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Using Collaborative self-study to support professional learning in initial teacher education: developing pedagogy through Meaningful Physical Education

Richard Bowles[a], Tony Sweeney[b] and Maura Coulter [c]

[a]Department of Arts Education and Physical Education, Mary Immaculate College, Limerick, Ireland; [b]Froebel Department of Primary and Early Childhood Education, Maynooth University, Maynooth, Ireland; [c]Institute of Education, Dublin City University, Dublin, Ireland

ABSTRACT

Collaborative self-study provides teacher educators with opportunities to enhance professional learning. This paper explores how three teacher educators used this approach to support their learning while introducing the pedagogy of Meaningful Physical Education (MPE) to pre-service teachers (PSTs). Thematic analysis of reflections, critical friend feedback and online conversations were used to generate three themes: Collaborative Self-study helped us to learn about our practice; learn how to support student learning; and learn how to introduce pedagogical innovation. Collaboration reinforced resolve and sustained change through sharing experiences, content, resources, and outcomes. While the context for this study was PE, we believe the findings are relevant for all initial teacher educators seeking to develop their practice. Further research into collaborative self-study practice of pedagogical innovation across varied curricular areas could enhance teacher and student learning.

Introduction

The provision of worthwhile professional learning opportunities for teacher educators can be problematic (Parker, Patton, and O'Sullivan 2016). Collaborative self-study can provide teacher educators with opportunities to enhance their professional learning, by enabling them to participate in 'authentic conversations' over a sustained period (Gallagher et al. 2011, 885). When these collaborative discussions take place in shared social learning spaces, there is the potential for professional development that is valuable for the teacher educators themselves, and for their students (Wenger-Trayner and Wenger-Trayner 2020). In this regard, the ways through which teacher educators engage in learning communities require further investigation (Parker et al. 2021).

There is a growing body of evidence outlining how teacher educators learn about their practice through collaborative self-study (Fletcher and Bullock 2012; Richards, Andrew, and James 2016). Collaborative self-study has been identified as a valuable

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strategy for teachers looking to 'explore their assumptions, beliefs and actions as they are enacted in practice' (Casey et al. 2018, 56) and has been proposed as a useful methodology through which to examine teacher educators' learning through reflection and critical friendship (O'Dwyer, Bowles, and Ní Chróinín 2019). Self-study requires teachers to describe and analyse their practice, identify the ways their beliefs and pedagogical actions align, make judgements on teaching and learning encounters, interpret their developing pedagogies, and identify enabling and limiting aspects of pedagogical practices (Ovens and Tim 2014). Collaborative self-study highlights the importance of openness and critical honesty within the group (Butler et al. 2004), requires a collective commitment of the participants to their learning and growth (Berry et al. 2018), and contributes to the criteria for rigour in Self-study of Teaching and Teacher Education Practices (S-STTEP) research.

Meaningful Physical Education (MPE) has recently emerged as a framework for quality physical education (Beni, Fletcher, and Ní Chróinín 2016; Chróinín, Déirdre, and O'Sullivan 2017). Building on the work of Kretchmar (2006, 2007), the features of MPE include social interaction, fun, challenge, motor competence, personally relevant learning, and delight (Beni, Fletcher, and Ní Chróinín 2016). Fletcher et al. (2018) inform us that meaningful participation should be a central focus of planning, teaching, and assessment. In this regard, the teacher educators should model pedagogies to support meaningful participation, and these should prompt student inquiry. Consequently, the student experience should involve them as learners, physical activity participants, and as teachers of peers and children.

As three experienced teacher educators working in the field of physical education with primary school pre-service teachers (PSTs) in different Irish universities, we sought to enhance our professional learning by collaborating during one full semester. In our work as teacher educators, we used the five guiding pedagogical principles of MPE, as outlined by Ní Chróinín, Fletcher, and Chróinín et al. (2017):

(1) Meaningful participation should be explicitly prioritised in planning, teaching and assessing Physical Education Teacher Education (PETE) experiences. The potential of particular experiences to foster meaningfulness informed content selection, the design of learning experiences and the articulation of learning outcomes.
(2) Pedagogies that support meaningful participation should be modelled by teacher educators and made a source of inquiry for PSTs.
(3) PSTs should be supported to engage with meaningful participation as a learner and physical activity participant and as a teacher of peers and children.
(4) Learning activities should be framed using Beni, Fletcher, and Ní Chróinín's (2018) and Kretchmar's (2006) features of meaningful school-based physical education: social interaction, 'just right' challenge, motor learning, fun, personally relevant learning, and delight.
(5) PSTs should be supported to reflect on the meaningfulness of physical education experiences.

