Curriculum Perspectives (2021) 41:201–211
https://doi.org/10.1007/s41297-021-00133-9

RESEARCH ARTICLE

The role of teacher educator professional learning in reconfiguring physical education

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Received: 7 July 2020 / Revised: 7 February 2021 / Accepted: 21 February 2021 / Published online: 11 March 2021
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Abstract
This paper explores a professional learning (PL) journey by author 1 as purposeful action to become a more knowledgeable physical education (PE) teacher educator. Although the context is PE, our paper is applicable to other teacher educators across multiple disciplines, who seek to be reflexive in their professional development. The learning journey examined is the completion of a part-time human movement science graduate certificate. The research questions being the following: (1) How can completing further context-specific PL facilitate engaging innovative practice? (2) What unintended consequences, if any, resulted from completing the PL reported? Our research uses autoethnography with author 1's self-voice provided through diary extracts. These extracts are interpreted with figurational sociology and the extant literature as our academic voice, supported by anonymous formal student satisfaction data from an undergraduate unit, currently taught by both authors. This unit is central to our study, as gaining knowledge to teach it was the main reason for author 1 undertaking the graduate certificate. In answering the first research question, author 1 gained rich insights and connections to his own teaching context through ongoing reflexive opportunities during his study programme. Concerning our second research question, several unintended consequences occurred from author 1 undertaking the study beyond learning new subject matter knowledge. Specifically, a range of new pedagogical and assessment approaches were experienced by author 1 and appropriated into our unit. This self-study documents contextualised PL as an example of how author 1 faced up to 'new times' in his work context.

Keywords Teacher educator · Professional learning · Physical education · Autoethnography

Introduction

The purpose of this paper is to demonstrate using autoethnography how author 1 undertook context-specific professional learning (PL) to become a more knowledgeable pre-service physical education (PE) teacher educator. Specifically, author 1 completed a graduate certificate in human movement science as this PL. He chose to undertake this learning because contemporary PE teaching, which this paper mainly focuses on, requires educators to have wide-ranging subject matter knowledge (Kirk 2014). As a teacher educator and sports sociologist with over 25 years' experience of teaching Health and PE (HPE) and sports coaching in school and tertiary settings, author 1 felt that he lacked knowledge in human movement science for teaching a new undergraduate HPE unit (see Table 1 below). While this unit has HPE in the title, the nature of the Learning Outcomes and delivery time constraints, mean teaching is more oriented towards PE.

Concerning subject matter knowledge, we recognise it as being inter-related with general pedagogical knowledge and contextual knowledge to comprise pedagogical content knowledge (PCK) (Mitchell et al. 2013). Within PE, PCK is important as it requires teachers to understand '… many ways to represent movement for learners' (Mitchell et al. 2013, p. 31). This need for broad teaching and learning is central to this study and informed our research questions: (1) How can completing further context-specific PL facilitate engaging innovative practice? And (2) what unintended consequences, if any, resulted from completing the PL reported?

Despite the need for broad teaching and learning, a main challenge for PE globally is the persistence of a historical and narrow way of teaching PE that Kirk (2010) terms 'physical

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Table 1 Unit overview

Sociocultural perspectives in HPE (de-identified unit title with actual learning outcomes provided below)

1. Examine the sociocultural approach and how it has evolved;
2. Examine the role the sub-disciplines of history, philosophy and sociology, play in shaping and determining contemporary practices in health and physical education;
3. Understand the impact biophysical and behavioural science has had on HPE in schools, in particular through functional human anatomy, biomechanics, principles of exercise physiology, neurology, psychology, human growth and development; and
4. Understand how scientific knowledge can be successfully applied through the sociocultural approach to assist with skill acquisition and the implementation of 'learning through movement' in an inclusive and socially just manner.

education-as-sport-techniques' (p. 31). This phrase describes the development of movement skills and techniques through a wide range of sports and physical activities. As an approach to teaching PE, it has persisted remaining largely unchanged since the 1950s. Students who experience PE in this way are taught repetitive practice in de-contextualised settings and typically do not progress beyond introductory levels of competence (Kirk 2010). This outdated approach along with the marginalisation and poor status of PE in many schools has raised concerns about the relevance of this learning area (Williams and Pill 2019).

