

Article

Building Bridges in Teacher Education to Enhance Teachers for Students' Diversity in Physical Education

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Abstract: Following the UNESCO guidelines for Quality Physical Education, this participatory action research study aimed to explore the potential of a Community of Practice (CoP) to empower both schoolteacher educators and preservice teachers (PSTs) to become practitioners–researchers in order to achieve inclusive practices in Physical Education (PE). This study involved a partnership between a university in North Portugal and four cooperating schools. CoP participants were six teacher educators and four cooperating teachers (CTs) who work with twelve PSTs in the schools where they developed their teaching practices. Data collection included focus groups with CoP members and PSTs, CoP meetings, and school placement meetings. A thematic inductive–deductive analysis revealed that CTs were actively engaged in the CoP, achieving mutual involvement and a shared repertoire, and making friendships beyond the CoP. Becoming practitioners–researchers made CTs more critical of their teaching and supervisory roles. Supporting PSTs to be practitioners–researchers was challenging, mostly due to PSTs' lack of content knowledge, which made it difficult to identify the students' problems in engaging with the proposed activities and how to solve them. Both CTs and PSTs highlighted the value of the CoP in gaining confidence and knowledge to improve their teaching to become more inclusive.

Keywords: communities of practice; PETE programmes; practitioner–researcher; inclusion



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1. Introduction

Nowadays, one of the main challenges that teachers face in schools is student diversity. The sustainability of inclusive practices depends on adopting a positive attitude towards diversity, valuing and belief in social learning, and gaining confidence and competence to ensure access, participation, and achievement for all students [1–3]. Teachers need to experience the benefits of inclusive practices through training, school support, and university collaboration through in-service and preservice inclusion-oriented programmes [4–8]. Despite the efforts of pedagogy and didactic courses to change PE towards meaningful participation and learning, preservice teachers (PSTs) remain unprepared to solve problems of marginalisation, exclusion, and underachievement [9–11].

The investment in teacher preparation for inclusive education is a high-priority endeavour for our research team. Historically, our concerns encompassed the following: (a) opportunity to participate in PE activities; (b) the pedagogical content knowledge of PE teachers to make content teachable and accessible to all their students; (c) the student-centred games-based pedagogy with a focus on inclusion and collaborative learning; and

(d) the development of professional competence, the usefulness of reflective practices, and (re)construction of professional identity in the context of initial teacher education. The research team is interested in changing teaching practices towards student-centred approaches with inclusive purposes [12]. To achieve this, the plan intends to invest in the transformational power of CoP and the use of action research [4,13,14], both framed on a theory of action to empower PST professional development [15]. The teacher educators who are part of the research team are required to highlight the importance of PSTs becoming practitioners–researchers as a process for driving their own growth. For this, it is necessary to use collaboration to encourage PSTs to take risks with their teaching and to promote a broad view of potential collaborators, namely the students as partners in action research.

For Zeichner et al. [16], the detachment between universities and schools is a barrier to democratic teacher education. Dialogue with schools renders the opportunity for reciprocal learning. Oates and Bignell [17] notice that the partnership between schools and universities is not new but needs to go further, i.e., move away from joint school–university collaborations where the university is the lead and the schools are the research contexts, and from models of collaboration between schools supported by university facilitators. What is often missing is partnerships in which all participants—teachers and university researchers—are seen as experts, facilitators, and critical friends on an equal footing. This more balanced approach is essential for truly integrating theory, research, and practice in the classroom [18] and needs to be studied and addressed in PETE programmes.

Preparing teachers for an inclusive education requires meaningful relationships between schools, universities, and student teachers, constructed upon the commitment to take care of all students' learning [5,6,8,13,19]. The literature (e.g., refs. [9,11,20]) highlights that there is huge evidence of problems of presence (access), participation, and achievement in PE classes. Gender, skill level, and additional educational needs, fused with race and social status, impart considerable percentages of students at risk of marginalisation, alienation, and underachievement. There is limited research on how PE teacher preparation addresses these issues.

University and schools need to mind the communicational gap [16,19], working together to change PSTs' perspectives and practices from the highly dominant teacher-centred, multi-activity, sports skills approaches, restrained by their apprenticeship of observation and their need to control students' behaviour, towards a student-centred PE curriculum, pedagogy, and assessment, attending to student diversity and inclusion barriers [4,6]. It is, therefore, necessary to make the school–university partnership more dialogical and collaborative, giving space to the co-construction of knowledge [21]. This implies designing teacher education within the profession and reinforcing identities and practices [22,23], which must be informed by research [24]. In this collaborative endeavour, teacher educators, i.e., “all those who actively facilitate the (formal) learning of student teachers and teachers” [25] (p.8), need to work together in favour of a movement to reconfigure the school–university partnership. This reconfiguration can be supported by the creation of CoP characterised by constructive collaborative work between the various training stakeholders, ideally extending the triad of schoolteacher educators, university teacher educators, and students in initial training to other schoolteachers [21]. Teacher educators and PSTs should reflect together to identify and understand the demands of teaching and the school; the challenges of education and teaching about teaching; and the problems of teaching from different angles to empower teachers (future and in-service) with the knowledge and competencies that will enable them to respond to the demands of teaching and the school [26]. The authors believe in collaborative CoP practices involved in the research of one's practice as the path that can support the professional development of teachers in initial and ongoing education.

This paper will focus on partnerships as collaborative arrangements between schools and universities, extending beyond merely supporting student–teacher education in practical, preservice settings. The aim is to explore the potential of the CoPs (that include PSTs, teacher educators from schools and universities) to empower both schoolteacher

educators and PST as practitioners–researchers towards inclusive practices in Physical Education. This study addresses the following research questions: (1) How do teacher educators achieve mutual involvement, share a repertoire, and undertake joint activities within the CoP? (2) To what extent does the affective and instrumental commitment among the CoP participants allow them to be positioned as practitioners–researchers? (3) What challenges does the CoP face in supporting PSTs to enact inclusive practices?