Specifically, we used collaborative self-study in order to explore how these pedagogical principles of MPE might guide our teaching. Our aim was to prompt our PSTs to reflect on

the meaningfulness of their own experiences and to support them in their future teaching of physical education.

Collaborative self-study

Collaborative self-study is a useful way for teacher educators to engage in self-study research, while at the same time collaborating on aspects of their teaching practices (Martin and Dismuke 2015). In our context, we adopted the collaborative self-study approach (Pithouse, Mitchell, and Weber 2009) to enable us to explore our implementation of MPE approaches in our different teaching situations. Our collaboration was informed by the work of Goodyear and Casey (2015, 201) that advocates 'for inter-professional collaboration with researcher(s) who cross the boundary of their institutions ... to facilitate change and the use of pedagogical models'.

In our specific situation, we had a long-standing professional relationship and friendship within the Irish teacher educator community as members of the Teacher Educator in Primary Physical Education Network (TEPPEN). Richard and Maura had previously participated in an international self-study project to investigate the exploration of the features of MPE in our practice. Tony, who was the sole physical education lecturer at his university, had recently become interested in self-study research through attendance at various conferences and subsequent engagement with the literature. Following informal discussions at one such conference, the three of us agreed to collaborate during the following academic year while we focused on the integration of the MPE approach into our regular teaching practice. Our experiences of having worked together on previous projects were important as they had helped us to develop a comprehensive understanding of each other's contexts, and had supported us to establish supportive personal and professional relationships (Ramirez and Allison 2022). Like Carse et al. (2022), we suggest these previous collaborations had enabled us to develop deeper understandings of our practices, individually and collectively. When collaborative self-study is situated within a supportive environment like this, it scaffolds the researchers to interrogate their own vulnerabilities and guides the risk-taking that is inherent when a pedagogical innovation is being explored (Guðjónsdóttir and Jónsdóttir 2022).

Our interest in MPE stemmed from our individual involvement in previous individual research projects, where we had engaged with some more experienced researchers in the area. In the present project, we sought to learn more about how we might embed the pedagogical principles of MPE in our three different contexts across a 12-week teaching semester. While we had come to understand the features of MPE (the '*what*') (Beni, Fletcher, and Ni Chróinín 2018) during an initial MPE project, we wished to explore the implementation of this approach by focusing on the aforementioned principles (the '*how*' of MPE) (Chróinín, Déirdre, and O'Sullivan 2017). Therefore, we decided to use collaborative self-study as a lens through which to examine our practice. Accordingly, we suggest that our experiences may resonate with teacher educators more broadly, particularly in contexts where educators in different institutions are seeking to work together on pedagogical innovations. In summary, our specific research question was: how did our collaboration support us to integrate a new pedagogical approach into our teacher education practice?

Methodology

Context

As we mentioned at the outset, we are experienced teacher educators in different universities in Ireland. We each work within initial teacher education programmes and teach physical education to undergraduate pre-service teachers. Primary teachers in Ireland are generalist teachers with responsibility for the teaching of eleven different subjects. Consequently, the pre-service teachers in our classes receive instruction in each of these curricular areas, along with foundation studies, and professional placements in schools. They explore a variety of pedagogies within physical education, and across the other subject disciplines. In the context of this study, our classes were with generalist 3rd and 4th year student teachers who already had an awareness of curriculum and pedagogies for the 11 different subject areas on the Irish primary school curriculum through their overall programme of study and school placement experiences. Concepts such as curricular integration, assessment for learning, and differentiation were emphasised both on their teacher education courses and during their school placement experiences. They had also gained insights into areas such as human development, philosophy and psychology, which informs their understanding of the child-centred focus that is central to the Irish primary school curriculum. This enabled them to critically engage and reflect on pedagogy in the physical education context. Typically, all PSTs in Ireland receive approximately 35 hours of core instruction in primary physical education. In addition, the pre-service teachers taught by Richard and Maura had the opportunity to undertake additional (approximately 100 additional hours) elective physical education modules. The modules we were teaching varied in content, including outdoor and adventure activities, games, and fundamental movement skills.

