

Pre-service teacher perspectives of case-based learning in physical education teacher education

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Abstract:

Case-based learning (CBL) is a constructivist pedagogy in which students read hypothetical accounts of real world situations and consider how they would respond if facing similar challenges. In physical education teacher education, research has shown that CBL has the potential to promote critical thinking, contribute to students' cognitive growth and affect students' value orientations. The purpose of this study was to examine pre-service teachers' (PSTs') impressions of and experiences with CBL. Occupational socialization theory and the shared inquiry cycle guided the use of case studies. Nineteen PSTs (6 female, 13 male) enrolled in a third-year seminar course at a large American university took part in this investigation. The PSTs read and responded to 10 unique case studies and engaged in reflection and group discussions. Data were collected from interviews, course documents and non-participant observations. Qualitative analysis revealed that the PSTs demonstrated cognitive growth as evidenced by their consideration of multiple sources of knowledge, engagement with the CBL and focusing on future teaching situations. The findings of this research suggest that CBL may provide a method for instructors to introduce new ideas and allow PSTs to consider them along with their own pre-conceived notions.

Keywords: Shared inquiry | teacher socialization | teaching methods | case studies

Article:

Introduction

A substantial body of knowledge exists related to methods of teaching in physical education. This knowledge is grounded in psychological, sociological, behavioural and educational research that has led to the development of theories related to the way children learn and develop, appropriate uses of assessment, various teaching models and classroom discipline, among other things. Although a broad range of pedagogical strategies are employed in physical education teacher education (PETE), many teacher preparation programmes in the United States often attempt to relay this information to pre-service teachers (PSTs) through direct instruction in the form of lecture (Brouwer and Korthagen, 2005). This “has led to a conception of teacher education as a system in which experts, preferably working within universities, teach this

knowledge to prospective teachers” and attempt to elicit transfer through field-based experiences (Korthagen and Keessels, 1999: 4). As a result, teacher education programmes may limit opportunities for students to exercise a sense of agency in the teacher training process, thus limiting the dialectical exchange of ideas between teacher educators and PSTs (Richards et al., 2014; Rovegno and Dolly, 2006).

While teacher education programmes have primarily focused on the dissemination of knowledge through what Schön (1987) critically referred to as the “technical-rational model of instruction”, research has indicated that such an approach has a limited impact on recruits in both general education (Brouwer and Korthagen, 2005; Korthagen and Keessels, 1999) and physical education (Curtner-Smith, 1999; Stran and Curtner-Smith, 2009). This has led several scholars to question traditional teacher education curricula in favour of approaches that prioritize the perspectives and experiences of PSTs (e.g., Lundeberg and Levin, 2003; Richards et al., 2013). For example, Richardson (2003) suggested that PST education should be structured in ways that integrate procedural knowledge with practical knowledge. One suggestion is to move away from a technical-functionalist approach towards methods founded in constructivist theories of learning (Rovegno and Dolly, 2006; Tatto, 1998). Occupational socialization theory (OST) represents one theoretical perspective that has been used to understand the way in which individuals’ biographies, including teacher education experiences, shape their “perceptions and actions as teacher educators and teachers” (Lawson, 1986: 107), and was adopted as a theoretical framework to guide this study.

Occupational socialization theory

OST (Lawson, 1983a, 1983b) is a dialectical perspective on socialization, which “seeks to understand the processes whereby the individual becomes a participating member of the society of teachers” (Zeichner and Gore, 1990: 329). While classical socialization theory viewed individuals as passive bystanders in the socialization process (e.g., Merton et al., 1957), OST recognizes that individuals have the agency to both overtly and covertly challenge the influence of socializing agents with whom they interact (Stran and Curtner-Smith, 2009). The process is dialectical in that it results in “a contest of social thesis against individual antithesis” in which both the individual and socializing agents are changed (Schempp and Graber, 1992: 331). OST conceptualizes socialization along a time-oriented continuum represented by acculturation, professional socialization and organizational socialization. Given the focus of this study, our review will focus on acculturation and professional socialization. Organizational socialization, which relates to ongoing socialization that takes place in the context of schools and workplaces (Zeichner and Gore, 1990), is less germane to this study. More extensive reviews of OST are available in the literature (e.g., Pike and Fletcher, 2014; Richards et al., 2014; Stroot and Ko, 2006), but the focus of this study requires a more extensive discussion of the professional socialization phase of OST.

Acculturation begins at birth and continues until the time when an individual makes the decision to seek formal training to become a physical education teacher (Lawson, 1983b; Pike and Fletcher, 2014). Students engage in an apprenticeship of observation (Lortie, 1975) through which they spend upwards of 13,000 hours in schools observing and interacting with teachers, coaches, counsellors, parents and other important socializing agents. Interacting with these socializing agents influences students’ perspectives on what it means to be a physical educator and leads to the formation of subjective theories (Richards et al., 2014). Subjective theories are

“complex cognitive structures that are highly individual, relatively stable, and relatively enduring, and that fulfil the task of explaining and predicting such human phenomena as action, reaction, thinking, emotion and perception” (Grotjahn, 1991: 188). Since subjective theories are relatively well established prior to recruits’ entering pre-service training programmes (Green, 2002), they are based largely on experiences during their K-12 education. They therefore tend to replicate traditional forms of pedagogy that are common in school contexts and can be barriers to the adoption of innovative practices emphasized during PETE (Curtner-Smith et al., 2008).

