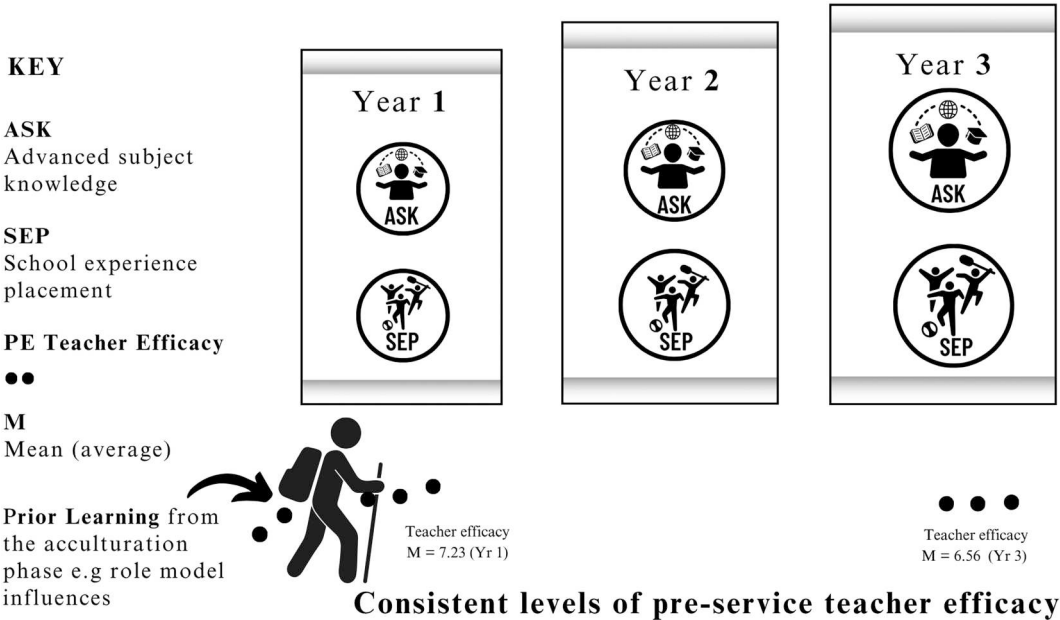


Figure 1. Current understanding of pre-service teacher efficacy: influences and development in English PETE programmes.

included the mean values of pre-service teacher efficacy on entry to and at the end of a three-year PETE programme, as identified in our additional study (Blinded, 2024). However, what is unclear is the pathway of efficacy development during the programme, hence the gap in dots representing the efficacy journey.

In our additional study, we explored the longitudinal development of pre-service teacher efficacy over a three-year programme including the same six HE institutions discussed earlier (Magill et al., 2025). This more recent study included 166 first year pre-service teachers (54% female, $n = 90$; 46% male, $n = 76$) and 121 of the same pre-service teachers in their final year (57% female, $n = 69$; 43% males, $n = 52$) of a PETE programme. Using multi-level modelling and linear regression analysis, it was found that teaching and/or coaching experiences within a school environment were significant influences on pre-service teacher efficacy. While these findings align with our previous study (Magill et al., 2023), we found no significant change in pre-service teacher efficacy from the beginning to the end of the respective programmes. These findings highlight the need to reconsider learning experiences and opportunities within PETE programmes to progress pre-service teacher efficacy. Thus, prompted by the extant research cited above, we propose a theoretically and empirically informed reconceptualisation to develop pre-service teacher efficacy through the concept of wayfinding. This will assist PE teacher educators' ability to guide pre-service teachers as they journey through a PETE programme.