However, the unit, common to two HPE undergraduate degrees stipulates that students learn about teaching PE/HPE in the variety of ways suggested by Mitchell et al. (2013). It introduces students to a sociocultural perspective of HPE and why nowadays a multi-disciplinary approach is necessary for teaching our subject. The first delivery of the unit was in 2016 and coincided with the introduction of the Australian Curriculum for Health and Physical Education (AC: HPE) (Australian Curriculum, Assessment and Reporting Authority [ACARA] 2021) in Australian Capital Territory (ACT) schools. Those schools are significant to the context of this study, as they are where most of our students gain employment. Both the unit and the AC: HPE are underpinned by Arnold's (1988) three-dimensional movement curriculum, namely 'in', 'through' and 'about'. This curriculum, or framework, views PE holistically encouraging teachers to use and value a broad range of knowledge to engage both theory and practice.

By 'in' PE, Arnold (1979, p. xii) meant engaging in 'movement activities for their own sakes as a worthwhile part of our social-cultural heritage'. Concerning 'through' PE, Arnold (1979) conveyed the extrinsic value of movement, through which teachers can explicitly and purposefully teach broader socially desirable outcomes. These include leadership, co-operation and teamwork, for example, having wider application beyond PE lessons. Finally, Arnold's (1988) concept of 'about' PE promotes the notion that movement can be studied through multiple theoretical lenses such as those taught in the unit (see Table 1).

Concerning the link between theory and practice, Arnold (1991, p. 72) observed '… knowledge "about" movement, is an important aspect of the physical educator's work, for without it what is said and written about would cease to be rational or informed'.

Also, about the interconnection of theory and practice, Kirk (2014, p. 1) argued that applying multi-discipline evidence-based theory to PE teaching is the 'major task of curriculum study'. Williams and Pill (2019) identified this challenge in their work, finding that HPE teachers used their subjective experiences and personal 'philosophies' to inform their teaching, noting they '… did not use, or refer to, any evidence-based documents in forming their ideas about QPE (quality PE *our emphasis*). Furthermore, they did not mention any recognised pedagogical approaches that they used in teaching QPE' (p. 1193).

In addressing the concerns raised by Kirk (2010, 2014) and in adopting Arnold's (1988) movement ideas, like others before him (Brown 2014; Cameron 2014), author 1 seeks to think, learn and apply post-traditional approaches that move beyond outdated historical ways of delivering PE teacher education (PETE). The desire to learn more about such methods, and how human movement science can be drawn upon for this purpose, was the main reason why author 1 undertook the graduate certificate. Although author 1 lacked human movement science knowledge, PETE programmes, however, have been found to over-emphasise scientific-based learning about the body, through the disciplines of biomechanics, exercise physiology and anatomy (Cliff 2012; Macdonald and Tinning 1995). Privileging scientific knowledge means the body is considered in medico-scientific technocratic terms rather than in more holistic ways cognisant of social domains (Tinning 2004; Maguire 2013). Indeed, Tinning et al. (2001) noted that pre-service teachers '…come to understand the scientific body as a 'natural body' and probably not even contemplate the idea of the body as a 'social body' (also)' (p. 173).

Despite his students perhaps having similar polarised views, in delivering this unit, author 1 nonetheless strives to provide them with 'reality congruent' knowledge, which includes broad social and scientific perspectives about health, sport and physical activity that teaching our subject now demands. Here, we use 'reality congruent' as a figurational sociology term meaning as close to reality as possible (Dunning 1992). Figurational sociology, adopted as our theoretical framework, is introduced later in the paper. While author 1 has made a conscious decision to teach the unit in the way intended using multi-disciplinary knowledge, he is nonetheless cognisant of the challenges PE teacher educators face in 'keeping on top of content'. For example, teacher educators who were exposed to limited pedagogical approaches during their own PETE may have to spend more time learning contemporary methods than those who graduated more recently

(Williams and Pill 2020). Furthermore, the problem of learning PETE-specific PCK can be exacerbated for early-career PE teacher educators who receive little or no support in transitioning from schoolteachers, or who work in isolation with limited opportunities for collaboration (Casey 2014; MacPhail 2014). Faced with these kinds of burdens, PL through graduate study or self-study, individual or collaborative, or a combination of both may provide solutions.

PL in PE/HPE

Given the evolving nature of PE teaching and the requirement for Australian in-service teachers to complete ongoing accredited PL (within the ACT, see for example www.tqi.act.edu.au/professional-learning), teachers are likely to benefit most by engaging in opportunities specific to their needs (Attard 2014). Ongoing PL is also important for PE teachers who are faced with 'new times' typified by more paperwork, increased use of technology, multiple competing priorities including health and sporting outcomes and new expectations for teaching and learning (Ovens and Fletcher 2014; Richards et al. 2013). In responding to these 'new times' there '… is an increasing need for teachers and teacher educators to ensure that practice continues to adapt, evolve, and be coherent with the principles that characterise quality in each setting' (Ovens and Fletcher 2014, p. 4). Nonetheless, from a review of the extant literature, there seems to be a lack of research about PL for PE teacher educators and teacher educators generally. That said, there does appear to be a developing interest in context-specific PL where the *self* is centrally positioned. Such approaches highlight the usefulness of the 'embodied individual-in action' (Ovens and Fletcher 2014, p. 3). For PE professionals, this kind of self-study acts as a 'call to arms' for reflexive practice to inform contemporary ways of knowing and doing (Williams and Pill 2020).