Professional socialization refers to formalized teacher training, which typically takes place in a college or university setting (Stroot and Ko, 2006). The purpose of professional socialization is to prepare PSTs with the knowledge, skills and dispositions required to effectively assume the role of physical education teacher in a school context. However, research has consistently documented that teacher education is relatively ineffective in reshaping PSTs’ views of teaching and learning that were formed prior to their entry into a teacher education programme (Richards et al., 2013; Richardson, 2003; Stran and Curtner-Smith, 2009). When confronted with practices that do not align with their subjective filters, recruits may exercise their sense of agency by covertly resisting or strategically complying with the messages of PETE in order to appease teacher educators while their core beliefs remain relatively unchanged (Stran and Curtner-Smith, 2009). Graber (1991) noted this behaviour in students and referred to it as studentship. A key challenge of PETE is finding ways to challenge students to re-conceptualize their subjective filters to better align with best practices in the field of physical education (Green, 2002; Richards et al., 2013). When PETE is able to elicit this shift in perspectives, students are more likely to adopt strategies learned during PETE in their future teaching, thus breaking the cycle of reliance on traditional methodologies (Curtner-Smith, 2009).

Field-based experiences in which PSTs interact with children and teachers in the context of schools are a foundational component of effective PETE (Sofa and Curtner-Smith, 2005; Stran and Curtner-Smith, 2009). These experiences seem to provide the best opportunities to generate changes in PSTs’ subjective filters (Richardson, 2003; Templin and Richards, 2014). To maximize the effectiveness of a field-based approach to PETE, some teacher educators have recommended supplementing field-based learning experiences with curricular strategies derived from constructivist theories of learning (Rovegno and Dolly, 2006). Such strategies embrace the dialectical nature of the socialization process and seek to help PSTs challenge and critique their own subjective theories. These perspectives, thus, recognize that PSTs’ backgrounds and acculturation experiences influence their approaches and receptivity to PETE. They also give students a voice in their own education and allow them to exercise their sense of agency as aspiring teachers (Wright and Greiner, 2009). Teacher educators can “position themselves as partners in working with students to develop the knowledge, skills, and dispositions needed to teach effectively” (Richards et al., 2013: 450). While a wide variety of constructivist pedagogies are available to teacher educators, including strategies such as problem-based learning or action research (Lundeberg and Levin, 2003), the current investigation sought to understand PSTs’ experiences with and perspectives of case-based learning (CBL). CBL was selected as the focus of this study because research suggests that it can promote the type of reflective thought that leads to changes in PSTs’ beliefs about teaching in ways that may not occur in a more traditional instructional format (Lundeberg and Levin, 2003; Richardson, 2003).

Case-based learning in education

Case studies are “richly detailed, contextualized, narrative accounts” that present situations or challenges that individuals could potentially encounter in the real world (Levin, 1995: 63). They are intended to promote vicarious learning by asking readers to take the perspective of characters in the case and consider how they would respond if faced with similar challenges (Collier and O’Sullivan, 1997). CBL originated in the fields of medicine and law, and has been incorporated in teacher education programmes in an effort to help PSTs think about complex issues in schools, such as multiculturalism, class management and disability awareness (Beck, 2007). Typically, CBL includes reading or reviewing a narrative followed by discussion in which students actively engage in problem-solving that is guided by the instructor (Goeke, 2008).

CBL also recognizes the importance of students’ subjective theories and prior learning experiences in the acquisition of new knowledge (Stake, 2000). The pedagogical strategy forms a bridge between students’ prior experiences, the theory presented in methods courses and real life situations students may encounter in schools (Boyce, 1996). Further, “cases present concepts and actions within a context, thus reflecting the constructivist emphasis on deep, well-connected knowledge that learners can flexibly apply” (Rovegno and Dolly, 2006: 257). Due to the vicarious nature of CBL, students are able to learn through the actions of the characters without facing negative repercussions of making mistakes in the real world (Veal and Taylor, 1995).

Given the student-centred nature of the CBL, it is important to consider the students’ perceptions of and experiences with the teaching strategy. Kleinfeld (1992) noted that students in her study expressed favourable attitudes towards case study lessons, but found no difference when comparing student attitudes related to the case study and other teaching methods. Similarly, all students in Beck’s (2007) study considered case studies to be either helpful or very helpful while experiencing the course. Carlson and Schodt (1995) applied CBL to an economic theory course and found that students were “unequivocal in their perception that the cases contributed to their learning” (p.21). Finally, Collier and O’Sullivan’s (1997) review of case study research concluded that “all of the studies produced favourable reactions about the case method from the participants and instructors” (p.205).

Case studies in physical education teacher education

Collier and O’Sullivan (1997) noted a long history of CBL in PETE that most often presents classroom dilemmas with a supplementary question guide. Stroot’s (2000) text offers a compilation of cases focused on physical education teaching and learning. A similar case study text has been published with specific attention to adapted physical education (Hodge et al., 2003). Armour’s (2014) recent book provides a compendium of pedagogical cases that ask the reader to consider how they would teach students with a specific set of (dis)abilities. Other physical education case studies have been published in outlets such as the *Journal of Physical Education, Recreation, and Dance* (e.g., Boyce, 2000; Veal and Taylor, 1995; Wilson and Williams, 2001; Wright and Greiner, 2009). Case studies have also been implemented through alternative formats, such as videotaped lessons (Collier, 1995).