Introducing a wayfinding approach to enhance pre-service teacher efficacy

Traditional approaches to developing self-efficacy have identified a range of individual contributors including increased arousal, positive self-talk, verbal persuasion, and vicarious experiences as positive influences (Bandura, 1977). However, these processes tend to focus on self-efficacy at the individual and/or cognitive level. Yet, in the domain specific area of teacher efficacy within PE, literature (e.g. Humphries et al., 2012; Magill et al., 2023; Magill et al., 2024; Zach et al., 2012) highlights experiences of school environments, advanced subject knowledge, and engaging with role models as being positive influences on pre-service teacher efficacy. Imbued by this, we propose that situated experiences presented during PETE programmes, and the cultivation of knowledge from multiple social sources may enhance teacher efficacy. For us, this approach is akin to 'wayfinding', an anthropological concept (Heft, 2012; Ingold, 2004; Woods et al., 2020b), where individuals not only learn how to be in new contexts but also how to navigate unfamiliar ones (Heft, 2012; Woods et al., 2020a). For example, pre-service teachers may feel confident in facilitating indoor invasion games for 30 students. However, when an additional 30 students join the group, due to poor weather conditions outside, this presents a significant challenge for the teacher. Therefore, learning to adapt activities i.e. adjusting for group size, space availability and supporting students' individual needs, may help to build practical knowledge and efficacy for managing the situation and when faced with similar situations in the future. As a result, the pre-service teacher may be less inclined to implement a-priori prescribed technocratic solution but embrace and adapt to the embodied and sociocultural interactions at play. For instance, in this scenario pre-service teachers may call upon students to assist with the delivery of the lesson. This may include assistance with officiating, managing teams or groups and the sharing of subject knowledge. Thus, the efficacy in this example derives from the new physical and social environment created in addition to the new relations and shared experiences for both the pre-service teacher and the students. This reconceptualisation moves the development of pre-service teacher efficacy from a decontextualised and individual process to one where efficacy may develop in situated professional learning communities.

To date, existing wayfinding research has primarily focused on specific physical environments. For example, how individuals 'find their way' in transportation hubs including airports, train stations, as well as large indoor buildings such as hospitals (Dada & Wirasinghe, 1999; Hidayetoglu et al., 2012). More recently however, wayfinding has been used in pre-service teacher education training

programmes (Trinick & Allen, 2024) and sport (Woods et al., 2020b). Within the education field, Trinick and Allen (2024) incorporated wayfinding as a metaphor to inform an indigenous mathematics pre-service training programme. The wayfinding inspired techniques included supplying pre-service teachers with visual and oral narratives, appropriate access to indigenous language, and the opportunity to examine indigenous artefacts. The study found that spending time noticing and discussing the pre-existing culture and using methods of representation (i.e. planning routes between key landmarks), mnemonic techniques (i.e. storytelling), visualisation of key landmarks, and interactive imagery (i.e. active engagement and use of scenario tasks) enhanced mathematics knowledge and knowledge of the indigenous culture (Trinick & Allen, 2024). Here, pre-service teachers were learning mathematics within specific cultural contexts, situating their learning in these settings. Similarly, this approach aligns with culturally responsive/relevant pedagogical practices that have been developed in educational settings to support students cultural and societal needs (Chang & Viesca., 2022). From this, we have considered that PE teacher educators may also adopt such practices. For example, by providing access to varied school experience placements and providing opportunities to exchange cultural knowledge (e.g. via stories, artifacts) with peers to develop subject knowledge. This may help pre-service teachers to develop a greater sense of efficacy within these professional learning communities.

Additionally, Woods et al. (2020b) argue that wayfinding may also guide the learning experiences gained through PE contexts. In this study, students were positioned as wayfinders navigating through a PE environment and school PE teachers were seen as the designers of personal, relevant, and developmentally appropriate contextualised learning experiences. For example, Woods et al. (2020b) highlighted that the co-creation of mini training games could be a useful method to enact wayfinding as it allowed students to develop problem solving skills, and solutions to specific problems (Orland-Barak & Hasin, 2010) (e.g. how to keep possession of the ball in an invasion game). This also provided the opportunity for PE teachers to challenge students' ability to respond to the physicality of a task, by introducing constraints that encourage students to create alternative movement solutions to navigate through a space. Similarly, this approach also aligns with existing game-based approaches such as teaching games for understanding (TGfU) and the games sense model, where the use of questioning, and group discussion, promote critical thinking and learning (Richardson et al., 2024). Therefore, from Wood's wayfinding perspective, the role of a PE teacher is to facilitate relevant learning experiences that may guide students to navigate contextualised environments and become confident in their ability to do so. On this basis, the next section elaborates on how PE teacher educators may adopt similar approaches (e.g. Trinick & Allen, 2024; Woods et al., 2020b) and guide the development of pre-service teacher efficacy using wayfinding in HE environments.