1.1. Theoretical Framework

1.1.1. Fostering Teacher Development through Communities of Practice

CoP can be understood as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” [27] (p.4).

CoP is rooted in the situational learning perspective, which argues that participants must engage in social practices [28]. Wenger [29] also supports this perspective, highlighting that learning is a social phenomenon that occurs daily through individuals’ experiences and participation in similar groups, such as communities or organisations.

The effectiveness of a CoP depends on creating spaces for sharing, requiring participants to (i) engage in mutual involvement—participants get involved in actions by negotiating meanings; (ii) undertake jointly—a collective process of negotiation that reflects the complexity of mutual involvement, generating relationships of reciprocal responsibility between participants; and (iii) share a repertoire—a repertoire of words, routines, symbols, gestures, or other elements produced and adopted by the community in its practices [29]. Practices within the community play a crucial role, as learning is intrinsically linked to a sense of belonging since being part of a CoP tends to cultivate a sense of security and privilege in its members [27,30]. These collaborative spaces can be powerful in teacher education by involving educators from both schools and universities in supporting teacher candidates, especially during their school placements.

Parker et al. [31] and Lee et al. [32], in their literature reviews, emphasise the significant value of CoPs for teachers’ continuous professional development, noting that learning communities in PE, whether physical or virtual, are highly effective in fostering professional growth. Parker et al. [31] underlines that successful facilitation strategies require creating a safe learning environment with a shared commitment, ensuring that teachers are not merely replicating others’ ideas, which is essential for practice change [33]. Lee et al. [32] highlights the need for affective, instrumental, and moral commitment to build a cohesive and socially regulated community, addressing challenges faced by teachers and schools through collaborative activity to improve educational processes. The instrumental commitment tends to be the most prevalent, driven by the perceived benefits of knowledge capital and social connections, and the moral appears to be the most important to maintain the CoP.

Smith and Sela [34] emphasised the importance of teacher support in helping PSTs overcome difficulties during school placements, particularly in dealing with challenges and unfamiliar teaching [35]. Listening, participating, and interacting with other PSTs aids their learning and fosters the growth of the COP [4,36]. Additionally, PSTs value research collaboration and mentor support for developing their research skills [37]. It is important to ensure that the interaction is a two-way process, promoting the professional development of both teachers and PSTs [36,38,39].

1.1.2. Enhancing Teacher Professional Development through Practitioner Research

In recent decades, the ideas of the teacher as a researcher of practice and the teacher who engages in research have been gaining ground [40]. Cordingley [41] highlights an important differentiation between professionals (of teaching) who use research and those who conduct research, stating that “Their entry point is improving teaching and enhancing learning and that is where their priority stays. They see themselves as engaging with research but not in it” (p. 85).

Research into one's professional practice involves engaging in research-based learning [42,43]. This entails professionals systematically researching topics related to their professional domains to generate useful knowledge that can be mobilised in practical settings [42,44].

Recent literature reviews by Jones et al. [45], Bacak and Byker [46], and Brooks [47] all point out interfaces between the practitioner–researcher and teachers' professional development. Jones et al. [45] emphasise the idea that translational research is a democratic process, where teachers critically develop and use research to support their classroom practices. They stress the need for a collaborative relationship between teachers and researchers, where teachers are active, namely as leaders, rather than passive participants. It is necessary to build a culture of trust and equality between teachers and researchers and to be genuinely committed to learning from and supporting each other.

Brooks [48] also stresses the importance of dialogue between teachers and academia for the co-construction of knowledge. Bacak and Byker [46] add that preparing future teachers for research-based teaching is essential in the collaboration between schools and universities. The authors used the theoretical lens developed by Banchi and Bell [49] to structure the research-based teaching process. This framework considers the amount of information and guidance provided to the student and integrates the voices of both teachers and students. The highlighted strategies include action research projects and community-based research learning. Action research projects aim to place students in the role of teachers by investigating real problems in classroom practice. On the other hand, community-based research learning involves students engaging with communities to facilitate experiential learning [46].

It is therefore important to recognise the fluid nature of research in the education of future teachers and to adopt a dynamic approach to prepare them for this challenge. Professional development should be viewed as a continuum process that spans from initial education to ongoing training [36]. This approach puts the responsibility for their professional development and engagement with research on teachers and PSTs.

Strengthening horizontal and democratic collaboration between schools and universities, especially in school placements, underpinned by research into practice, emerges as a way forward to improve teachers' professional development.

2. Methodology

This study is part of a broader project based upon the assumption that the social roots of knowledge and practice become more powerful when produced through collaborative action [13,14]. This is a participatory action research study framed upon the scaffold of a CoP to support PSTs in their school placement to design and implement PE inclusive practices in team games and fitness education. PSTs were challenged to engage in practitioner research, attempting to develop a deeper understanding of their practice contexts and to build their own capacity to deal with students' diversity. This approach is a fundamental tool to develop tailored designs focused on all students' full participation and learning by enacting in all students a sense of belonging, equity, and motivation for a meaningful, pleasurable, and healthy lifestyle. In methodological terms, the participatory action research aimed to support PSTs' professional development concerning the characteristics of a practitioner–researcher, aiming to generate new knowledge, skills and perspectives, practices, and student outcomes within the framework of Quality Physical Education and inclusive practices.

2.1. Participants and Study Context

The participants of this study are part of a CoP constituted by four cooperating teachers (CTs) from schools (two men and two women) whose ages ranged between 51 and 66 years old and three teacher educators (TEs) from the university (two women and one man) whose ages ranged between 52 and 65 years old. TEs have considerable teaching experience (more than 25 years) and research production around teacher education, educational research, curriculum development, sport pedagogy, and PE-specific didactics such as team sports.

CTs have great experience in mentoring PSTs (one with 24 years, two with 13 years, and the other with 6 years) and in teaching PE (more than 25 years). CTs work in different regions (urban, interior, and coastal) and deal with different student characteristics (such as those with a low socioeconomic background).