While CBL has become a popular pedagogical tool, research evidence related to the application of the strategy in PETE has been limited (Collier and O’Sullivan, 1997; Timken and van der Mars, 2009). Collier’s (1995) dissertation was the first empirical study of CBL in PETE. Participants included five physical education PSTs who were exposed to multicultural issues in physical education through case materials, including video segments, audio commentaries and

readings. Findings indicated that CBL was useful for provoking critical discussion of multicultural issues. However, the cases did not seem to influence the students' planning or reflections during the teaching experiences that followed. Transfer of those learning may have been limited by the students' and teacher's inexperience with CBL and a strong focus on technical issues (e.g., classroom management) during field experiences rather than the multicultural issues that were central to the case studies.

Connected to CBL is the notion of cognitive growth. Cognitive growth has been defined as "the ability of PSTs to identify problems in context and to generate possible solutions for those problems while drawing on relevant concepts and personal experiences" (Bolt, 1998: 91). Cognitive flexibility theory, which posits that professionals (e.g., teachers) should adapt their knowledge and experiences to respond to problems in their professional context, underlies the notion of cognitive growth (Spiro et al., 2004). Cognitive growth takes place on a continuum that moves PSTs towards thinking more like a teacher than a student. Bolt (1998) examined cognitive growth in 12 PSTs who were exposed to case studies in an elementary education games course. Results indicated that, over the course of one semester, the 12 students demonstrated cognitive growth as evidenced by their increased frequency in identifying problems within cases and potential reactions to those problems that were linked to relevant concepts and experiences (Bolt, 1998). Timken and van der Mars (2009) examined the impact of CBL on PETE students' value orientations. The PSTs completed a value orientation inventory before and after reading and discussing eight cases. Small shifts in value orientations appeared towards the end of the study, suggesting repeated exposure to CBL may have a greater impact. Consistent with previous literature (Collier and O'Sullivan, 1997), students found the case studies more relevant than lecture-based learning experiences.

Case studies as shared inquiry

Case studies can be used to promote shared inquiry among instructors and PSTs (Thomas and Oldfather, 1995). Harrington and Garrison (1992) assert that in order to promote shared inquiry a case must: "provoke students of teaching to question how schools operate rather than to draw quick solutions to problems from their experience with schools or from what they learn in college classrooms" (p.720). The shared inquiry includes five phases through which the instructor facilitates learning (see Figure 1). Firstly, the instructor selects a focus for the inquiry. While this could be several different things, a case study is one topic that can be used to initiate the shared inquiry cycle (Harrington and Garrison, 1992). Secondly, open space and time should be given to students in order to consider possible reactions to the inquiry focus. Thirdly, students should be included as valuable members of the inquiry process, which gives them an opportunity to shape their own learning. Fourthly, multiple sources of information should be included in the inquiry process, such as observations, anecdotes, classroom experiences and relevant literature. Fifthly, potential reactions to the inquiry situation should be shaped and discussed by the dialogue leader or instructor (Richards et al., 2012).

In line with constructivist pedagogies (Rovegno and Dolly, 2006) and OST (Richards et al., 2013), inquiry-focused pedagogy requires the instructor to share the responsibility for teaching and learning with students by encouraging them to take active roles in the learning process. This is perhaps best achieved by providing a structure where students can have the time and space to express their ideas. While this requires a shift in responsibility, it does not imply that instructors relinquish control. In fact, it is important that instructors provide oversight in a

way that promotes participation by all students (Thomas and Oldfather, 1995). Instructors facilitate effective case discussions through active listening, questioning and sometimes staying silent to allow student voices to prevail (Welty, 1989). Common strategies for use in a shared inquiry approach include time for individual reflection, large and small group discussions, identifying relevant data sources, sharing ideas and reflecting on potential outcomes.

Related to the dialectical nature of socialization (Schempp and Graber, 1992), one particular concern in a shared inquiry model is the role of the instructor in shaping students' experiences. Shulman (1992) posited that instructors' input helps to contextualize case studies and add complexity. Spiro and colleagues (2004) suggested that instructor input may promote increased cognitive flexibility, allowing students to evaluate different perspectives simultaneously. However, other authors have argued that instructor perspectives may reduce the complexity of the case and inhibit learning from multiple perspectives (Merseeth, 1991; Silverman et al., 1992). Students may be reluctant to accept new information that is in conflict with their subjective theories of education, even if the information comes from an expert or instructor (Goeke, 2008; Sofo and Curtner-Smith, 2005). Nevertheless, when presented through a shared inquiry framework that recognizes students' sense of agency, instructor perspectives in a CBL framework may help students to re-evaluate and challenge their own subjective theories (Grotjahn, 1991; Richards et al., 2013).

Results of studies conducted to date provide preliminary support for CBL as one component of PETE curricula and field experiences that intends to equip students with reflective capacities and critical thinking skills (Beck, 2007; Collier and O'Sullivan, 1997). Nevertheless, findings from existing studies have also indicated that additional research is needed to fully understand the impact of CBL on PST knowledge development. This includes PSTs' impressions of CBL and the degree to which they perceive case studies help them to learn about important topics in PETE. Therefore, the purpose of this study was to examine PSTs' perceptions of CBL as a guiding instructional framework for a PETE seminar course. OST and the shared inquiry cycle guided the use of case studies in an effort to align the use of CBL with the dialectical nature of the socialization and to recognize students' sense of agency (Schempp and Graber, 1992; Templin and Richards, 2014). The following questions guided the inquiry. (1) How do PSTs describe their experiences with CBL? (2) How do PSTs perceive the utility of case studies in a PETE seminar course? (3) How do PSTs perceive the impact of CBL on their learning?