Wayfinding through a PETE programme: programme constructs and efficacy development

To assist with an understanding of how pre-service teacher efficacy may be developed using a wayfinding approach, we propose Figure 2.

This figure builds on programme constructs that Magill et al. (2023) and Zach et al. (2012) support as being important to the development of pre-service teacher efficacy. These constructs, like Figure 1, include school experience placements (SEP) and advanced subject knowledge (ASK). Yet, we also introduce professional learning communities (PLC), incorporating role models, as a third construct, to highlight their powerful influence towards pre-service teacher efficacy (Magill et al., 2023). For example, these communities may include school-based teachers, and or coaches or leaders within professional organisations (e.g. SHAPE America, Association for Physical Education, Youth Sport Trust), as well as peer learning groups. Many PETE programmes will already provide pre-service teachers with access to these constructs. Indeed, research (e.g. Jayantilal & O'Leary, 2020; Magill et al., 2023; Richards et al., 2019; Zach et al., 2012) suggests doing so may influence the development of

KEY**ASK**

Advanced subject
knowledge

SEP

School experience
placement

Guidance**PLC**

Professional learning
community (including role
models)

PE teacher efficacy**Wayfinding**

Prior learning from
the acculturation phase

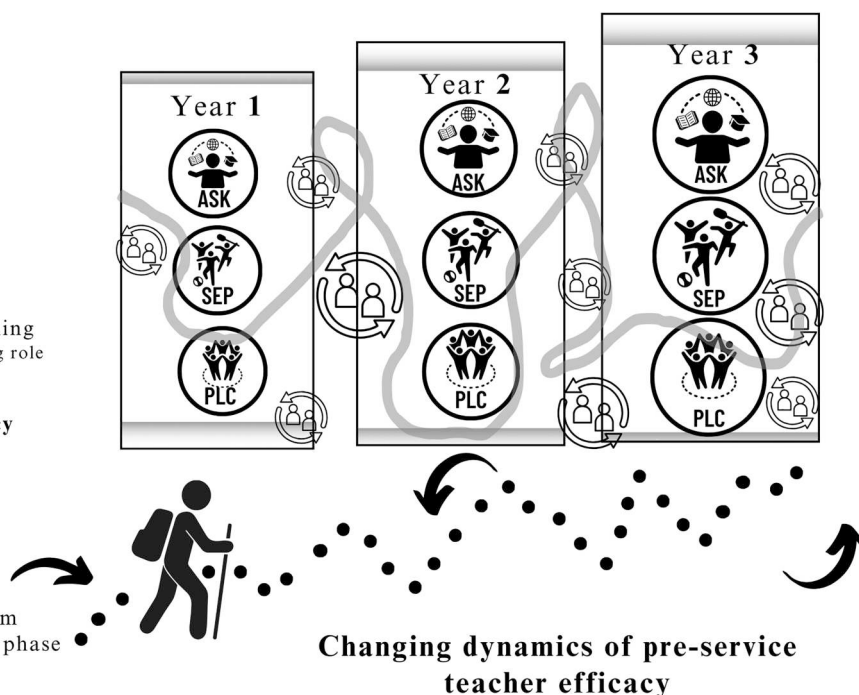


Figure 2. Guiding the journey: wayfinding through English PETE programmes.

pre-service teacher efficacy. What is different here, however, is the proposed use of the wayfinding metaphor to reconceptualise and shape how PE teacher educators and pre-service teachers engage with these constructs. Specifically, from a wayfinding perspective, we propose that engagement with SEP, ASK, and PLC are not just isolated experiences but are essential opportunities for personalised challenges throughout the pre-service teacher's PETE journey. For example, PE teacher educators may guide pre-service teachers in facilitating peer-led workshops to not only develop subject knowledge but to develop the confidence to acknowledge subject knowledge limitations.