Realising author 1's own PL needs

Author 1's knowledge, skills and research interests provide him with confidence in teaching Learning Outcomes 1 and 2 of the unit and some of Learning Outcome 4. However, the prospect of teaching Learning Outcome 3 left author 1 feeling fearful and anxious, because of his limited human movement science knowledge when the unit was first taught in 2016. Author 1's solution for addressing this shortfall was to ask colleagues from a different faculty for help. While they kindly assisted by presenting two of the lectures, author 1 still had to teach the practical workshop content. The circumstances detailed in the following recollection by author 1 were instrumental in him making the decision to undertake the graduate certificate. Ruminating about the unit in the second year, it was taught:

> 'A workshop that sticks in my mind is the 2017 biomechanics workshop. I recall a great level of discomfort, vulnerability and fear of being 'exposed', in delivering this class. I clearly remember the compromised space in the outside grass area and how aware I was of the poor quality of the lesson as I was presenting it. I felt outside of my comfort zone teaching about a rugby spin pass and the forces involved in performing this movement. In addition to my lack of scientific knowledge, I was aware many of the students could demonstrate the movement better than I could and some probably had more sport and exercise science knowledge than me'.

On the conclusion of the unit, in formal anonymous student feedback, one student remarked:

> 'I found the Rugby tutorial quite boring and confusing' (2017 student satisfaction data).

Author 1 has now taught the unit for five consecutive years, most recently co-teaching it with author 2 in 2020. Author 1's memories of teaching in the first two years, especially the science content, reflect Palmer's (2017, p. 18) observation 'as we try to connect ourselves and our subjects with our students, we make ourselves, as well as our subjects, vulnerable to indifference, judgment, ridicule'. The above student comment about the rugby tutorial being 'boring' is an example of the kind of mockery Palmer (2017) refers to and that many teachers know and fear. As Francis et al. (2018, p. 79) put it 'as teachers, we never know our subject enough, we can never completely know our students, and we hardly know ourselves'. Reflecting on the first and second renditions of teaching this unit, author 1 felt all these insecurities compounded by his limited science knowledge. Author 1's negative and uncomfortable experiences of teaching the unit in the first year, prompted him to undertake the reported graduate certificate at our university. Prior to enrolling, the last time author 1 studied science was as a child almost 40 years ago. Nonetheless, taking on this course was a necessary endeavour as he could not expect his colleagues to 'bale him out' by teaching the science subject matter knowledge indefinitely.

Autoethnography as methodology

Autoethnography is a qualitative method where the researcher positions themselves in the research providing an account of their own lived experience (Church 1995; Richardson 2000; Sparkes 2000). As such, it provides a perspective of an identified issue or issues through the writer's personal accounts (Foster et al. 2006). Researchers who use autoethnography are '… not concerned with an objective truth, but rather with the truth of the experience for them as they experienced it through their body' (Hopper et al. 2008, p. 223). Autoethnography also invites readers to engage with the author's narrative by reflecting upon and comparing their lives with what they read (Smith and Sparkes 2008).

While the use of autoethnography is well established in the study of sport, it has received limited uptake in PETE. However, there have been calls for it to be adopted to help teacher educators learn and apply post-traditional ways of delivering PETE (Cameron 2014). Within the broader scope of self-study, autoethnography can be used to share a research educator's experiences, ideas and knowledge with others (Loughran and Northfield 1998). By sharing knowledge and understanding in this way, autoethnography can help PE teacher educators and teachers alike cope with the challenges of our 'new times' described earlier. An example is where visceral sensations experienced by authors, through recounting their practice, can provide readers with situations with which they can empathise and relate to.

In using autoethnography, we report author 1's lived experience using his *self-voice* and what was true for him in completing the human movement science graduate certificate. The approach of using *self* along with *academic voice* has been utilised previously in self-studies about sport (McMahon and Dinan Thompson 2011) and PE (Williams and Pill 2020). In McMahon and Dinan Thompson (2011), the authors used *self-voice* to explore McMahon's experiences as an elite swimmer and particularly the pressure she felt conforming to regulatory practices enforced by others about her body. These experiences were unpacked using Foucault (1980) and the literature as the authors' *academic voice*.