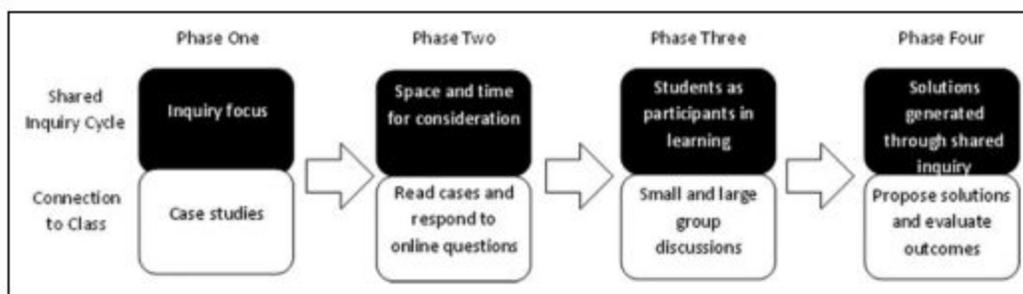


Figure 1. Graphical representation of the way in which the four phases of shared inquiry (black boxes) were integrated into the physical education teacher education junior seminar course (white boxes)

Method

Research design

Three of the four researchers involved in the current study worked at the university at which data were collected, and two of them were instructors of the PETE seminar course. Thomas was the instructor of record and Michael was a research assistant who assisted with data collection in the classroom. Kevin worked at the same university, but was not involved in the course in an instructional capacity. Beyond the seminar course, Thomas, Michael, and Kevin were involved in supervising several of the PSTs who were enrolled in other courses and field experiences. The fourth researcher, Karen, worked at a different university and was not involved in the course or the collection of data. She provided an outsider perspective in the data analysis process that helped to challenge the perspectives of the other researchers. All four researchers had been committed to using CBL in their professional practice prior to and following this study.

Our proximity to the student participants is something that we were conscious of as researchers. Marshall and Rossman (1989) suggest that complete immersion within a research setting has advantages in the design of qualitative research. However, the student–instructor relationship can also influence the nature of student responses to questions that evaluate the performance of instructors (Curtner-Smith, 2001). We attempted to balance immersion with trustworthiness and ethical considerations throughout the study in several ways. Firstly, Thomas and Michael were always in the classroom so that observations were based on the triangulation of their perspectives. Secondly, as the instructor of record who had grading power over the students, Thomas did not conduct any of the interviews. Thirdly, Kevin and Karen were removed from the course and did not interact with the students in an instructional capacity.

Course description

The course was a 16-week seminar experience that met once a week for 50 minutes and was compulsory for all students enrolled in the PETE programme. Thomas had been teaching the course using CBL for several semesters and had become accustomed to the constructivist nature of the pedagogy, which required him to relinquish some of the control in class. Throughout the semester, students read 10 unique cases that focused on issues prominent in the field of physical education. Half of the case studies were selected from Stroot's (2000) edited text, *Case Studies in Physical Education*, and the remaining five were from articles published in the *Journal of Physical Education, Recreation, and Dance*. These cases were intentionally selected by the instructor to overview a wide variety of issues related to teaching physical education, especially those often faced by beginning teachers. Table 1 provides descriptions of the cases.

A key to the shared inquiry process is the instructor's role. When asked to describe his role in the course, Thomas indicated that he attempted to “make sure that the course flowed smoothly, help in discussion sessions, and also help them [PSTs] to make connections from the cases to other situations that related to the cases”. He went on to talk about “connecting to real life situations” and connecting “theory to practice”. Thomas chose to use case studies in this particular course to “engage students in conversations about a variety of topics that should give meaning to them as teachers”. While he described his role as a facilitator primarily, he read each case thoroughly prior to class and prepared to make links to the literature in physical education.

Acknowledging the dialectical nature of the socialization process (Schempp and Graber, 1992), the course was designed to promote shared inquiry (Harrington and Garrison, 1992) as outlined in Figure 1, which illustrates connections between the course structure and the shared

inquiry cycle. To prepare for in-class discussion, the students were asked to read a case outside of class and post responses to questions in an online discussion forum. At the following class meeting, students were asked to form small groups and discuss the case for 15–20 minutes. Towards the end of the discussions, each group took notes to summarize their conversation related to key issues that arose in the case. These notes were used to help transition into a class discussion in which individual groups provided their perspectives on the main issues, the choices available to the characters in the case, the choices they would make if placed in a similar position and potential consequences of their decisions. Finally, Thomas facilitated a discussion that connected issues in the cases with teaching in schools and contemporary trends in education.

Table 1. Cases used in the physical education teacher education junior seminar.