Secondly, Figure 2 emphasises the concept of PE teacher educators 'guiding' pre-service teachers as they navigate through a PE programme. The term guidance (i.e. the advice and direction provided to help pre-service teachers make informed decisions), has been adopted to maximise the learning impact within the situated learning experiences of a PETE programme (Mascolo, 2009). In practice, the PE teacher educator may guide pre-service teachers to readjust their pedagogical approaches by asking them to consider their students actions and behaviours as well as their teaching and learning resources i.e. lesson plans, space and equipment (Heft, 2012). Thus, providing appropriate challenges for the pre-service teacher to consider, enabling the opportunity for personal growth and subject knowledge development (Freire, 2018). In addition, these opportunities may enhance efficacy by promoting thoughtful readjustment in response to context (Herold & Waring, 2015; Ingold, 2004). To assist PE teacher educators in providing guidance, it is recommended that a strong professional relationship is formed between the pre-service teacher and PE teacher educators (Ben-Amram & Davidovitch, 2024; Jones et al., 2023). To support this, PE teacher educators could develop an understanding of pre-service teachers prior learning experiences (Magill et al., 2023), and future aspirations. This could be achieved by asking pre-service teachers to draw a timeline of their journey through PE and or sport to prompt discussion. Doing this, will allow pre-service teachers to recognise and acknowledge their existing experiences, knowledge, skills and limitations. This dialogue can also serve as the basis for developing co-created future learning activities or experiences that address

gaps in subject knowledge (Bovill, 2020). This may align with an activist approach, a student-centred teaching and learning pedagogy, used in physical education settings, where PE teachers listen to and respond to students' needs resulting in improved motivation and learning (Oliver et al., 2018). Subsequently, PE teacher educators may guide pre-service teachers to specific elements of SEP, ASK, and PLC using these approaches. However, it is acknowledged that approaches such as co-creation have been criticised, particularly for being more suitable for smaller group sizes and for potentially exposing staff vulnerabilities (Bovill, 2020). Yet even in large groups, with an understanding of the wayfinding concept, PE teacher educators may guide pre-service teachers in developing as wayfinders. For example, through peer and group interactions, pre-service teachers could also reflect on their cultural experiences, compare subject knowledge, and construct knowledge collaboratively. This approach highlights the value of professional learning communities as environments for learning and the development of pre-service teacher efficacy.

Thirdly, Figure 2 illustrates that wayfinding through the PETE programme is likely to be a non-linear experience for the pre-service teacher; hence, the chaotic line from year one to three. For example, we understand that pre-service teachers will have different developmental needs, and this is most likely to influence the amount of support, time, and type of SEP needed during a PETE programme. Hence, a pre-service teacher's pathway may follow a complex dynamic trajectory, involving forward movement, setbacks, crossovers, and intertwined learning experiences (Ingold, 2004). Additionally, we have highlighted that we suspect the learning experiences provided in and around programme constructs may lead to fluctuations in pre-service teacher efficacy development. For example, there may be periods of time when pre-service teachers can efficiently navigate the complexities and challenges of PE landscapes. This will assist with the development and repertoire of skills and knowledge to apply relevant strategies to facilitate learning in these environments (i.e. dwelling). However, we acknowledge that there may be occasions where pre-service teachers become frustrated or extensively challenged by the situated learning environments. Hence, negatively impacting teacher efficacy. This is illustrated by the jagged trajectory line of pre-service teacher efficacy and its anticipated progression in Figure 2. Yet, we would argue that these experiences are equally important for pre-service teachers' development, helping them learn how to recover and adapt as they navigate the challenges of these environments i.e. find their way. Indeed, to assist PE teacher educators with this, the following section elaborates on how they can enact a wayfinding approach using SEP, ASK, and PLC.

Enacting a wayfinding approach in PETE programmes

To help PE teacher educators enact a wayfinding approach, we have included examples of teaching and learning activities. These are, however, provided with an illustrative intention because the nature of wayfinding necessitates that it is for PE teacher educators and pre-service teachers to co-create the activities relevant to their own context and needs.

(1) School experience placements (SEP)

We know that teaching and learning experiences are enablers of pre-service teacher efficacy (Magill et al., 2023; Magill et al., 2024) and are crucially important to personal and professional development. In addition, school experience placements enable the ability to critically reflect on existing beliefs, and help to remove any bias, anxieties, or misconceptions for when delivering in the classroom (Richards et al., 2014). We understand that school experience placements need to be challenging (Ralph & MacPhail, 2015) and yet should meet the individual learning needs of the pre-service teacher (Roefs et al., 2021). Therefore, prior to any school experience placement, we suggest that pre-service teachers should meet with PE teacher educators to identify aims for their school experience placement. For example, pre-service teachers may wish to address subject knowledge gaps or increase the experiences of working within a specific school