We followed recommended guidelines for self-study research design (LaBoskey 2004): our research was self-initiated and self-focused; we sought to improve our practice; the research was interactive; data were generated from multiple, qualitative sources, and validation of the research is based on trustworthiness. Specifically, we adopted a view of critical friendship framed as co-mentoring (Allison and Ramirez 2020) where there is mutual and collective benefit for collaborators on the same journey. We incorporated interactivity by seeking critical perspectives from each other. Our multiple qualitative data sources included on-line conversations, reflections, responses to reflections, and email communications. Our approach acknowledged the role of S-STTEP researchers to develop chains of inquiry across departments, cultures, and contexts to build a robust knowledge base of teacher education research, contributing to trustworthiness (Zeichner 2007). In addition, our research demonstrated trustworthiness by critically examining our teaching practice, relating our work back to the literature, and ensuring our analysis was transparent (Mena and Russell 2017). Each of us chose to focus on introducing MPE to our students, through our engagement with the pedagogical principles (Fletcher et al. 2018), within one of our pre-existing modules throughout a whole semester.

Data sources

As we planned and taught our respective modules, each of us completed fortnightly reflections online using an agreed reflective template. Each reflection prompted us to respond to prompts such as: what pedagogical principles did or did not work well; the challenges faced, and how they were overcome; impressions of the pedagogical principles; what practice was productive in our module delivery; developing a shared understanding of practice and implications for future teaching of these modules and also for primary physical education in the broader sense.

We agreed to act as critical friends for each other, to read and comment on each other's reflections. In our reporting of the data, this is presented as follows: Tr1 = Tony's first reflection; Maura, Tr1 = Maura commenting on Tony's first reflection. We each responded in relation to what was similar, different, resonated or jarred by asking questions, seeking clarification, making observations and connections and by comparing understandings and/or experiences (Schuck and Russell 2005). Responses were provided within a day or two of the reflection being posted to a shared digital folder. This feedback informed our short-term planning for teaching, as it prompted us to think more deeply about our practice, individually and collectively. These reflections and comments also supported and directed the planning for the subsequent sessions. Online conversations (OC) occurred three times: prior to, during and at the end of the teaching period. Each lasted between 60–90 minutes and consisted of relatively open discussions. Discussions covered topics such as resources used to teach, resources shared with students, what and how we taught, and the benefits of S-STTEP collaboration. We concluded our teaching with an individual meta-reflection (mr) which we also commented on (e.g. Tony, Rmr = Tony commenting on Richard's meta-reflection). The reflections ($n = 17$) and the commentary from the critical friends were a data source for this project, along with the transcribed online conversations ($n = 3$).

Data analysis

Using the framework proposed by Braun and Victoria (2021) a thematic analysis of the data was undertaken by each of us individually and collectively. Firstly, we read and reread our reflections and conversation transcripts to become more familiar with the data. Then, each of us coded the data from these sources inductively, identifying aspects that were of particular relevance to our research focus. These individually coded data were shared in an online folder. The next stage involved discussions of this coding, clarifying the codes we had individually developed, identifying commonalities through the coding and enabling us to merge the codes into agreed candidate themes. An example of this process is where 'planning' appeared in our individual coding: we agreed that this needed to be expanded to include specific references to 'over emphasis on planning content' (code 10) or to acknowledge when planning was referred to positively by 'having [an] impact on the innovation' (code 4) that we were endeavouring to explore. Another discussion took place around language, where we each used words such as 'demonstrating and explaining', 'showing the students' and 'modelling'. We agreed that each of these categories would be merged under (code 5) modelling.