Authors	Title	Description
Wilson ^a	<i>The Scorekeeper</i>	A beginning physical education teacher struggles in adapting her content for a student with a disability.
Wilson and Williams ^b	<i>Simple Communication</i>	A beginning physical education teacher copes with having an English language learner in her class.
Wilson and Williams ^b	<i>The Contentious Colleague</i>	A student teacher witnesses controversy between the physical education teachers and administration.
Wilson and Williams ^b	<i>I did it My Way</i>	A student teacher goes against the wishes of his cooperating teacher and assesses a class how he thinks it should be done.
Kahan, Kutame, and Stohrer ^c	<i>Role Conflict</i>	A beginning physical educator returns to his home town to teach and coach and quickly learns that the town values athletic success more than physical education.
Schincariol, Sullivan, Faust, and Wright ^c	<i>Resistance to Change</i>	A beginning physical educator struggles in a team-teaching situation when her experienced colleagues resist change in favour of traditional pedagogies.
Veal and Taylor ^d	<i>It's All Academic</i>	A physical education teacher gives a student a low grade and is then forced to defend the grade in a school that values academic achievement.
Williams and Kichin ^e	<i>Inclusion I</i>	A student with a severe behaviour handicap is integrated into a beginning teacher's

		physical education class. The teacher stuffles to accommodate the student.
Hodge and Blaine ^c	<i>Inclusion II</i>	A veteran physical education teacher struggles to include children with disabilities in her classes without neglecting her non-disabled students.
Moore, Ito, and McMillan-Ito ^c	<i>Evaluation</i>	A new physical educator struggles to implement an evaluation system that uses letter grades when his colleagues insist on pass/fail grading.

^a Wilson S (2000) Disability case studies: learning to include all students. *Journal of Physical Education, Recreation & Dance* 71(4): 37-41.

^b Wilson S and Williams JA (2001) Student-centered case studies for teacher education. *Journal of Physical Education, Recreation and Dance* 72(2): 49-53.

^c Stroot SA (ed.) (2000) *Case Studies in Physical Education*. Scottsdale, AZ: Holcomb Hathaway.

^d Veal ML and Taylor M (1995) A case for teaching about assessment. *Journal of Physical Education, Recreation and Dance* 66: 54-59.

Table 2. Demographic information for the participants in the investigation.

Name	Gender	Ethnicity	Age	Year of matriculation
Jessie	Female	Caucasian	22	Senior
Joseph	Male	Caucasian	22	Senior
Thomas	Male	Caucasian	24	Junior
Sandy	Female	Caucasian	21	Senior
Juan	Male	Hispanic	21	Junior
Andy	Male	Caucasian	22	Junior
Neal	Male	Caucasian	22	Senior
Derek	Male	Caucasian	22	Senior
Felix	Male	Caucasian	22	Senior
Glen	Male	Caucasian	23	Junior
Ray	Male	Caucasian	22	Senior

Patty	Female	Caucasian	20	Junior
Andre	Male	African American	22	Junior
Carey	Female	Caucasian	21	Junior

Participants and setting

Nineteen undergraduate PSTs (6 female, 13 male) enrolled in the third-year PETE seminar course at a large, American university took part in this investigation. Table 2 provides demographic information related to the students' gender, age, ethnicity and year of matriculation. The PSTs were a part of a cohort who took several courses together in the PETE programme. Thomas was a full professor at the university and had six years of experience teaching the class with a focus on case studies. Michael was a fourth-year doctoral student at the university and was in his first semester assisting with the course. The university's Institutional Review Board approved this study and all students agreed to participate. Furthermore, students were assured that their participation (or lack thereof) would not impact their grade in any way. The students were allowed to withdraw from the study at any time and were assured that data analysis would not begin until final grades had been assigned. All students agreed to sign the required informed consent paperwork and none withdrew from the study prior to completion.

Data collection

Student interviews. The primary source of data for this investigation was individual interviews with the PSTs. Michael and Kevin independently conducted a total of 19 individual interviews – one with each of the PSTs – during the second half of the semester. The interviews were scheduled to not be disruptive to the course or other obligations of the PSTs. Interviews lasted approximately 45 minutes and followed a semi-structured format (Patton, 2002). As such, the interviews were guided by a set of common questions, while also allowing for the flexibility to explore topics introduced by the participants. Interview prompts focused on the students' impressions of the case study method. Example prompts included (a) describe the discussions that take place in class related to the cases you have read, and (b) describe some of the benefits/limitations you see in the case study approach. All interviews were conducted in a private room, audio recorded and transcribed verbatim for analysis.

Document analysis. After reading each case and prior to class discussions, students were required to respond to online discussion questions that prompted them to think critically about the readings. The online prompts also asked the students to comment on their experience reading and analysing cases. At the end of the semester, all of the student responses were downloaded and compiled for qualitative document analysis (Patton, 2002).

Instructor commentary reflections. To evaluate the influence of the instructor in the shared inquiry approach, 10 of the PSTs completed open-ended anonymous reflections at the end of the course related to the extent to which their case responses were influenced by the commentary of the instructor. As these were not a required component of the course, nine students did not

submit the written reflections. The reflections were collected and included as part of the dataset.

Instructor interviews. Kevin individually interviewed participants of the course, while Thomas as the instructor and Michael as the research assistant observed course meetings. The interviews served a triangulation function to gain insight into the perceived impact of CBL that could be compared with student perspectives. Example questions included (a) in your own words, please explain what CBL means to you, and (b) why have you chosen to use CBL in the class? Interviews followed a semi-structured format, lasted for approximately 45 minutes, and were audio recorded and transcribed verbatim for analysis.