setting i.e. primary or secondary school. This recommendation aligns to the recent work of Maher et al. (2022) and the importance of ensuring that pre-service teachers experience meaningful school placements. In Maher et al. (2022) the influence of a special school placement (i.e. an educational environment for children with an educational need or disability), on 26 PE pre-service teachers, with limited experience of working with students with special education needs and disabilities (SEND), was examined. Pre-service teachers reported that the placement had increased their awareness of planning student-centred learning activities and changed their pre-held belief that PE in special schools was the same as that offered to students in mainstream schools. Thus, pre-service teachers with limited experience of teaching PE to SEND students benefitted from this selective experience. Likewise, from a wayfinding perspective, the pre-service teacher can benefit from dwelling in new environments. Of course, PE teacher educators have a crucial role in facilitating and guiding pre-service teachers to find their way through unfamiliar settings. To aid them with this, the following questions may help PE teacher educators support pre-service teachers in their planning for school experience and development of efficacy within the school environment. For example,

- What type of PE environments are you comfortable in? For example, competitive games, health/wellbeing, outdoor nature activities
- What type of PE environment do you now need to explore? For example, working with and interacting with a specific age range of students
- What potential challenges do you anticipate during your placement and what strategies can you use to overcome them effectively? For example, adapting your communication skills to ensure you are understood by students who may not speak English as their first language, managing time spent on tasks or transitions between tasks
- How might you prepare to visit that environment? For example, meeting with teaching staff prior to your first day, accessing your timetable and understanding the timings of the routines of the school day

PE teacher educators may also discuss a range of task scenarios with the pre-service teachers to guide them in becoming more aware of their own behaviours and how these may influence student learning (Roefs et al., 2021). For example,

- *How can you ensure that you are dressed appropriately for your school experience placement? Consider how students or colleagues might perceive your attire and or did you adjust your attire for different student groups?*
- *Identify a recent lesson that you have taught. What facial expressions or gestures did you use to engage students e.g. fingers to lips, a smile. How effective were these methods in this environment and when did you use them most? For example, at the start of the lesson, during transitions and or at the end of the lesson?*
- *When observing a peer or colleague teaching a lesson, can you notice their body language. Consider what messages their body language might send to students and if their positioning or movement around the classroom influenced learning/engagement. Can you apply these insights to your own practice and potentially identify improvements?*
- *What are the customs, routines, and rituals in this environment?*

The experiences of school placements may be explored during semi-structured tutorials, workshop activities and or potentially via a reflective assessment. These may provide opportunities for pre-service teachers to discuss key learning incidents, challenges, achievements and/or to exemplify their extended involvements throughout the placement i.e. field trips, and parent evenings to illustrate their efficacy development.

(2) Advanced subject knowledge (ASK)

The learning of advanced subject knowledge describes the development of PE subject knowledge and the application of this knowledge within a variety of contexts i.e. essay writing, professional dialogue with peers or PE teacher educators, and when applying pedagogical approaches to facilitate practical activities. We understand that subject knowledge is crucially important to the development of the pre-service teacher (Choi et al., 2020; Magill et al., 2023) as this influences the ability to engage learners within the subject (Tinning, 2002) and to make timely and effective decisions to aid the learning process (Garner, 2019, as cited in Capel et al., 2019). For example, the influx of pedagogical frameworks, including sport education (Siedentop, 2013) and teaching games for understanding (TGfU) (Bunker & Thorpe, 1982) have improved pre-service teachers' confidence in their ability to respond appropriately to the dynamics of learning environments, i.e. adapting learning outcomes, equipment and or tasks promoting a greater sense of teacher efficacy (Herold & Waring, 2009). While we recognise the development of advanced subject knowledge, which is widespread practice across PETE programmes, as part of a wayfinding approach, we encourage PE teacher educators to personalise the development of subject knowledge based on the contextual and personal needs of pre-service teachers. This may help to strengthen pre-service teachers understanding of what knowledge and applications are needed from them when responding to challenges or constraints presented within new environments. To assist with this, the following methods may be used to enhance the development of subject knowledge.