The CoP constituted by the CTs has been running for four years now, facilitated by the principal researcher (supervisor of the faculty) who has been collaborating with them in supporting the PSTs. The broader project was created based on this CoP and PSTs deficit curricular areas identified by these schoolteachers. This focus on the supervision of PSTs to include all students happened firstly through a focus on physical fitness and later on invasion games.

Based on this, 12 PSTs (5 women and 7 men, age ranges between 22 and 31 years old) were invited to take part in this project as a result of their placement being in these CTs schools—convenient sampling. The PSTs voluntarily accepted to participate after being familiar with the project aims, as well as being given the option to not participate or to withdraw at any point from the study. The involved PSTs are part of a two-year master's degree programme from a Portuguese public university, and only one had previous experience in PE teaching. The first year of the programme takes place at the university, while the second takes place mostly at a school (only Mondays at the university). PSTs are distributed in groups of 3–4 in each school and teach schoolteacher's classes, one full-time and the other one shared across the PSTs. Besides teaching responsibilities, they also have management responsibilities (e.g., organise some event) and have to conduct a study of their own. To qualify as a teacher, PSTs will have to show evidence of quality in these three areas by writing a school placement report that captures their school experience and by presenting and defending this document publicly at the university.

All students (approximately 252) from the CT classes, where PSTs conduct their teaching practice, participated (12 classes; approximately 21 students per class). The classes have a mix of genders, with some having more boys than girls. The students also differ in motor skill level, behaviour, and motivation for practice. Three classes include students with special educational needs, specifically in terms of cognition. Before they join the study, school directors had to sign an agreement for the study to take place, and then students and their guardians/parents had to sign a consent form where they agreed with the study and their participation. No personal information was collected about the students. Data from PSTs and CoP were anonymised using pseudonyms. The study was approved by the local Ethics Committee of the university where the PSTs were pursuing their master's degree (reference number 24-2023)

2.2. Study Design

The study took place in the academic year 2022/23, from October to June (Table 1), and involved a partnership between a university from the North Porto region and four cooperating schools. In each school, a PE CT worked with three PSTs for year-long school placements (SPs), developing their teaching practice in the CT classes. The CoP met weekly on Mondays (first two months), and then every three/four weeks.

Table 1. Phases of the study.

Phase 1 (September and October)	Diagnosing students' diversity and preparing PSTs for researching their practice for inclusion. The main aim of this phase is to diagnose students' diversity and empower PSTs to become practitioners–researchers, having as a starting point the establishments and understanding and acknowledging student diversity within the classes they teach.
Phase 2 (October and November)	Organisation of seminars at the university to discuss inclusive practices in PE: • One about Quality PE; • One about invasion games in an inclusive perspective: basketball, European handball, and soccer; • Two about fitness education—wellness education model [50] principles; implementation strategies in a self-regulatory perspective.

Table 1. *Cont.*

Phase 3 (November to May)	Process of PSTs (re)designing and teaching inclusive practices was scaffolded by the CoP (TE specific didactics from the university supported the process) in two main areas of the PE Portuguese curriculum—fitness education and team sports. Redesigning the process involves (a) making decisions on what strategies are most likely to address student diversity, (b) answering their learning needs, (c) optimizing access, participation, and inclusion, (d) observing and reflecting on the outcomes of the tried strategies, and their implications for the process.
Phase 4 (May and June)	Post-intervention: Two CoP meetings to evaluate the value and meaning of the experience, including PST practices, student outcomes, difficulties, challenges, and achievements.

2.3. Data Collection

Data collection comprised focus groups with the CoP (two) and with the PST (two), as well as CoP meetings (17) and school placement meetings (15) along the school year.

2.4. Community of Practice Focus Group

One focus group took place in the first stage of phase 3 (February) and the other at the end of phase 4 (June). All CoP members were involved, with the principal researcher acting as a facilitator. Each focus group lasted, on average, 90 min. Both of the focus groups explored themes such as the challenges and difficulties of the PSTs to address inclusive practices and the benefits of participating in the CoP. Examples of questions used include: (i) what are the main difficulties that PSTs face to include all students in their classes?; (ii) how do they try to overcome the obstacles?; (iii) what is the significance of being part of this group of TE?; and (iv) what have you learned during these months of working collaboratively? The recorded focus groups were transcribed verbatim and passed to the CoP members who read and approved the accuracy of the transcripts.

2.5. PSTs Focus Group

All PSTs participated in two focus groups: one in phase two (February) and one in phase four (June). The principal investigator facilitated the two focus groups that lasted, on average, 70 min. The main aim was to capture the experiences along the school placement in researching their practices to answer to students' diversity. It consists of questions like (i) how much value did you ascribe to your research practices? and (ii) how did you attempt to solve the problems of the access, participation, and achievement of your students in fitness education and team games? Focus groups were recorded, transcribed verbatim, and sent to PSTs who read and approved the accuracy of the transcripts.

2.6. Community of Practices Meetings

Throughout the study, regular CoP meetings were held in accordance with the aims of each study phase. In these meetings, reflections focused on the challenges and difficulties of supporting the practices of the PSTs during their placement and exploring possible ways to overcome them. These meetings took place at the university on Mondays, with one or more TEs facilitating according to the theme under discussion. For example, when the theme was physical fitness, one of the CTs who specialised in that area served as the facilitator. Each session lasted, on average, 70 min. Sessions were recorded and transcribed verbatim.

2.7. School Placement Meetings

Throughout the study, there were 15 meetings held to support PSTs in implementing inclusive practices. Discussions in these meetings revolved around faced challenges, difficulties, and discoveries, aiming to improve and gain understanding on how and what to address moving forward. These meetings mostly happened at the school placements with the group of PSTs, the CT, and the supervisor from the university. Others happened at the university with the PSTs and the teacher educator specialist in a specific didactic. Each meeting lasted, on average, 60 min. Meetings were recorded and transcribed verbatim.