Focus group interview. At the end of the semester, all students were invited to participate in a focus group interview with Michael and Kevin. The focus group was conducted following the conclusion of the course once all grades had been assigned and provided an opportunity for students to consider the perspectives of their peers. All PSTs were invited to the focus group and six males elected to participate. Questions in the focus group paralleled those from individual interviews. The focus group conversation followed a semi-structured format, lasted approximately 90 minutes and was audio-recorded and transcribed verbatim for analysis.

Non-participant observation. Michael acted as a non-participant observer, taking field notes on students' in-class reactions to CBL. He also served a content verification function by confirming that Thomas took the students through the shared inquiry cycle in each course meeting. This allowed the research team to verify that all of the content had been covered. For example, in certain instances it was noted that the group discussions did not conclude on time and had to carry over into the next lesson.

Data analysis and trustworthiness

Data were analysed using a combination of inductive analysis and the constant comparative method (Lincoln and Guba, 1985). This process requires the researchers to compare individual pieces of the data to the entire dataset in an effort to identify common themes. Michael, Kevin and a third researcher, Karen, began by independently coding interview transcripts, student responses to discussion questions and field notes to identify emerging themes. This resulted in the development of three independent coding schemes for the data. Once independent analysis was completed, the researchers discussed their emergent findings collectively with the aim of coming to consensus on a common set of themes. It was found that all three investigators had derived similar meaning from the data and, after making minor adjustments, a common set of themes was developed and is presented in the results section of this paper. Analyses were completed with the assistance with NVivo 9.0 (QSR International, 2010), a qualitative data management tool. The software served a mechanical function and provided a structure to keep themes saved in an accessible location and share them with researchers working at different sites.

Many qualitative researchers employ trustworthiness techniques to enhance the credibility of results (Hemphill et al., 2012). In order to ensure the trustworthiness of the data, three methodological strategies were built into the design of the study (Patton, 2002). Firstly, data were triangulated using multiple sources (e.g., student interviews, instructor interviews and observations). Secondly, researcher triangulation was established by having multiple investigators with different perspectives code and discuss the data in order to create the final set

of themes (Lincoln and Guba, 1985). Finally, a trained qualitative researcher not involved in the coding of the data served as a peer debriefer by reading the emerging themes and providing feedback related to the degree to which they could be logically derived from the data.

Results

Data analysis revealed that PSTs tended to speak positively about the case study method used in the PETE seminar course. They found it to be engaging, especially when compared to a traditional lecture format of learning, and appreciated the opportunity to discuss cases with their peers and the course instructors. Three themes emerged from the data analysis, all of which related to Bolt's (1998) conceptualization of cognitive growth. Cognitive growth refers to a process through which PSTs transition from thinking about potential problems from the perspective of a student to considering how they would meet challenges from the perspective of a teacher. PSTs whose cognitive growth is more highly developed tend to be more proficient at identifying potential problems and associated responses in the context in which they occur, while drawing upon relevant concepts and personal experiences (Spiro et al., 2004). The thematic results of this study are provided as evidence for CBL promoting cognitive growth among the PSTs. In other words, we suggest that PSTs demonstrated cognitive growth as evidenced by (1) their consideration of multiple sources of knowledge, (2) engagement and reflection in CBL and (3) focusing on future teaching situations.

Multiple sources of knowledge

Data suggested that cognitive growth occurred as a result of PSTs considering knowledge developed through engagement with multiple sources. Specifically, in formulating responses to case studies, PSTs drew upon their own prior experiences, information gathered from the case and interactions with peers and the course instructor. The PSTs articulated how hearing different perspectives from their peers and the instructor impacted the way they thought about topics introduced through the cases. Interview data revealed frequent comments such as "hearing other ideas changed mine", "other people's perspectives helped me identify problems" and "I get to see different perspectives and different resolutions". Sometimes this caused the PSTs to critically re-evaluate the way they thought about the case. For example, Felix explained that "I actually learn the most when some of my peers answer questions and compare that to what I would have done. So, I learn not just from the case study, but also the people around me". In a written reflection, Ray suggested his ideas often change based on feedback from his peers,

I really like the fact that we have to come up with our own ideas before we discuss them as a class. There have been times where I went to class thinking one way would be the best way to handle the situation. After discussing it with the class, I see what the other students were saying, and they had some good points that made my idea not seem so great [sic]. This is important because it gave me the chance to come up with my own ideas, and then I was given the opportunity to listen to different points of view, and I still had to make the final decision on what I would do in a given situation.

Several PSTs discussed the course instructor and their peers as valuable sources of knowledge. Joseph explained that "every case study we have had is a little different and we have

learned different things with each one. We get different views from a number of different issues and I think that is the most beneficial part”. Jessie echoed this sentiment when she noted that “I think it definitely shows different perspectives from the course instructor, my peers, and others that I would not have considered and this will probably help me handle a similar situation”. Patty elaborated further explaining that “You get to see all of the different situations that could happen and how the person who wrote the case study handled it, you think about how you could handle it, and after reading the case you can ask the instructor for advice”. Taken together, these quotes illustrate how the students engaged in a dynamic process of idea development whereby differing perspectives were considered to generate responses to problems presented in the case studies.