One of the paper's main findings was that McMahon's experiences were part of broader sociological issues within Australian elite swimming at the time she competed. Concerning Williams and Pill (2020), *self-voice* was similarly used by Williams to document critical incidents in learning how to teach using a Game Sense approach (GSA) (den Duyn 1997). In their study, Williams used a GSA to teach Aboriginal games focused PE unit at a primary school. In interpreting the critical incidents, the authors also used the relevant literature. In addition, to help learn about a GSA as evidence-based pedagogy for his personal teaching context, Williams used Pill as a mentor in planning and reflecting upon the taught lessons. A GSA was '… found to be an effective professional learning opportunity for author 1, while author 2's knowledge about Indigenous perspectives in physical education was extended' (Williams and Pill 2020, p. 176).

An autoethnographic approach was also deemed suitable for answering the research questions because they require a personal perspective, particularly research question 2. Ethics approval for this study (Reference number 1610) was granted by our university. Author 1 completed the graduate certificate by part-time study during 2017 and 2018 while working full-time and concurrently teaching the focus unit. At the time author 1's student, mentioned earlier, commented about the rugby workshop, he had not yet undertaken the biomechanics component of the graduate programme.

Substantiating *self-voice*

Validating *self-voice* is an important aspect of an autoethnographic approach (Slade et al. 2020). Drawing upon McMahon and Dinan Thompson (2011), we used two strategies to provide plausibility, or what Slade et al. (2020, p. 5) described as 'truth of the matter', in author 1's *self-voice*. The first of our strategies was Ellis and Bochner's (2000, p. 752) 'emotional recall' strategy which allowed author 1 to recollect what it was like physically and emotionally in his critical incidents. By using this approach, he was able to transport himself back to being a vulnerable, unconfident and knowledge deficient teacher. Concerning this 'return' to past events, Ellis and Bochner (2000) observed 'if you can revisit the scene emotionally, then you remember other details' (p. 752). The second strategy we adopted is Ellis and Bochner's (2000, p. 751) 'reliability check'. This is where author 1 consulted with significant others, with whom he shared the experiences he writes about, for confirmation of accuracy. In particular, author 1 conferred with students he met on the programme of study and with author 2 who was one of his tutors at the time.

Figurational sociology

We used figurational sociology along with the available literature as our *academic voice* to interpret author 1's critical incidents. We also selected this branch of figurational sociology because several figurational concepts were useful for answering the research questions. Van Krieken (1998) commented there are at least five inter-related concepts within figurational sociology, of which four relate here. Firstly, while all humans participate in deliberate action, the outcomes of this endeavour are often unplanned and unintended (Elias 2009). An example of such outcomes in our own work as pre-service teacher educators is where we see our students make unexpected connections in their assignment responses. Specifically, making linkages to other units we never anticipated or required and in so doing demonstrating deeper knowledge and understanding.

Secondly, according to Van Krieken (1998), people need to be studied within the context of the interdependencies they form and experience with each other. These invisible bonds, characterised by continually changing social power differentials, can be framed using the term figuration as 'a structure of mutually oriented and dependent people' (Elias 1978, p. 261). The figuration examined here encompassed author 1, some of the people and processes he encountered during his qualification and his 2017 and 2018 students who undertook the sociocultural unit. Each of the tutors and students within this figuration was commonly oriented through engaging in the taught units and were also mutually dependent upon each other. The students, including author 1, were dependent upon their tutors for providing appropriate information and support and the tutors were ultimately dependent on the students completing their units.

The kind of duality of existence suggested facilitates a development of habitus, meaning '… the web of social relations in which the individual lives during his most impressionable phase, during childhood and youth, which imprints itself upon his unfolding personality…' (Elias 1998, p. 62). Within this study, we specifically drew upon individual habitus, meaning a person's 'personality structure' (Goudsblom and Mennell 1998, p. 61) to explain author 1's ideas, values and beliefs described through his *self-voice*. While much of individual habitus tends to occur during the formative years, it is a process that occurs throughout life (Goudsblom and Mennell 1998). Thirdly contends Van Krieken (1998), people can only be understood as having dynamic as opposed to fixed relations with each other. Importantly, in all figurations, these human connections continually change over time in common with the structure of figurations themselves (Elias 2009). Finally, Van Krieken (1998) argues, long-term social processes must be considered, allowing human behaviour in the present to be understood through an examination of the past. In summary, figurational sociology emphasises process and relationships and as Dunning and Hughes (2013, p. 50) note, it is 'radically processual and radically relational in character; that is, it is processual and relational at its roots or core'.