3. Data Analysis

A thematic inductive–deductive analysis procedure was employed across all data, keeping in mind the aim of the study and the theoretical framework and following the data from focus groups and meetings. Data analysis followed a three-component flow process: data condensation, data display, and conclusion drawing [51], with the researcher moving between these components. So, the analysis began with the establishment of students' diversity and PSTs' preparation for researching their practice for inclusion. The ongoing analysis informed the design of the CoP sessions, the school placement meetings, and the focus groups. Data were constantly triangulated across the different sources for a more comprehensive understanding of the CoP dynamics and PST practices. Data from different sources were read and examined incident by incident, highlighting the relevant extracts. These were then coded independently by two researchers. These initial codes were compared and discussed until an agreement was reached on what codes would be kept. After that decision, codes were refined and merged by proximity. For example, PST lack of knowledge, difficulty in observing and adapting team games, difficulty in engaging students in physical fitness, difficulty in finding solutions to the problems faced in practice, and the challenges and difficulties faced in supporting PSTs towards becoming practitioners–researchers.

The final triangulation of the data from different sources resulted in the following themes: (i) fostering professional learning through community engagement; (ii) nurturing community and friendship beyond the CoP; (iii) questioning and transforming understandings and practices towards inclusiveness; (iv) reconfiguring the mentoring process; and (v) challenges and difficulties in supporting PSTs to act as practitioners–researchers.

4. Results

4.1. *Fostering Professional Learning through Community Engagement*

The data show that through open and democratic dialogue, the teacher educator gradually became more engaged in CoP activities, deconstructing previous understandings and constructing new perspectives. This process led to a shared repertoire, particularly regarding how to address student diversity in PE classes.

The ongoing interaction among the CTs within the CoP encouraged them to question and reflect upon their understandings and practices. This process fostered the cultivation of a deeper sense of self-awareness and critical thinking, enabling them to not only recognise but also express their weaknesses and areas for improvement. They leverage their collective knowledge and experience to enhance their professional development.

The following quotations illustrate the powerful role of peer interactions in reshaping both practical skills and conceptual understanding, denoting how engagement within the community fosters development:

(...) the discussions have been very rich. I am determined to transform my weakness area 'Football' into a strength. (CoP, Session 10)

The interaction and exchange between us have allowed me to analyse the situations I experience in a different way (...). I can even say that I have changed my conceptual references. (CoP, Session 15)

Additionally, the increased openness to dialogue and different perspectives was highlighted by the CTs as a significant achievement. This dialogue encourages questioning and transformation of their practices while fostering a culture of continuous improvement and innovation of community members. This achievement can be observed in the quotations below that emphasize how engagement in this professional learning community fosters growth by exposing them to diverse perspectives, enhancing empathy and understanding:

Getting out of my usual working environment and into contact with other realities has allowed me to understand different perspectives and to improve and empathise with other perspectives. (CoP, FG 2)

Ah! I really like these things, I really want to reflect (...) I really like to hear different opinions from other people, and I think I learn a lot from that, from different ways of being a teacher. When I come here to CoP, I hear things that I try out and then, if I am successful and I find that it works for me, I adopt it; otherwise, I would not have had the experience. (CoP, Session 10)

The dialogue on CoP over the last few months has been very productive, inspiring me to better practices. (CoP, FG 2)

Professional development appears to be a relevant outcome that was perceived by the CTs to extend beyond the CoP space and its participants, enriching other teachers through the interactions they established with them. These interactions facilitated the dissemination of new ideas and approaches, enhancing the professional development of a broader group of teachers and underlining the value of the CoP not only as a space for individual development but also as a stimulus for institutional growth and collaboration, as we can observe in the words of the CTs:

At least in my personal experience, the work that is done here with the PSTs with classes in years where I am not the only teacher, so it is also interesting that what I take away from here does not just stay with me, does not it? So, it's not only passed on to the PSTs but also on to other colleagues in the school, specifically the person I usually work with (...). This is a big challenge that the faculty has to take on, which is to make sure that the education of the PSTs is not just limited to the cooperating teacher, that it involves the whole PE group, because that is a great asset, is not it? (CoP, FG 2)

4.2. *Nurturing Community and Friendship beyond the CoP*

The commitment of the teacher educators to the CoP goes beyond instrumental reasons. It is an affective commitment that has allowed them to build a socially cohesive community. The culture built within the community fostered a strong sense of belonging among the CTs, arising from a mutual sense of security that encouraged open sharing and collective reflection. In this supportive environment, the CTs were able to discuss not only professional issues but also personal ones. The trust and friendship developed over the time facilitated deeper relationships, making it easier for individuals to share their experiences, challenges, and insights. As a result, the community progressed into a space where both professional and personal growth were fostered, strengthening the bonds among members and enhancing their overall well-being.

As can be observed in the pursual quotations, the sense of security and support allowed the CTs to share their insecurities, problems, and concerns and to construct a sense of security that allowed them to be more comfortable in their personal life at school:

I have developed bonds of friendship that transcend purely professional relationships (...) in these moments we discuss very diverse topics (sometimes linked to our personal lives), helping us to put our work into perspective. (CoP, FG 2)

I feel that I belong to a group that inspires me to better practice and provides support not only for the professional problems and dilemmas I face in my daily work at school but also for personal ones. (CoP, FG 2)

4.3. *Questioning and Transforming Understandings and Practices towards Inclusiveness*

Exposure to different perspectives and understandings within the CoP proved instrumental in guiding CTs towards other teaching practices. Engaging with various successful practices enabled PSTs to critically examine and reflect on their practices, encouraging them to reconfigure their approaches to teaching. This was particularly evident in their adoption of new strategies for planning and organising lessons. The main change they highlighted was a shift in their approach to planning the fitness area, which now focuses more on individual student goals while still considering the overall group dynamic.