These group discussions prompted further refinement of the candidate themes and enabled us to develop more coherent themes to represent the key concepts that we had identified in the overall dataset (See Table 1). Finally, we elaborated on each theme, and selected specific examples from the data that helped to illustrate each theme.

Table 1. Overview of theme development.

Ref #	Initial Codes (Individual)	Candidate Themes	CSS helped us to . . .
1	Pedagogies and Principles	**Learning about our Practice**	**Learn about our Practice**
2	Guiding Framework for (MPE) QPE	**Learning how to support student learning**	Contribution of critical friends
3	Debrief/discussion/reflection		Over emphasis on content in planning
4	Role of planning	**Understanding the challenges of Innovation**	Pedagogies and Principles
5	Modelling		**Support student Learning**
6	Making Connections		Debrief/discussion/reflection
7	Reflection on prior SP Experience		Modelling
8	Value of Literature as stimulus		Value of Literature as stimulus
			Reflection on prior SP Experience
			Role of AfI
9	Contribution of critical friends		**Embed pedagogical innovation**
10	Over emphasis on content in planning		Guiding Framework for (MPE) QPE
11	Changing professional practice		Role of planning
12	Role of AfI		Making Connections
			Changing professional practice

Findings and discussion

This study has provided us with opportunities to examine our professional learning through collaborative self-study in considerable detail. Our findings are presented through three themes developed during our analysis. The first theme focuses on our exploration of our own practice as we taught using the MPE approach. The second examines how we tried to support our PSTs' engagement with the approach. The third seeks to deepen our understanding of the broader challenges of trying to embed a pedagogical innovation.

Collaborative self-study helped us to learn about our practice

Adopting a collaborative self-study orientation prompted us to look more deeply at our roles as teacher educators generally. Learning for teacher educators has been described as 'messy and complex' (Patton and Parker 2017, 351). Our shared experiences as collaborators enriched our individual teaching strategies and served to motivate us to problematise these 'complex aspects of practice' (Casey et al. 2018, 64). The sense of collegiality developed through our discussions helped to decrease the isolation that is not uncommon in teacher education contexts where educators may work on their own, or in situations that have been described as 'academic silos' (Allison and Samya 2018, 423). As Richard noted 'I like the idea that I'm not working in isolation, and I can share my thoughts and reflections with other teacher educators' (mr). Embedded within this collegial support was a feeling of loyalty to each other as critical friends, motivating us

to engage in the process consistently. In this context, Tony highlighted the 'responsibility to reflect on the other two points of our simultaneous research triangle' (mr) as a key motivator for him. By engaging in regular reflective practice (Brookfield 2017; Schön 1992), we believed that we had improved our practice by examining them more deeply. Maura's comment suggests changed perspectives on her teaching:

> This process is making me question how I do things ... It's not that I don't try to review and update each year and this module has gone through lots of changes, but it's the systematic reflecting and critical friendships that are making it explicit for me. (r2)

Even in the early stages of the project, Robert was motivated to engage in further reading, based on the critical friend comments and he recognised the value of collaboration thus: 'engaging in collaborative self-study is very motivating for me .... I'd like to think that my experiences can help other to deepen their understanding of MPE too' (r2).

Maura responded to Richard's views on collaboration in his meta-reflection agreeing that the experience was a catalyst for change as suggested by Casey et al. (2018): 'The motivation of others and the interdependence of the group ensured that we addressed our practice' (Maura, Rr2).

While we set out to explore MPE, Maura's response highlights how collaborative self-study had, at a more fundamental level, impacted on our general teaching in a noteworthy way: 'I'm more than convinced that although we set out to explore MPE we have come to understand our practice, and tried to improve our practice, through the process of collaborative self-study!' (r4). In this regard, our experiences align with Julie and May Fitzgerald's (2018, 30) assertion that 'self-study focuses on improvement on both the personal and professional levels'. Initially, our self-study orientation supported our reflective practice but crucially, as we proceeded through the semester, it also facilitated our understanding of practice, bringing each of us to focus on improvement.