When asked to write about the instructor’s influence on student’s interpretation of a case, students described his perspectives in positive terms such as “insightful” and “interesting”. Carey reflected that the instructor “saw more sides and outcomes to the case, which were insightful to think about” and that “he did have a focus on a few areas that I did not originally think about much”. Despite describing the instructor’s commentary as being important, the students’ followed up those remarks with comments such as “it didn’t change my opinion, it just helped me understand the problem more thoroughly”, and “I felt like his opinion did not add anything to my original thoughts”. As a result, our data suggest that the students perceived Thomas’s commentary to be helpful in reinforcing their initial appraisals for the case, but not in terms of challenging or changing their initial evaluations.

Engagement and reflection in CBL

The PSTs in this study repeatedly expressed how CBL helped them to engage in discussion and reflection more frequently than other instructional approaches. They specifically mentioned that CBL was more engaging and interesting than the traditional lecture-based pedagogies they were exposed to in other PETE courses. The PSTs clearly preferred to be engaged in conversation rather than “being talked at”. They described how discussions with classmates helped them to think more deeply and critically about issues raised in the cases. They seemed to believe that this increased engagement enhanced their learning of the issues presented. Interview data revealed frequent statements such as “I think it gives you the opportunity to think about something in a completely different way” and “I think the biggest difference is that it makes you think”. The following quote from Thomas reflects this sentiment expressed by the PSTs in this study: “you are always thinking critically when reading the case. You are thinking critically about what the teacher did well or was not doing well. There is constant evaluation.”

The PSTs in this course described themselves as being attentive and engaged in class activities. They also felt as if they had numerous opportunities to contribute ideas to the discussion. For example, students frequently said things such as “you participate more [in this class] and I like that”. Students described their participation as one of the most significant benefits of the course, leading them to prefer it over lecture-style classes where “the instructor is just up there talking to you”. Some students noted that “during lectures you see people not paying attention”, which was not perceived as much during case study discussions. The following quote from Andy is representative of the way many PSTs described their level of engagement in the case study discussions: “It engages you and you are more involved. With lecture, [instructors] are just talking to you, not talking with you. This is more of a conversation. When we actually get good conversations going in class you pay better attention and actually

learn more.” Andy later described that “the best part about these cases is how it makes students think about their core values and prepares students to make decisions when their values are tested since there is rarely a black and white right answer”. Joseph explained that cases were interesting because they were perceived to be relevant to students’ future careers as physical educators: “it keeps students more involved and it is more interesting because [it is about] things we are going to deal with and it gives us a chance to practice and learn different ways to deal with them”.

During the focus group interview, Thomas attributed his perfect attendance to the engaging class structure: “I didn’t miss this class once. Every class I have at [this university], if they say you get three misses, I am going to miss three times... I never dreaded going to this class”. Attendance records confirm Thomas’ sentiment and show near perfect attendance for all students in the class (98% attendance rate), despite the fact that students could miss class one time without it negatively impacting their grades. Michael recalled that the students “show up to class and they come on time ... we actually let class out really late sometimes and they don’t pack up early like I have seen them do in other classes”.

Future-focused learning

The PSTs in this study demonstrated cognitive growth as they focused on challenges they would face in their future teaching careers. They often indicated that CBL was more relevant to their futures as physical education teachers than more traditional forms of instruction. To them, reading the cases made them more aware of potential circumstances they may encounter when teaching. Interview data included numerous comments such as “it helps you think about future situations” and “the cases bring up things that are going to happen in the future”. The PSTs described feeling more prepared for these situations as a result of thoughtful discussion of the issues surrounding these real life scenarios. Consider the following quote from Glen: “[when I read a case study] I am thinking about my first year of teaching, student teaching, and what kinds of problems might persist. I think it is good that I will not be completely lost when I go into my first teaching experience.” Thinking about the cases provided Glen with a feeling of preparedness for issues he may encounter in student teaching or as a newly licensed teacher.

Sandy discussed learning about the complexity of being a physical education teacher as a result of engaging in CBL: “the case studies make us future teachers realize that teaching isn’t easy. We are going to have to face many problems in our journey ...some are going to require help and may be very difficult.” Other students, like Jessie, described the importance of hearing how others would handle different situations. She explained that “it is getting us ready to face problems and issues that we are going to find in school systems with our colleagues, students, parents, faculty, and administration. So we may know how to handle it or how others have handled it.” Thomas and Michael both reported that the students were usually interested in the implications of the cases for their future. Early in the semester, Michael’s field notes remarked that “the students seemed to be more responsive when asked how this case relates to their future as student teachers and eventually teachers”. When asked how the case studies impact student learning, Thomas commented that

The reaction that I have gotten from students is that the course provides a very real life connection for them in anticipation for what they may face when they become teachers and that is very meaningful to them because PSTs are always looking for ways to connect

to the real world and this class does that.

Discussion

The purpose of this study was to develop a better understanding PSTs' perspective of and experiences with CBL in PETE. Qualitative data analysis resulted in the construction of three themes, including multiple sources of knowledge, engagement and reflection, and future-focused learning, all of which connect to Bolt's (1998) notion of cognitive growth. Cognitive growth relates to PSTs' ability to identify problems in context and generate potential responses. It is a developmental process that moves PSTs from thinking like a student to thinking like a teacher. In the current study, PSTs demonstrated enhanced cognitive growth by drawing upon multiple sources of knowledge to frame their reflections and decisions related to the cases they read, enhanced engagement and reflection through CBL, and a future-focused orientation in relating case study materials to situations they may encounter as in-service teachers.