Today I can say that PSTs and I think differently about physical fitness. Planning is annualised and it is no longer a one-off exercise. We also try to involve the pupils in regulating their physical fitness according to individual goals, without forgetting to promote group work. (CoP, Meeting 14)

(...) then, from the point of view of physical fitness, I completely changed the way I worked; it was a radical change in my existence. (...) you can see it, you can follow it, in fact I think I was a bit lost in physical fitness because I did not identify myself with this thing of just doing tests and getting results, not that, no, but I also did not know how to plan it and I think these conversations we had around physical fitness and these exchanges between CTs gave me the confidence to change. (CoP, FG 2)

Another relevant change was the way CTs began to look at inclusion. Recognising its effectiveness in practice, they started to adopt different strategies to ensure that all students could access, participate in, and benefit from the activities. The CTs specifically noted that they are much more motivated and secure to adopt inclusive strategies, such as forming heterogeneous groups, where the more skilled students could support those with lower skill levels and include students with additional needs in the regular activities of the class.

The way I organise the lessons has changed. I have adopted a more integrated approach, putting students with higher levels of performance to work with students with lower levels of performance. (SP, Meeting 6)

I needed to see that the inclusion of the special needs' pupil worked. My initial resistance was broken by the visibility of the student successfully playing with others. Working with the PSTs deconstructed the way I thought about including this type of student in class. (SP, Meeting 10)

I have become more critical about what I am doing especially about the instruments I am using. I feel the need to adapt them to students of needs. (SP, Meeting 12)

I have more motivation to innovate and to include more inclusive strategies. (CoP, FG 2)

I lacked some tools that I managed to acquire and that made it easier for me, or at least I feel more able to do it due to the opportunity of listening colleagues experience. (SP, Meeting 8)

One CT even says that the project completely changed his view of PE. He realised that mixing students into groups is not enough for true inclusion, and the use of tools for self and peer assessment is very important to a meaningful inclusion. All the CTs felt that in the future, they will continue to question their own practices.

I really do not think that the way I work in PE today has anything to do with the way I worked in physical fitness or team sports three or four years ago. I do not think the difference has been that great in terms of principles, for me it has always been a principle that pupils have to be together. . . What has this project brought me? It has helped me, it has given me the tools [steps to follow to make the students more autonomous and sheets for self and peer assessment], to be able to do this inclusion, it is a bit like what I said before: for inclusion is not enough mixing and work in groups, is not enough for the children work in group to be included (...). (CoP, FG 2)

I think I have already changed my work (...) I have felt better able to apply a set of strategies that we have discussed in meetings, and, in the future, I know I will continue to learn from these exchanges and questionings. (CoP, FG 2)

4.4. Reconfiguring the Mentoring Process

The CoP faced several challenges in supporting the PSTs in embracing inclusive teaching practices. One of these obstacles was their own attitudes towards diversity,

coupled with their limited knowledge of inclusive strategies. Moreover, changing the mentors' usual approach of guiding the PSTs posed a challenge.

The changes in perspectives in PE and its teaching, along with the enhancement of reflection and pedagogical resources to address student diversity, influenced CTs' understandings of their supervisor role. The CTs felt that they improved their knowledge and capacity to support PSTs in addressing strategies that engage students in the teaching–learning process, namely using assessment for learning, specifically with the implementation of self- and peer assessment.

I have developed greater individual criticality and improved ability to adapt teaching strategies to the diversity of students. I feel more prepared and motivated to implement student-centred teaching strategies. (CoP, Session 10)

(...) I managed to get the PST to understand that this was not the most appropriate way to structure the handball teaching unit... now I feel more confident in guiding... I have learnt a lot about team handball... the game should be the basis of the whole process. I used to think that, but I did not have the confidence to guide the planning on this basis. (CoP, Session 9)

I think I have already changed my work with the PSTs (...) I felt better able to apply a number of strategies that we discussed in the meetings, and I know that I will continue to learn from these exchanges in the future. (CoP, Session 7)

Now we are beginning to see a shift in guidance towards more student-centred practices (...). The concern to engage students in processes of self- and peer-assessment is already a reality in most of the guidance in the different placement centres. (SP, Meeting 12)

4.5. Challenges and Approaches to Support PSTs towards Becoming Practitioners–Researchers

The main difficulties expressed by the CT to engage PSTs in research were their lack of content knowledge that compromised their capacity to observe and decide what to change and adapt to attend to students' needs, specifically in the curricular areas of physical fitness and invasion games:

They did not have enough knowledge to meet the demands of the games and students' skills needs, so is difficulty for them to question their practice. (CoP, FG 1)

(...) In the meeting after the class, a PST said: I found observing and detecting issues during game play very difficult at first. (CoP, FG2)

(...) I realized that the game was not working well, but I did not know what to do [lack of content knowledge]. (PST, FG 1)

Another difficulty that I had in team games was in adapting game rules and action boundaries to accommodate gender and physical characteristics, which impact play interaction. (PS, FG 2)

In the fitness area, I found difficult to maintain students' motivation for practice because I need to work continuously and involve students in regulating their fitness work to meet individual goals and I did not know how to do it. I need a lot of support. (PST, FG 2)

Another challenge, and at the same time a strategy used by the CTs, was the deconstruction of the PSTs' previous perspectives, namely the use of constraints in game instruction, through reflection and analysis of successful experiences, which the CTs had access to in the CoP meetings:

At the time, I did not think much about using the constraints in the game and maybe I chose to play shorter games. And now I have this realization that using the constraints is useful for the game and to combat the problems we had, and I think that's very much the case. (SP, Meeting 15)

Encouraging reflection through questioning was a tool that the CTs learnt within the CoP and which they began to use to encourage the PSTs to analyse their practices, as can be observed in the following example:

CT question: Do you think your positioning in terms of the observation process was the right one? Was it the most appropriate for what you wanted to observe?