Importantly, the experiences appear to have been significant for us, as we gained new insights into our teaching practice. In Tony's case, he believed his future practice would be enhanced: 'my perspective has altered significantly, and I will be looking more critically at the What, How and Why of course-planning for all cohorts in September' (r4). In a similar way, Maura suggested we were thinking 'a little bit deeper about what we're doing ... now, I'm really thinking about my teaching' (OC2). This engagement with critical friends provided effective support and challenged our existing physical education teaching and learning practice, throughout this project. Accordingly, collegial affirmation supported the impetus towards initially understanding, and then moving towards improving, one's own professional practice. This supportive environment was subsequently conducive to enabling a clear focus on pedagogical innovation.

Collaborative self-study helped us to support student learning

As we learned about our own teaching, we also began to reflect on how we might support our students' learning about PE generally, and about MPE more specifically. Richard saw value in 'connecting our students' experiences to 'real life' situations ... in order to stimulate debate and critical thinking' (r3). This led Maura to evaluate the ways she was trying to 'integrate [the principles] into your teaching so that the students understand

how to use them in their teaching' (Maura, Rr4). Our discussions enabled us to reflect on, and trial possible solutions. In Richard's case, he tried to scaffold student reflection on MPE by using prompts such as 'Write for 5' where the students wrote freely about their experiences of the lesson, and then engaged in peer discussion. Tony also supported student reflection by using MPE research articles and resources from the *Learning about Meaningful Physical Education* website (www.meaningfulpe.wordpress.com) as the basis for discussion, reporting that this strategy was 'clearly bringing the focus to their pedagogy and practice' (r4). This process was underpinned by a desire to foster their students' independent learning skills. Samaras (2002, 8) has highlighted the value of self-study to help her 'move my students toward formulating their own theories rather than simply parroting mine'. Consequently, our focus shifted from a narrow implementation of MPE, to a broader objective 'to encourage our students to be reflective under the umbrella of MPE, so they think about their own experiences in class, and then they think about their experiences when they go to schools' (Richard, OC2). In that way, our teacher-centred concerns about our own use of the pedagogical principles of MPE early in the semester shifted to a more learner-centred view later, when we became more conscious of the needs of our students. We all agreed that incorporating more opportunities for discussion time with our students enhanced the learning environment – even if that meant reducing the amount of curriculum content covered. This led Richard to wonder:

> Given that our contact time with students is so short, there's always the temptation to 'try to do everything' ... As this semester concludes, I'm inclined to think that 'less is more'. By focusing on a concept like MPE, perhaps there's the potential to give students a deeper (and more meaningful!) experience of PE, particularly for our elective/specialism cohorts? (Richard, Mmr)

While we did not reach definite conclusions, the collaborative process directed our attention to 'learning about teaching' (Loughran and Brubaker 2015, 278) more meaningfully and more consistently.

Many student teachers arrive at our lectures with a limited background in physical education. Therefore, our discussion frequently focused on how best to support their journeys to becoming teachers of PE themselves. We debated how we would attain a balance between the 'what' of PE content and the 'how' relating to pedagogical content knowledge. Our intention to implement the MPE approach caused us to think further about the pedagogical approaches we had been using up to this point. Maura described part of our role involves trying 'to get them [our students] to experience what the children are experiencing ... we're trying to put ourselves into children's shoes, and we're trying to put our students into children's shoes to experience it [MPE]' (OC2). Likewise, Richard wondered 'how do we get them to move beyond content, and value the time spent on "learning how", rather than "learning what"?' (Richard, Tmr). We discussed how content (what) resources are widely available, therefore, we wanted to focus on *how* we used them to support teaching. As our discussions deepened, each of us spoke of how we modelled practice through content delivery, yet we were unsure if our student teachers recognised the reason behind what we were doing. For example, we provided our PSTs with opportunities to reflect on the meaningfulness of their own experiences, and asked how these might inform their teaching in the future. The PSTs commented on how they or children do not realise what they have learned unless they take time to think about it

themselves. The 'why' of our pedagogical approach was becoming central to our teaching, and using the pedagogical principles became a bridge between the why and the how of MPE. We wanted them to be able to teach based on informed decisions rather than by simply copying what they have seen either as children in school, or students in university. This prompted Tony to ask, 'where do you go now with a group? What would you do differently to try to get into the pedagogy more?'(OC1). While we were focused on our actions as teacher educators, we were striving to view the learning situations from the perspectives of our students.