Data sources

The following were used as data sources: a reflective diary that recorded author 1's experiences of completing the graduate certificate, which comprised four units of study and also student unit satisfaction data from 2017 (58 students) to 2018 (52 students) for the taught unit. By drawing upon both data sources, we have sought to give support to author 1's 'truth of the matter' (Slade et al. 2020, p. 5). The student satisfaction data was also used to provide some indication of how teaching and learning has improved from author 1 completing his course of study.

Results and discussion

Self-voice

Author 1's reflection diary entry February 2017 (week 1)

> First unit of study: General anatomy and physiology unit
>
> Sitting in this lecture it strikes me how many people attend compared to my own teaching. There must be more than 200 people (mostly undergraduate students with a few graduate students like myself)! I am aware of being much older as a mature student and how humble I feel sitting beside someone who I taught PE to as his high school teacher a few years earlier. I feel a sense of isolation too, aware that many people seem to sit in friendship groups. In addition to being older I don't feel connected because I am a part-time student and a staff member albeit from a different Faculty. I am also anxious about giving up time to be at this lecture because this semester I am convening and teaching three units myself and I am feeling under huge time pressure. One unit for the first time and the other for the second time (the latter being the unit central to this study). As the lecture progresses, I am struck by how polished the presentation and organisation are and how none of my own teaching ever seems to be like that.

Academic voice

Mature-age students have been found to experience isolation and a lack of belonging in commencing courses of study in tertiary education (Mallman and Lee 2016; Yorke 1999). Mallman and Lee (2016) also observed that mature-age students as a minority group can experience stigmatisation by younger independent learners as an established group. From a figurational perspective, such stigmatising behaviour is only possible because established groups enjoy a surplus of social power (Elias and Scotson 1994). Mature male university students, like author 1, often feel self-conscious about their age (Mallman and Lee 2016). Despite having a Doctorate degree, author 1 felt some age discrimination, especially in the laboratories. This was because small group work occurred in this environment, with graduate students learning alongside the undergraduate students. In terms of enrolments, the latter significantly outweighed the former, with there being typically only two or three graduate students in each workshop comprising up to 30 students. Furthermore, within the lectures, there were sometimes in excess of 200 students of which less than five percent were graduate students.

The combining of graduate and undergraduate students was because the course was structured in such a way that both cohorts undertook the same taught content. However, each group was assessed differently with a higher standard of learning expected from the graduate students and a greater amount of assessment. Consequently, author 1's peers were predominantly younger in age and were already in established groups from undertaking previous units. Therefore, he often felt on the 'outside' and likened those experiences to captains picking football teams when he was a child in PE. Usually, author 1, was chosen last because he has always been poor at football.

As a way of compensating for their lack of acceptance by younger students, Donaldson and Graham (1999) remarked that mature students tended to become more involved in their existing social networks outside of the university. Another reason for mature students engaging in these alternative figurations is their inability to join university groups through other commitments such as work or family responsibilities. In author 1's situation, he was able to quickly fit back into his professional networks and academic status at the end of his classes, after a short walk back to his office. Author 1's observation about the presentation and organisation of the lectures was something he noticed throughout the unit and an unplanned outcome (Elias 2009) of this awareness was an improvement of these areas in his own practice.

Self-voice

Author 1's reflection diary entry April 2017 (week 10)

First unit of study: General anatomy and physiology unit

> Sitting in the lecture today and feeling a bit stressed after a busy weekend decorating, marking and preparing my own online lectures for the long Easter Weekend. Laboratory exam tomorrow! I am being strategic and aiming for a straight pass after emailing the unit convener about what marks I need. I am aware too of the 'learning strategy' I have developed over time in the lectures. This is to listen and understand for as long as I can and not panic when I ultimately get 'left behind'. I reassure myself that I will listen to the lecture recordings again in my own time. Reflecting over the past few weeks of study I do feel privileged to be learning something that is so new and different to anything I have undertaken before. In many ways the human science I am learning here, is the 'missing part' of what I have studied in my career to date. I have noticed the clear structure of the lectures with learning outcomes at the beginning of each presentation. I will adapt this approach in my own teaching. Other examples I will include in my own teaching are YouTube clips of 'top tips' for passing from former students and Master Laboratory videos embedded in the actual lecture content. So, in addition to learning the subject matter knowledge I had anticipated, I am learning new ways to teach and assess students. In terms of learning new subject matter knowledge in this unit, while it was very challenging and interesting it lacked application for my own teaching.