PST answer: In the evaluation, yes, but perhaps I could have positioned myself more in the middle of the field. (SP, Meeting, 11)

5. Discussion

The CTs throughout the year reinforced engagement in CoP dynamics. This engagement was visible in the sharing of thoughts, practices, and doubts, along with negotiating meanings and understandings. At the end of the school year, it was visible that the TEs shared a repertoire, namely concerning strategies to deal with students' diversity, such as working with heterogeneous groups and attending to individual students' abilities and necessities. As stated by Wenger [29], the effectiveness of a CoP depends on engaging in mutual involvement, undertaking jointly, and sharing a repertoire; these were perceptible among the TEs of this CoP. On a previous study of a CoP with CTs, Batista [4] reports the relation between the deep involvement among the participants in formal and informal activities and the community's success. This engagement and environment created by the CTs were visible in the name of the WhatsApp group they created, entitled "Science with Conscience", which was meant to be used regularly to exchange ideas, problems, and successful strategies in PE classes.

The shared facilitation process stimulated within the CoP underlines Parker et al.'s [31] point of view that the facilitation process needs to create a safe learning environment to ensure that teachers are not simply replicating the ideas of others. In this community, the CTs felt free to share their ideas and listen to the ideas of others. They recognise that this environment allowed them to reconfigure their perspectives about the inclusion of students with additional educational needs and also how the fitness area and invasion games could be planned to motivate and accommodate all students regardless of their characteristics (e.g., competence levels, gender, personal goals, social behaviour). The CT's commitment was both instrumental and moral, and as defended by Lee et al. [32], both types of commitment are necessary to build a cohesive and regulated community.

Another important factor of the effectiveness of a CoP is the sense of belonging, as a result of the cultivation of a sense of security and privilege in its members [27,30]. The sense of belonging in this project was extended beyond the CoP, as the TE began to consider the CoP members as friends and shared not only professional but also personal issues between them. We believe that the previously established foundation of the CoP and the involvement of the CTs in the dynamics of the CoP were factors that contributed to the deep engagement of the members [4,24]. The nurturing of collaborative work appears to be linked to the stability of the members throughout the different phases of community development.

In terms of professional development, besides the specific issues related to planning and teaching fitness education and team games, the CTs recognised that their participation in the CoP has enabled them to take a more critical approach to their PE teaching and reported substantial changes in their perspectives on mentoring PSTs. They highlighted the importance of questioning practices, particularly problems of inclusion, which became a central concern when guiding the PSTs' teaching practices. The alignment between curriculum, pedagogy, and assessment advocated by Penney et al. [7] was one of the outcomes. The PSTs began to use self- and peer assessment to improve students' participation in their learning. Moura et al. [12] also emphasise the importance of involving students in assessment practices as a way of improving their confidence and motivation to learn.

The visibility of successful strategies for the inclusion of students, specifically those with additional educational needs, motivated the CTs to incorporate these strategies into their practices. This awareness helped them to recognize situations of exclusion and

encourages reflection and the search for solutions. These findings are in line with the perspectives of Borko et al. [44] and Cochran-Smith and Lytle [42], who emphasise that systematic research on professional domains by practitioners–researchers generates useful knowledge that can be mobilised into practice. The effective mobilisation of this knowledge is often enhanced as it results from collaborative processes [45]. Brooks [48] also highlights the importance of dialogue between CTs and TEs from both schools and universities as it promotes changes in CTs’ conceptions and practices by demonstrating effectiveness in PE. MacPhail and Lawson [6] defended the need for experiential evidence of inclusive practices through training, school support, and university collaboration to achieve teaching transformations towards more inclusive practices. In this particular project, CTs expressed openness to listening to others’ ideas and felt confident and motivated to continuously question their practices to better accommodate student diversity.

The biggest challenge the CTs faced was the poor content knowledge of some PSTs. This knowledge gap hindered the PSTs’ abilities to identify problems and find solutions. However, the practicum group and the support of the CoP were very important in promoting reflection and encouraging the search for complementary resources, such as in the literature. These efforts enabled them to find solutions to the challenges of creating more inclusive teaching environments, ensuring that all students could access, participate in, and benefit from their lessons.

It was clear that the professional development of the CTs went beyond improving their own teaching and extended to other PE teachers in the school. The CTs began to mentor the PSTs by encouraging them to problematise their practice in order to improve not only their teaching but also their way of being teachers.

6. Conclusions

The CoP was revealed to be an effective space for the professional development of schoolteachers (in this project the CTs), transforming their teaching and the way they mentor PSTs. The CTs felt privileged to be part of the CoP, developing a sense of belonging that extended beyond the CoP. They have begun to see CoP members as friends with whom they can discuss both professional and personal issues.

Creating a safe space where CTs can freely exchange their perspectives and practices fostered their commitment to the CoP and helped to develop a common repertoire of strategies for addressing student diversity in PE.

CTs have begun to appreciate the value of questioning practices, especially concerning problems of inclusion, and they encourage and support PSTs to do the same using the strategies learned in the CoP.

The main challenge they faced in supporting PSTs as practitioners–researchers was the PSTs’ lack of content knowledge.

Establishing communities that are supported by practice-based research appears to be a promising strategy for enhancing teachers’ professional development across the continuum of initial and in-service education. For this, PETE programmes should encourage collaboration between university teachers and CTs in schools, where both are viewed as experts, facilitators, and critical friends, and should expand this collaboration to include other schoolteachers. To ensure the success of CoPs as learning communities for both PSTs and teachers in practice, these spaces must be decentralised and democratic. This configuration will help members enhance their impact and renew their desire to learn within an environment characterised by a culture of trust, respect, and mutual support. Moreover, PETE programmes need to address students’ diversities as a key topic across all subjects and adopt student-centred methodologies to develop their capacity to question and reflect on the impact of their teaching. This will prepare future teachers to be practitioners–researchers.

This study’s limitations included a lack of control over contextual variables in each school that could have positively or negatively influenced the teaching process.