Significantly for us, the limited (but growing) body of existing research on MPE in teacher education settings was important to scaffold these discussions (e.g. Beni, Fletcher, and Ni Chróinín 2018). While these examples suggest a valuable impact on our own practice, we also began to see the value of making links to our students' learning. In Richard's case, he discussed the principles of practitioner self-study specifically with his students, as he hoped this might support them to use self-study to reflect on their own practice experiences in order to deepen their understanding of that practice. Tony adopted a similar approach, noting that the experience had highlighted the need for him to be a role model for his students by sharing his own experiences with them:

> We place a huge emphasis on reflective practice for our students on placement, but I must concede that I hadn't walked the walk in this respect before the self-study and engagement with critical friends this semester. In the future, I will need to bear witness and model the practice we have espoused for our students. (r4)

This sense of uncertainty was echoed by Maura, although she was more confident that the grounding that the students received in their PE classes would support them to become reflective practitioners. Embedding collaborative strategies within her teaching underpinned this: 'I'm finding the discussion so worthwhile and necessary, and if we want students to do it with children, we should surely model it' (Maura, Tr2). Similarly, Tony concluded; 'perhaps I need to look at my specific practice for the second half of the unit. I think modelling appropriate pedagogy might be key to facilitating student consideration of their pedagogy and planning' (r2). We suggest these examples indicate how this collaboration has helped us to trial and evaluate pedagogical strategies that enhanced our teaching practice and scaffolded a more student-centred environment.

Collaborative self-study helped us to embed pedagogical innovation

A central focus of our collaboration was to explore how we incorporated MPE into our teacher education practice. Analysis of the data generated through our collaboration led us to consider how collaborative self-study supported us to embed this specific pedagogical approach within our different contexts. While our teaching is related to physical education, we suggest our experiences may resonate with teacher educators working in other curricular areas too.

Our data suggest that our own learning as well as our learning to teach about this pedagogical innovation was an important outcome of our collaborative self-study. As Maura (OC1) articulated, '(to) improve my practice of using Meaningful PE would be really what I want out of this'. This was a complex issue for us because we were attempting to

learn about the approach ourselves, while at the same time supporting our students to learn about it also. As Maura noted in the same conversation:

> I need to teach them about the features, and they need to know what the features are. And then how to teach them... And then I'm trying to do the same myself. So, it's me teaching them how to teach, but me teaching them [content] knowledge of what it is as well. So, it's like a couple of layers going on there.

This dilemma prompted us to examine our own actions as we sought to introduce the features of MPE, and understand the application of the pedagogical principles.

Perhaps not surprisingly, we encountered some challenges as we tried to integrate MPE into our practice. We also identified some issues with module alignment within the overall programme and module design integrating a new approach with pre-existing module descriptors which were agreed at university level eighteen months prior to teaching. Integrating the MPE approach into our current teaching practice presented each of us with pedagogical challenges. We identified parallels between the pedagogical principles of MPE and teaching approaches that we were already familiar with. This presented us with a dilemma as we compared our existing practice with our initial attempts to teach for meaning explicitly. To explore this dilemma, Richard asked Maura, 'How different/similar are the MPE pedagogical principles to what you would have been doing previously?' (Richard, Mr3). This is mirrored in Maura's comment that 'I'm not sure I've cracked the pedagogical principles, though – I know what they are, but I don't think I have articulated them well enough to the students' (mr). Likewise, Richard described the 'struggle to integrate them fully into my teaching in general' (r4). This level of uncertainty is perhaps understandable in the context of implementing a pedagogical innovation into a pre-existing module.