Academic voice

Author 1's opening remark about feeling stressed in what was his first unit is consistent with what many mature students feel in commencing university study (Stone 2008). In addition, the comment about the busyness of his life correlates with greater time management pressures mature students commonly experience compared with their younger peers (Pearce 2017). Author 1's mention of developing strategies for success and not panicking reflects effective learning approaches mature adults adopt (Devlin 1996; Pearce 2017). The enthusiasm for learning he notes, and a sense perhaps that he had not previously been drawn to studying human science, illustrates his individual habitus (Elias 2009) altering through learning in this first unit. These changes are examples of processes that allow '… adults to be actively engaged in their own learning by making it personally relevant and connected to their past experiences' (Van Rjijn et al. 2016, p. 31)

Noticing teaching approaches, such as using YouTube clips and explicit learning outcomes Author 1 could appropriate into his own teaching, are further examples of unplanned outcomes (Elias 2009). They are unplanned, because author 1's initial motivation for this further qualification was to increase his subject matter knowledge in teaching the unit discussed. In other words, author 1 was also able to learn useful general pedagogical knowledge through learning in this unit. The inclusion of explicit learning outcomes in his own teaching was commented on and noted by two of his students in the 2018 anonymous student feedback: 'The learning outcomes are clearly set' and 'this is helped by having the learning outcomes for every lesson as that is what I am basing my study notes off'. By further developing his broader PCK competencies, author 1 has been able to increase the number of ways he represents the movement to his students (Mitchell et al. 2013).

Self-voice

Author 1's reflection diary entry August 2017 (week 1)

Second unit of study: Systemic anatomy and physiology unit

> This unit began with homeostasis which was almost identical to what was covered in Week 1 of my first unit. Assessment approaches were explained, again in a similar structure to the first unit. All of this gives me some reassurance that I can pass this unit too. Within the lecture slides there are review questions under the title: 'Make sure that you can answer the following questions:' I am thinking that this could be a good approach to include in my own teaching, to offer guidance to my students about what they need to cover to pass. Overall, I am feeling very confident going into this unit, as it seems to adopt a very similar approach to the first unit and is not so much of a shock as that was! Also, I spoke to the unit convener who reassured me that when people have completed the first of these units the second unit is easier. All that said, I just scraped a pass in the first unit, so I am only cautiously confident.

Academic voice

Author 1's growing confidence over time is an example of a long-term process (Dunning and Hughes 2013) reflected in the literature about mature students. It is reported that self-belief is increased through early assignment feedback, learning in small groups, role plays and tutors breaking down assessment tasks into achievable chunks (Heagney and Benson 2017). As an experienced educator, author 1 had used many of the approaches he observed before. However, he had not realised their full impact or taken the opportunity to reflect on the value of their use beyond quantifying learning. In other words, author 1's general pedagogical knowledge was again enhanced through a greater appreciation of how these approaches can be important in his own context.

The familiarity of assessment approaches in the second unit and increased confidence from passing the first unit is consistent with Chapman (2017) who remarked about the role of assessment in raising student self-confidence, in particular, how assessment grades can help mature students feel a sense of belonging, competence and a reduction in what she terms 'imposter syndrome'. Interestingly, passing assignments also seems to motivate author 1's students, for example, from an anonymous student feedback in 2017, 'using yesterday's results as motivation for my second essay'. Author 1 also recognised connection and relevance to his own teaching, through review questions to explicitly guide assessment-focused student learning. Again, this is an example of enhancement of general pedagogical knowledge as an unplanned outcome (Elias 2009) from author 1 engaging in this graduate study. Furthermore, he has since incorporated this approach in the sociocultural unit and in other units he teaches.

The reassurance author 1 felt in talking to his unit convener is an example of human interdependence noted by Van Krieken (1998). Here, the unit convener requires students to pass in order to meet their employment expectations, while the students need to successfully complete the unit to progress their studies. Therefore, the unit convener's reassurance helped both her own needs and those of author 1. In addition, through his conversation with the unit convener, author 1 came to view this individual as a mentor, a relationship recommended by Chapman (2017) as a successful support strategy for mature students.