For future studies, we recommend pursuing this kind of collaboration with schools and expanding the CoP to include other PE schoolteachers to support them in adopting inclusive practices. Adopting longitudinal designs with close collaboration between teachers (from school and university) and preservice teachers in their school placement could consolidate ways of thinking, planning, and teaching based on the necessity of adapting to students' diversities.

Furthermore, involving the entire school in taking responsibility for the educational process of future teachers, not just the CTs, and changing teaching perspectives on inclusion are two factors that future research needs to embrace.

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References

1. UNESCO. *Quality Physical Education Guidelines for Policy-Makers*; UNESCO: Paris, France, 2015.
2. Ainscow, M. Developing inclusive education systems: What are the levers for change? *J. Educ. Chang.* **2005**, *6*, 109–124. [CrossRef]
3. Cast. Universal Design for Learning Guidelines Version 2.2. 2018. Available online: <http://udlguidelines.cast.org> (accessed on 2 March 2024).
4. Batista, P. O potencial formativo e os desafios às práticas de supervisão em comunidades de prática: Reflexão sustentada numa experiência pedagógica em contexto de estágio de Educação Física. In *A Supervisão Pedagógica no Século XXI: Desafios da Profissionalidade Docente*; Ribeiro, A., Barreira, C., Luís, A., Silva, E.R., Eds.; Imprensa da Universidade de Coimbra: Coimbra, Portugal, 2020; pp. 59–77.
5. Korthagen, F.; Loughran, J.; Russell, T. Developing fundamental principles for teacher education programs and practices. *Teach. Educ.* **2006**, *22*, 1020–1041. [CrossRef]
6. MacPhail, A.; Lawson, H. *School Physical Education and Teacher Education*; Routledge: Oxford, UK, 2020.
7. Penney, D.; Jeanes, R.; O'Connor, J.; Alfrey, L. Re-theorising inclusion and reframing inclusive practice in physical education. *Int. J. Incl. Educ.* **2018**, *22*, 1062–1077. [CrossRef]
8. Rouse, M.; Florian, L. *Inclusive Practice Project*; Final Report; University of Aberdeen: Aberdeen, UK, 2012; Available online: https://www.academia.edu/4432038/The_Inclusive_Practice_Project_Final_Report?auto=download (accessed on 18 March 2024).
9. Fisete, J.L. ‘Are you listening?’: Adolescent girls voice how they negotiate self-identified barriers to their success and survival in physical education. *Phys. Educ. Sport Pedagog.* **2013**, *18*, 184–203. [CrossRef]
10. Graça, A. Relação Pedagógica e Experiência dos Alunos no Ensino e Aprendizagem dos Jogos Desportivos. In *5º Congresso Internacional dos Jogos Desportivos*; Lemos, K., Greco, P.J., Eds.; Instituto Casa da Educação Física: 2015; pp. 63–86. Available online: https://www.researchgate.net/publication/285176053_5_CONGRESSO_INTERNACIONAL_DE_JOGOS_DESPORTIVOS (accessed on 14 March 2024).
11. Kirk, D. *Precarity, Critical Pedagogy and Physical Education*; Routledge: Oxford, UK, 2020.
12. Moura, A.; Graça, A.; MacPhail, A.; Batista, P. Aligning the principles of assessment for learning to learning in physical education: A review of literature. *Phys. Educ. Sport Pedagog.* **2021**, *26*, 388–401. [CrossRef]