As we have outlined in the previous section, an important consideration for each of us was how to incorporate meaningful discussion into our classes while at the same time covering a sufficient range of content to enable our students to teach effectively. We were particularly conscious that our time with these student teachers was limited, and we were concerned that we might be neglecting some areas of curriculum content. As the lack of physical education contact time with generalist pre-service teachers is well documented internationally (Tsangaridou and Ermis 2018), we did not wish to further disadvantage our own students. Shulman (1987) first developed the term Pedagogical Content Knowledge (PCK) to connect the 'what' to teach with the 'how' to teach in physical education. Research by Tsangaridou (2002, 31) has illustrated the 'value of understanding pre-service classroom teachers' ways of coming to learn what, why and how to teach PE', while Ayvazo and Ward (2011) also recognised that a strong understanding of the content being taught was an essential component of the teacher expertise. In scaffolding and supporting our student teachers, the pedagogical principles of MPE helped us understand our practice so that we felt they could make informed decisions, though ensuring we allocated time to reflection on the 'why' of what we were doing: 'I'm actually wondering if we actually need to "sacrifice" some content in order to embed positive attitudes/understandings towards QPE [Quality PE] and/or MPE?' (Richard, r3). However, it was difficult for us to 'let go' as highlighted by Richard, 'should we trust that our students will subsequently be able to find appropriate content themselves later?' (r3). By devoting more time to discussion and reflection in our classes we were, as Tony described, beginning the

practice of 'movement away from over-emphasising content towards the valuing of "checking in" with the students' (r4) about their beliefs and experiences. In this regard, our experiences align with those of Ressler and Richards (2017), who also experienced difficulties giving enough time to a detailed exploration of curricular content. Logistical issues around timetabling of modules impinged on Tony's practice. He was pressured by the vagaries of the academic calendar (which is broken up by two periods of practitioner placement in schools) to ensure 'the delivery of specific content in the available time, constricted by teaching hours and the demands of enabling our students to teach particular strands at fixed school placement intervals' (r2). Maura's context was also impinging on her delivery: 'I found I was too rushed with an extremely heavy teaching and SP [school placement] load to give this module the time it deserved' (r2). Tony summarised: 'the crux of the challenge coming through here is – do we sacrifice content and outcomes to ensure MPE is covered' (Tony, Mr2) and felt that ultimately less content was acceptable and ' ... if MPE is causing us to assess our practice, I think it's very worthwhile' (Tony, Mr2).

The second area of challenge related to how we negotiated the requirements of our course and module outlines. This led to discussions on how overall academic procedures within each of our universities constrained our attempts to adopt pedagogical innovations in a contemporaneous manner. While the value of adapting teaching approaches was recognised through the study, institutional rules mandated that module plans were submitted for approval many months in advance of the academic year. Consequently, there was a sense that difficulties in adjusting published modules was a barrier for us in the short-term. We were cognisant that we were incorporating the MPE approach and its pedagogical principles into an already designed course. However, we acknowledge that starting afresh would have allowed us more freedom to plan a module which incorporated the MPE approach. As Maura commented:

> I have reduced some content to allow for engagement and exploration of MPE but as the module is an approved module, as per the module descriptor approved by university marks and standards, I can't veer too much from the path! (Maura, Tr3)

This prompted us to discuss how overall academic procedures within each of our universities were somewhat obstructive to the timely adoption of pedagogical innovations. We agree with Jess and Shirley (2019, 152) where they argue that universities have 'a key role to play as catalysts in creating and developing the context for innovation'. In the context of the stringent institutional approaches to course design and module approval that we must operate within, advanced planning of course changes could be necessary to accommodate the revised emphases more discreetly for module delivery in future years.

We all agreed that embedding time for discussion and reflection with our students should be prioritised following engagement with module tasks and activities even if this meant having to lose curriculum content. Educative experiences that prompt reflection tends to produce more powerful learning (Rodgers 2009). Richard was prompted to consider how students need space to 'help them to reflect on how they would then like to teach. Would they like to replicate or alter the approach of their teachers' (R, Tmr). Furthermore, Maura recalled during one of our discussions how a student had suggested to her that their learning about the pedagogical principles of MPE also related to good

practice in other curricular areas. In that way, the teaching skills acquired during Maura's PE class could 'be incorporated and transferred to many other subjects' (OC2). In our teacher education contexts, this insight from a generalist PST was noteworthy for us, as it indicated linkages across multiple subjects that they teach during their placements.