- *Pre-service teachers could develop a subject knowledge audit log, to review and input subject knowledge development during the PETE programme. This may help to identify subject area development needs by reflecting on the 'wayfinders journey' and a sense of efficacy in the knowledge they have as they encounter new PE contexts. For example, a subject knowledge audit could include practical and theoretical components of relevant national curriculums and examining award courses.*
- *PE teacher educators could co-create modules to address subject knowledge learning gaps or explore subject knowledge relevant to the environments that pre-service teachers have either struggled to navigate or have not travelled. For example, outdoor adventurous activities may be a weak subject knowledge area for some pre-service teachers and the learning of basic skills i.e. navigation and safety may be a priority. Yet, for others, extending subject knowledge in other key areas such as climbing or canoeing may be needed. Throughout the process, PE teacher educators may prompt pre-service teachers to consider the learning environment, the equipment that may be required, and the order and time spent on activities to support subject knowledge development.*
- *Frequent peer led practical workshop activities initiated by pre-service teachers to show what subject knowledge areas have helped them on their journey and why doing so may reinforce their sense of efficacy. For example, pre-service teachers demonstrating how they have used or adapted equipment to facilitate practical tasks.*
- *Scenario tasks created by pre-service teachers of areas where they have struggled, could inform future lessons, and increase pre-service teachers' confidence in these areas, should they visit them again. For example, pre-service teachers sharing their activities for when being asked to deliver a warm-up without warning and how they managed the environment. For example, management of groups and the order/timings of the warmup activities.*
- *Where appropriate, pre-service teachers may guide the learning and application of subject knowledge for other learning groups. For example, third year pre-service teachers delivering to first year pre-service teachers, to share how ASK helped them to successfully navigate during their SEP. Doing so, may help the pre-service teachers reinforce the confidence they have in their knowledge, whilst also imbuing a self-efficacy in others through vicarious experiences (i.e. if they can do, so can I).*
- *When pre-service teachers identify challenges navigating PE contexts, PE teacher educators could signpost pre-service teachers to revisit relevant subject knowledge areas by reattending learning modules. This may support pre-service teachers understanding of the range of resources and inter-actions needed to improve subject knowledge.*

Through such activities, subject knowledge is always linked to the pre-service teacher's situated learning experiences. Doing so means that subject knowledge can also be examined in relation to the broader social, political, economic and or moral issues influencing the realities of a professional learning community e.g. Freire (2018). The outcomes of these learning activities may be addressed using questioning to inform PE teacher educators if subject knowledge areas need to be revisited or advanced. For example,

- *What in the context prompted you to use the specific knowledge/or pedagogical approach? For example, Sport Education*
- *How successful was your decision? What other cues are available in the context? For example, what cues did you receive from students?*
- *What other knowledge might help you in that scenario, challenge and or assessment?*
- *How did the timings, or pace of the lesson influence your decision making?*

(3) Professional learning communities, including role models (PLC)

Professional learning communities, within education settings, have become a recognised source for improving subject knowledge, exchanging knowledge, developing instructional techniques, developing teacher effectiveness (Antinluoma et al., 2021; Jayantilal & O'Leary, 2020) and enabling group members to feel connected and valued (Thompson et al., 2019). Therefore, it is understandable that pre-service teachers feel efficacious through their involvements within these communities as they provide access to a supportive network often involving collaboration with experienced teachers and coaches i.e. role models (Magill et al., 2023) or peers. Hence, we consider that membership to a range of professional learning communities to be an invaluable construct of PETE programmes and favourable to wayfinding as they can provide engagement with role models. Professional communities not only provide embodied role models but also a relational resource that may lead to informal guidance and further landscapes for pre-service teachers to explore. Thus, from a wayfinding perspective, such communities can be conceived as more experienced travellers, who can show the way, help individuals navigate pitfalls, and open up new learning opportunities. Consequently, we consider it important for PE teacher educators to facilitate opportunities for pre-service teachers to meet more experienced and fellow travellers via PLC as they wayfind. For example,