13. Oliver, K.L.; Luguetti, C.; Aranda, R.; Nuñez Enriquez, O.; Rodriguez, A.-A. 'Where do I go from here?': Learning to become activist teachers through a community of practice. *Phys. Educ. Sport Pedagog.* **2017**, *23*, 150–165. [CrossRef]
14. Wenger, E. *Communities of Practice: Learning, Meaning, and Identity*; Cambridge University Press: Cambridge, UK, 1998. [CrossRef]
15. Rutten, L. Toward a theory of action for practitioner inquiry as professional development in preservice teacher education. *Teach. Teach. Educ.* **2021**, *97*, 103194. [CrossRef]
16. Zeichner, K.; Payne, K.A.; Brayko, K. Democratizing Teacher Education. *J. Teach. Educ.* **2014**, *66*, 122–135. [CrossRef]
17. Oates, C.; Bignell, C. School and university in partnership: A shared enquiry into teachers' collaborative practices. *Prof. Dev. Educ.* **2022**, *48*, 105–119. [CrossRef]
18. Walsh, M.; Backe, S. School-university partnerships: Reflections and opportunities. *Peabody J. Educ.* **2013**, *88*, 594–607. [CrossRef]
19. Nóvoa, A. Devolver a formação de professores aos professores. *Cad. Pesqui. Educ.* **2012**, *18*, 11–22. Available online: https://www.academia.edu/55362155/Devolver_a_forma%C3%A7%C3%A3o_de_professores_aos_professores (accessed on 18 March 2024).
20. UNESCO. *World-Wide Survey of School Physical Education, Final Report 2013*; UNESCO: Paris, France, 2014.
21. Ferreira, J.d.S.; Souza, S.d.; Batista, P.M.F. Desenvolvimento do conhecimento profissional docente no seio de práticas colaborativas: Um estudo no contexto de um programa de formação de professores. *Movimento* **2022**, *28*, e28068.
22. Nóvoa, A. Firmar a posição como professor, afirmar a profissão docente. *Cad. Pesqui.* **2017**, *47*, 1106–1133. [CrossRef]
23. Nóvoa, A. Os Professores e a sua Formação num Tempo de Metamorfose da Escola. *Educ. Real.* **2019**, *44*, e84910. [CrossRef]
24. Batista, P.; Graça, A. Construir a profissão no contexto da formação de professores de educação física: Processos, desafios e dinâmicas entre a escola e a universidade. *Proposições* **2021**, *32*, e20180084. [CrossRef]
25. Comissão Europeia. Grupo de Alto Nível da UE: Formar os Professores Para o Ensino. 2013. Available online: https://ec.europa.eu/commission/presscorner/detail/pt/IP_13_554 (accessed on 13 March 2024).
26. Fletcher, T.; Ni Chróinín, D.; O'Sullivan, M.; Beni, S. Pre-service teachers articulating their learning about meaningful physical education. *Eur. Phys. Educ. Rev.* **2020**, *26*, 885–902. [CrossRef]
27. Wenger, E.; McDermott, R.A.; Snyder, W. *Cultivating Communities of Practice: A Guide to Managing Knowledge*; Harvard Business School Press: Brighton, MA, USA, 2002; Available online: <https://books.google.pt/books?id=m1xZuNq9RygC> (accessed on 14 March 2024).
28. Makopoulou, K.; Armour, K.M. Physical education teachers' career-long professional learning: Getting personal. *Sport Educ. Soc.* **2011**, *16*, 571–591. [CrossRef]
29. Wenger, E. Identity in practice. In *Pedagogy and Practice: Culture and Identities*; Hall, K., Murphy, P., Soler, J., Eds.; The Open University: London, UK, 2008; pp. 105–114.
30. Lu, Y.-L. Experiences in the workplace community and the influence of community experiences on ENP courses for nursing professionals. *Nurse Educ. Today* **2016**, *40*, 39–44. [CrossRef]
31. Parker, M.; Patton, K.; Gonçalves, L.; Luguetti, C.; Lee, O. Learning communities and physical education professional development: A scoping review. *Eur. Phys. Educ. Rev.* **2022**, *28*, 500–518. [CrossRef]
32. Lee, D.; Jung, J.; Shin, S.; Otterbreit-Leftwich, A.; Glazewski, K. A Sociological View on Designing a Sustainable Online Community for K–12 Teachers: A Systematic Review. *Sustainability* **2020**, *12*, 9742. [CrossRef]
33. Armour, K.; Quennerstedt, M.; Chambers, F.; Makopoulou, K. What is 'effective' CPD for contemporary physical education teachers? A Deweyan framework. *Sport Educ. Soc.* **2017**, *22*, 799–811. [CrossRef]
34. Smith, K.; Sela, O. Action research as a bridge between pre-service teacher education and in-service professional development for students and teacher educators. *Eur. J. Teach. Educ.* **2005**, *28*, 293–310. [CrossRef]
35. Ribaeus, K.; Enochsson, A.-B.; Löfdahl Hultman, A. Student teachers' professional development: Early practice and horizontal networks as ways to bridge the theory-practice gap. *J. Early Child. Teach. Educ.* **2022**, *43*, 2–16. [CrossRef]
36. Batista, P. Formar professores para os desafios profissionais futuros: O potencial das comunidades de prática e do prático investigador. *Educ. Soc. Cult.* **2024**, *67*, 1–20. [CrossRef]
37. Davis, J.; Clayton, C.; Broome, J. Thinking like researchers: Action research and its impact on novice teachers' thinking. *Educ. Action Res.* **2018**, *26*, 59–74. [CrossRef]
38. Moura, A.; Graça, A.; MacPhail, A.; Batista, P. Enhancing the enactment of assessment for learning principles during school placement: Preservice teachers as practitioner researchers within a learning community. *Eur. J. Teach. Educ.* **2024**, *47*, 330–347. [CrossRef]
39. Skerrett, A.; Williamson, T. Reconceptualizing professional communities for preservice urban teachers. *Urban Rev.* **2015**, *47*, 579–600. [CrossRef]
40. Priestley, M.; Drew, V. Professional enquiry: An ecological approach to developing teacher agency. In *An Ecosystem for Research-Engaged Schools*; Routledge: Oxford, UK, 2019; pp. 154–169.
41. Cordingley, P. Teachers using evidence: Using what we know about teaching and learning to reconceptualize evidence-based practice. *Evid.-Based Pract. Educ.* **2004**, 77–87. Available online: <http://www.nesse.fr/nesse/activities/research-mapping/research-policy-and-practice/bibliography/cordingley.2726/> (accessed on 12 March 2024).
42. Cochran-Smith, M.; Lytle, S.L. Teacher research as stance. In *The Sage Handbook of Educational Action Research*; Sage: London, UK, 2009; pp. 39–49.
43. Healey, M.; Jenkins, A. *Developing Undergraduate Research and Inquiry*; The Higher Education Academy: Helsington, UK, 2009.

44. Borko, H.; Liston, D.; Whitcomb, J.A. Apples and Fishes: The Debate Over Dispositions in Teacher Education. *J. Teach. Educ.* **2007**, *58*, 359–364. [[CrossRef](#)]
45. Jones, S.-L.; Hall, T.; Procter, R.; Connolly, C.; Fazlagić, J. Conceptualising translational research in schools: A systematic literature review. *Int. J. Educ. Res.* **2022**, *114*, 101998. [[CrossRef](#)]
46. Bacak, J.; Byker, E. Moving from Levels of Inquiry to the Flexible Phases of Inquiry Theory: A Literature Review of Inquiry-Based Teacher Education. *J. Teach. Educ. Educ.* **2021**, *10*, 255–271.
47. Brooks, C. Insights on the field of geography education from a review of master’s level practitioner research. *Int. Res. Geogr. Environ. Educ.* **2018**, *27*, 5–23. [[CrossRef](#)]
48. Brooks, C. Pedagogy and identity in initial teacher education: Developing a ‘professional compass’. *Geography* **2017**, *102*, 44–50. [[CrossRef](#)]
49. Banchi, H.; Bell, R. The many levels of inquiry. *Sci. Child.* **2008**, *46*, 26–29.
50. McConnell, K. Fitness education. In *Standards-Based Physical Education Curriculum Development*; J. B. Publishers Pacific Lutheran University: Burlington, MA, USA, 2010.
51. Miles, M.; Huberman, A.; Saldaña, J. *Qualitative Data Analysis: A Methods Sourcebook and the Coding Manual for Qualitative Researchers*; SAGE: Newcastle upon Tyne, UK, 2014.

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