Harris (2001) identified the challenge of introducing new teaching techniques without losing course content, and time constraints were also featured by Gurung and Schwarz (2011) as a significant issue for pedagogical research. Our experiences of negotiating these tensions within our practice illustrate how the new approach provided us with an overall guiding framework that influenced our pedagogical decision-making. This process of collaboration provided 'a space for us to debrief the challenges of new practices' (Martin and Dismuke 2015, 10) as we discussed the ways we embedded MPE into our teacher education practices.

Conclusion

In this paper, we have described our experiences of integrating a pedagogical innovation into our teaching of primary school pre-service teachers. We have highlighted how we learned about our own practice, explored how we might support the learning of our student teachers, and discussed the challenges we faced. Although our research focused on physical education specifically, we suggest the findings may resonate with teacher educators more broadly. We suspect that our shared challenges introducing a pedagogical innovation in one subject area in a generalist pre-service teacher course of study is not confined to any particular area in that congested space. The pressure to deliver course content knowledge, while balancing pedagogical experience and space for student reflection, is likely to be identifiable across other subjects and teacher education institutions. It is this realisation that engaging in collaborative inquiry and reflection which has supported our individual professional learning in this regard, could be beneficial to others that has encouraged us to share our findings and responses.

Collaborative self-study was a valuable approach for us because of its potential to prompt dialogue, reflection and action. The value of actively modelling this approach to continuous professional development for student teachers who are prompted to view themselves as lifelong learners (Teaching Council 2011) is also significant. Our core findings illustrate how we came to better understand and adjust our teaching approaches as the semester progressed. In that context, the collaborative self-study approach was invaluable as we interrogated our understanding of practice with a view to developing our 'students' knowledge about how to respond to instructional opportunities in order to achieve successful learning" (Askell-Williams, Lawson, and Murray-Harvey 2007, 1). It provided us with opportunities for regular reflection, and the impetus to share and discuss ideas that contributed to our own professional learning (Goodyear, Parker, and Casey 2019). This, we suggest, leads us to a deeper understanding of how we might support our students' engagement with the course content. Berry (2008, 164) suggests collaboration in self-study 'leads to being challenged about taken-for-granted assumptions and helps build knowledge of practice'. Our experiences support this view, as our focus on implementing meaningful pedagogies caused us to think about our general approaches to teaching physical education. This helped

us to develop more empathy for the students we taught, as we began to relate our struggles to learn a new pedagogy with their efforts to develop their teaching skills. As suggested by Loughran (2013), explicit articulation of our pedagogical decisions can help PSTs consider their own future practice.

Working collaboratively with other teacher educators reinforced our resolve and sustained us through changing our practice, providing us with the necessary support and encouragement through sharing experiences, content, resources, and outcomes. In working together as critical friends, we were able to explore how our beliefs and pedagogical practice were consistent or contradictory, and were able to interrogate aspects of our planning, decision making and approaches to maximise the potential of the teaching and learning (Ovens and Fletcher 2014). Importantly, these experiences have motivated us to continue working collaboratively, together and with other colleagues, as means to further our own professional learning.

Disclosure statement

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Notes on contributors

Richard Bowles is a lecturer in the Department of Arts Education & Physical Education within the Faculty of Education at Mary Immaculate College, Limerick. He teaches undergraduate and post-graduate physical education modules that are part of pre-service primary teacher education programmes. His current research interests include the facilitation of meaningful experiences in physical education and youth sport, and the use of self-study methodologies to enhance practice in teaching and coaching contexts.

Tony Sweeney is a lecturer and Bachelor of Education Programme Leader in the Froebel Department of Primary and Early Childhood Education at Maynooth University. His current research interests are focussed on pedagogies in Initial Teacher Education including approaches to Meaningful Physical Education, promoting the Voice of the Child in Primary Physical Education and exploring Social Justice in Teaching Personal and Social Responsibility in Physical Education.

Maura Coulter holds the position of Associate Professor in the field of primary physical education. She is the Associate Dean for Research at the Institute of Education at DCU. Her current research interests include pedagogical approaches to Meaningful Physical Education and Social Justice – Teaching Personal and Social Responsibility (SJ-TPSR) in Physical Education, and she also researches in the area of leadership and professional identity.

ORCID

Maura Coulter http://orcid.org/0000-0001-9406-2349

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