Self-voice

Author 1's reflection diary entry February 2018 (week 1)
Third unit of study: Biomechanics unit

> I am excited about this unit! Looking through the unit outline I can see there is potentially more application to my own teaching than the previous two units. Now at the half-way point of the course, I am feeling more like I belong and recognise other students, some of whom I now speak to. That said, as my mind drifts back to the present, I am aware that there are some very confident, seemingly knowledgeable young people, who are quick and keen to answer the lecturer's questions. For a moment I am starting to question my confidence. Now my mind briefly returns to the late 1970s and my high school physics class. While I found the subject hard, I did well in it. Although a very long time ago, I remember that we covered forces, acceleration, speed, vectors, velocity and so on – topics that the lecturer comments we will cover in this unit. As I come back to the present, I feel my confidence restored. Also, as the lecture progresses, I am relating to the content which is about sprinting, instantaneous velocity, kinematics and kinetics. By the end of the 50 minutes, I can see how I can use a lot of what was covered in my own teaching.

Academic voice

In this *self-voice*, from the beginning of author 1's third unit, there is a suggestion the learning he was about to undertake will be relevant to his own context through linkages to his past experiences (Van Rjijn et al. 2016). The reference to author 1's school years, more than 40 years ago, situates his own learning as a long-term process through connections with what he is learning in the present to what he learned in the past (Dunning and Hughes 2013). This unit fits more than the previous two units with his individual habitus (Elias 2009), as physics was something author 1 excelled in as a high school student. Also, as biomechanics is content author 1 is required to teach in the examined unit, it is particularly relevant, further stimulating his interest and engagement (Swain and Hammond 2011). While some of author 1's thoughts briefly focused on a dispositional barrier (Cross 1981), of not being as competent as his younger peers, overall, his feelings were positive about this unit, especially as he could see the application to his own teaching.

Self-voice

Author 1's reflection diary entry February 2018 (week 3)
Third unit of study: Biomechanics unit

> Today the lesson focus is projectile motion. I am enjoying this topic because I can again see clear connection and relevance to my own teaching (specifically Learning Outcome 3). We are learning about throw like movements, height of release, angle of release, projection velocity and parabolic flight. I am starting to think how this knowledge could be used in teaching athletics

> throws. I can see how it can complement the pedagogy, content and safety knowledge I currently use for teaching discus, javelin and shot put. I also recognise the practical application of the phase analysis we are being introduced to, which is consistent with approaches I already apply. The way that quizzes will be used as unit assessment was clearly explained, which I find reassuring, making me feel more confident about what is ahead concerning assessment and the remaining unit content.

Academic voice

The connections author 1 mentions to his existing experiences, knowledge and teaching relate to his individual habitus (Elias 2009). Of note is that these linkages are stronger, through the applied nature of the Biomechanics unit, compared to the previous two general anatomy and physiology units. The clear linkages to author 1's work, reflect the kind of context-specific benefits reported by Swain and Hammond (2011) in their study of part-time higher education mature-aged students. Also, of note is author 1's continuing growth in self-confidence. Indeed, from February 2019, author 1 had the self-assurance to implement qualitative movement analysis (Knudson 2009), learned in this biomechanics unit, to address Learning Outcome 3 of the unit explored here. How author 1 has applied this knowledge, through video performance analysis of athletics throws, is an example of the kind of subject matter knowledge he had hoped to gain, in addition to utilising Arnold's (1988) idea of 'about' PE. In using this knowledge in his teaching, author 1 invites his pre-service teachers to use the peer teaching model of instruction (Metzler 2011) along with modified equipment to facilitate the movement analysis. Modified equipment is used to ensure the workshop environment remains safe while facilitating this instructional model. Author 1's students now learn to analyse their own throwing techniques and that of their peers using human movement science, to move their knowledge beyond teaching athletics as 'physical education-as-sport-techniques' (Kirk 2010).

Self-voice

Author 1's reflection diary entry August 2018 (week 1)

Fourth unit of study: Psychology unit

> Onto my final unit!!! Feeling great that the end is in sight, my confidence is rising, and I am on track to complete the course. Purposefully I have left this unit to last, as I feel psychology is not too far removed from my own area, sociology of PE and sport. Also, having a very sporty daughter, like the biomechanics unit, I am interested in how I might learn information I can use in my life outside of work. The lecturer has explained the assessment items and one of the main tasks, a research proposal, is quite appealing given my background as a researcher. I am also pleased that online quizzes will be used for assessment. I experienced these in the biomechanics unit and have become quite used to them, somewhat enjoying the pressure situation of doing these within a twenty-minute timeframe. I like how they give a sense of progress because marks are provided immediately on completion. Through experiencing how well they work from a student's perspective and how hard it would be to cheat within the timeframe, I am thinking I will use them in my own teaching to replace final exams. Many of my students in their anonymous feedback have commented that they do not like exams, criticising them for being a poor and pressured way to measure learning.