- *As part of an initial timeline, PE teacher educators could identify pre-service teachers' existing network (e.g. previous PE teachers). This will help them to recognise the social resources they already have and communities that they may need to connect with during the programme*
- *PE teacher educators could provide access and opportunities to link pre-service teachers with specific interest groups. For example, local SEND hub schools, CPD training through the Youth Sport Trust to support collaboration and networking*
- *Create assessment or project opportunities that connect pre-service teachers with key organisations (e.g. SHAPE America, the Association for PE, Youth Sport Trust, Department for Education). For example, this could be based around the safe practice of specific activities endorsed by relevant organisations. This may help to support pre-service teachers in their ability to interact with professional organisations and or the ability to reflect on the decisions and actions that evolved during the project/assessment*
- *Embed visits from professional organisations to provide insights into organisational structures, events (e.g. conferences) and initiatives.*
- *Advocate participation in professional teaching networks or similar organisations to experience a variety of roles, i.e. committee chair, event organiser, attending or presenting information at CPD events, and or online webinar engagements.*

Additionally, PE teacher educators may also help to create a PLC within a group cohort by the integration of peer learning activities. For example, frequent discussion regarding the application and outcomes of various pedagogical approaches to enable pre-service teachers to develop their own and others pedagogy (Bovill et al., 2016; Oliver et al., 2018). These opportunities may ensure that pre-service teachers not only experience the value of being a member of a PLC but develop efficacy through the relationships formed and interactions within the professional learning community. Together with SEP and ASK, this may assist and reinforce the development of efficacy, as pre-service teachers become recognised in *their* professional learning communities.

Conclusion

This paper, supported by an anthropological perspective, reconceptualises the development of pre-service teacher efficacy and introduces a wayfinding approach to assist with the progression of efficacy during PETE programmes. To enact this approach, we have identified three important PETE programme constructs including school experience placements (SEP), advanced subject knowledge (ASK), and professional learning communities, including role models (PLC), to assist the learning experiences of a PETE training programme. The approach promotes pre-service teachers as wayfinders on their journey to becoming PE teachers with PE teacher educators guiding the journey. Through this, PE teacher educators may construct learning experiences that can immerse pre-service teachers in authentic and dynamic contexts to enable them to navigate the complexities and challenges of a PETE programme. This reinforces that efficacy is not developed in isolation but instead through and in relation to the communities that pre-service teachers encounter. This is important because the deep exploration of these learning communities may equip pre-service teachers with necessary skills and competencies to introduce alternative pedagogical approaches or readjustments when teaching (Pill et al., 2023). For example, greater use of student-centred teaching and learning approaches (Oliver et al., 2018) and co-creation of learning tasks (Bovill 2020; Money et al., 2016). Thus, wayfinding may be crucial to the future development of PETE programmes and to overcoming some of the current perceptions around the limitations of the professionalisation phase (Lawson, 1986; Richards et al., 2014). Finally, we believe that a wayfinding approach can strengthen the design and curricular content in future PETE programmes, significantly impacting pre-service teacher efficacy, and the learning outcomes of the students they teach.

Limitations and strengths

The study has limitations that we would like to acknowledge. Firstly, while the wayfinding approach presented is underpinned by findings from previous research (e.g. Magill et al., 2023, 2025; Trinick & Allen, 2024; Woods et al., 2020b), further empirical research is now required to measure the effectiveness and feasibility of a wayfinding approach from PE teacher educators' perspectives, which we plan to do. On that note, reconceptualising pre-service teacher efficacy as being situated rather than internally derived may be challenging for PE teacher educators to adopt, especially as many systems are not designed to recognise the longitudinal journey of pre-service teachers, the situated development of knowledge, nor a non-linear approach to learning. For example, personalised SEP may be difficult to organise. Additionally, while the theoretically informed metaphor of wayfinding has served to provide insight for PE teacher educators, it can be misinterpreted and misapplied. We have tried to address this by providing illustrative examples, but it is of course, for others to enact the metaphor in their contexts. Again, the policy and practical implications of a wayfinding approach to develop pre-service teacher efficacy requires more research, to understand how it may be enacted.

Notwithstanding the limitations, the paper has strengths that we would like to raise. Firstly, the wayfinding approach is novel to PETE programmes and prompts consideration of innovative teaching and learning activities. Secondly, the approach introduces professional learning communities, including role models, as an important construct in the development of pre-service teacher

efficacy during PETE programmes. Finally, the approach identifies PE teacher educators as pivotal to the development of pre-service teacher efficacy, through the construction of carefully designed professional learning communities and the guidance they can provide to help pre-service teachers to find their way.

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No potential conflict of interest was reported by the authors.

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