Academic voice

Author 1's developing self-belief is consistent with Christie et al. (2018) who observed that university graduates experience growing confidence as they progress through their studies. As a social science, psychology also fits more closely to author 1's individual habitus (Elias 2009) and identity as a sociologist than the science subject matter knowledge learned in the previous three units. Similarly, the research proposal assessment task aligns with author 1's habitus, as writing research proposals is a significant part of his academic researcher role. The connection with his daughter's sport is an example of how the learning is relevant to his own life (Van Rijjn et al. 2016). The linkages to his individual habitus and life outside of university meant author 1 was more engaged in this unit, especially when he simultaneously experienced high levels of confidence.

In terms of explicit application to the sociocultural unit examined here, author 1 learned about self-determination theory (SDT) (Deci and Ryan 1985) which he now teaches to his students as a motivational theory in again addressing Learning Outcome 3. This is another example of the kind of subject matter knowledge that author 1 hoped to gain from his course. Furthermore, we believe this theory is useful for teachers as an evidence-based way to teach children about persisting with movement challenges. Such perseverance is required in different stages of learning within the AC: HPE and the use of SDT is again an example of Arnold's (1988) idea of 'about' PE. Finally, an unplanned outcome of learning about SDT was a research project, a paper from which is currently in review, involving author 1 about using SDT in primary school PE.

Conclusion

In answering research question 1. How can completing further context specific PL facilitate engaging innovative practice? Through being taught four units with different tutors over two years as a long-term process (Dunning and Hughes 2013) of learning, author 1 was able to immerse himself in extended PL. By becoming part of a wider figuration within his university, author 1 was able to situate himself in a broader, alternative and rich teaching environment compared to that he experiences in his PETE role. By being immersed in this teaching and learning context over a long period of time, author 1 was able to extend his interdependency ties to teaching colleagues outside of his faculty, enabling him to significantly develop his PCK competencies, specifically, subject matter knowledge, general pedagogical knowledge and contextual knowledge. Collectively, this knowledge was contemporary and fit for purpose and with some adaptation was able to be applied to author 1's context. Importantly, author 1's learning has enabled him to embrace broader understandings and representations of PE and movement, particularly Arnold's (1988) 'about' PE.

Concerning research 2: What unintended consequences, if any, resulted from completing the PL reported?, there were several unplanned outcomes relating to PCK and assessment approaches that author 1 attained from engaging in his course of study. These included new ideas about representing and organising lecture material; using YouTube clips as visual learning aids; weekly learning outcomes; incorporating review questions to explicitly guide assessment-focused student learning; and ongoing quizzes to replace final exams. Author 1 was also able to benchmark himself against his teaching colleagues in another faculty, through being presented with a range of approaches they used as experienced educators.

Furthermore, by being uniquely situated as a vulnerable learner, predominantly with undergraduate students, author 1 was able to gain insights into what it was like to be a student again. Indeed, it was the first time he had been a student on a taught course since becoming a teacher educator. This positioning enabled author 1 to have a recent visceral lived experience of what it is like being that kind of student again. He was able to encounter first-hand the nature of the pressure his students are often under to learn and demonstrate understanding. Indeed, the kinds of constraints that author 1 experienced are probably given scant acknowledgment by university educators. As we continually struggle to keep 'on top' of our teaching subject matter knowledge, while meeting the demands of working in tertiary education, there seems to be little time to consider how our students feel and the reality of their world.

Regarding the primary reason why author 1 engaged in his course of study, to learn new subject matter knowledge about human movement science, it seems he has been successful according to student satisfaction levels. In the 2018 anonymous student feedback, in response to the statement 'Overall I am satisfied with the quality of this unit', students replied either 'agree' or 'strongly agree', with responses for both ratings above the university average. Furthermore, there were no 'disagree' or 'strongly disagree' ratings by this student cohort. These positive responses provide to a greater or lesser extent, an indication of the success of introducing subject matter knowledge learned in the graduate certificate. More recently, an unplanned outcome of completing the graduate certificate was author 2 joining author 1 to teach the 2020 rendition of the unit. This resulted from author 1 meeting author 2 as one of his tutors in the graduate certificate thereby extending his chains of interdependencies (Van Krieken 1998). As author 2 is an experienced adult educator and human movement science academic, he brings deep subject knowledge to the current delivery of the unit.

This study demonstrated how teacher educators can undertake graduate study as a context-specific form of PL that brings additional unplanned outcomes or benefits. As we have shown, these unplanned outcomes can be diverse and just as useful as purposeful intentions for embarking on further study. While this research is specific to a PE context, it may nonetheless be relevant for other educators, if presented with the kinds of challenges described, or who find themselves teaching unfamiliar content outside of their own area of expertise.

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