Previous research has indicated that CBL can be a bridge for integrating knowledge from previous learning experiences and help to connect theory to practice (Carlson and Schodt, 1995; Harrington and Garrison, 1992). The findings of this study demonstrate how the PSTs drew from multiple sources, including their peers and instructors, in making decisions related to the issues presented in the cases. The shared inquiry cycle was integral to the study design, as students came to class having already engaged in the case material, considered the issues and related the information to their previous learning experiences in preparation for class discussions. Engagement with the case studies prior to class ensured that class time would be reserved for discussion that considered the issues presented in the cases, proposed responses, consequences of potential solutions and the way in which problems raised in each case tied to larger issues in the field of physical education. As such, the findings of this study suggest that CBL may provide a method for instructors to introduce new ideas and allow PSTs to consider them along with their own pre-conceived notions. Furthermore, the findings demonstrate that PSTs' experiences with case studies in PETE go beyond simply enjoying the process over other pedagogical strategies. PSTs indicated ways that CBL provided a place for them to express their own thoughts and ideas along with those of their peers and the course instructor.

The finding that students perceived case studies to be engaging and to promote reflection documents their preference for playing participatory roles in the learning process rather than the passive role they play some in lecture classes (Smith et al., 2005). In fact, students have noted that failing to engage them in the learning experiences is one of the biggest mistakes an instructor can make (Richards and Velasquez, 2014). In this study, the students enjoyed class discussions, as they were able to hear different perspectives and opinions. This facilitated cognitive growth as the PSTs were continually making meaning of the cases based on the perspectives offered by their classmates and the course instructor (Bolt, 1998). This finding also adds further credence to the findings of Collier and O'Sullivan (1997) and Timkin and van der Mar's (2009) studies, which also found that PSTs perceive the case study method to be an engaging way to learn. Students in this study described engagement and reflection as being intricately connected in their experiences with CBL. They reported being more reflective because they were engaged and interested in the learning process. This finding supports those of Beck (2007) and Collier (2009), who noted that reflection has the potential to stimulate self-inquiry that assists in professional growth and leads to the development of teaching identity. CBL could, thus, be one strategy PETE faculty could use in an effort to promote reflective

thinking among teacher candidates (Bolt, 1998), which has been identified as a critical component of teacher education in recent years (Rovegno, 2003).

Drawing from the OST literature, Richards and colleagues (2013) postulated that PETE programmes have two primary missions. Firstly, they should help PSTs critique their subjective theories related to what it means to be an effective physical education teacher. Without acknowledging PSTs' subjective theories and ability to resist the socialization process, it is unlikely that PETE faculty will have an impact on the way in which PSTs conceptualize physical education (Sofa and Curtner-Smith, 2005; Stran and Curtner-Smith, 2009). By providing students with the opportunity to draw from their own perspectives in the construction of new knowledge (Rovegno and Dolly, 2006), case studies allow students to exercise their voice in the process of teacher education. This could, in theory, promote the type of critical thinking that encourages PSTs to re-examine and challenge their subjective theories. Findings of this study provide mixed support for this hypothesis. Students indicated that the perspectives of the course instructor and his expert commentary helped to reaffirm their existing beliefs. However, none of the students indicated that expert commentary changed their thinking. This confirms the role of subjective filters in shaping the dialectical exchange that occurs within PETE. As has been found in prior research, students are not willing to simply abandon their perspectives because an instructor or professor presents a new idea or concept (Richards et al., 2014; Stran and Curtner-Smith, 2009).

The second goal of PETE, according to Richards and colleagues (2013), is to prepare students for the realities of teaching physical education in schools. This involves both preparation for the instructional responsibilities of teaching physical education and preparation for the sociopolitical realities of life in schools. The future-focused nature of case studies allows students to consider some of the challenges and issues they will face in the future, and promotes early induction into the teaching profession. While learning was not directly measured through this study, the student comments affirm that they perceived that learning about issues they may face as teachers was an outcome of engaging with the case studies. For them, this enhanced the relevance of the learning that occurred. CBL required the students to practise making difficult decisions related to issues such as teaching methodology, classroom management and collegiality, which promotes cognitive growth (Bolt, 1998). Thus, CBL can be conceived as a vicarious learning activity that promotes shared inquiry (Thomas and Oldfather, 1995) and helps students develop feelings of preparedness for facing realities of life in schools.

Directions for future research and implications for practice

While this study extends the literature related to the case study method in PETE, it has several limitations and further work is necessary to support the utility of the case study method and to better communicate its benefits and challenges. For example, future research should employ direct measures of outcomes to document what and how students actually learn through the case study method. Along with that, additional research related to students' perceptions of learning in various instructional settings might further contextualize the findings of this study by documenting how student learning varies across instructional modality. Finally, a larger scale study that includes more participants, a larger selection of case topics and multiple instructors would extend the findings of this research on CBL in PETE.

While nothing can fully prepare PSTs for the realities of teaching in schools, a field-based teacher education programme that is supplemented with activities such as CBL that

promote discussion can help them think more critically about how what they are learning in PETE could transfer to school settings (Richards et al., 2013). Future studies should consider tracking students into their first teaching appointment to determine the impact of CBL on their transition into school settings. Finally, future research in PETE should consider other constructivist-based teaching strategies that account for students' subjective theories and sense of agency in the socialization process. For example, researchers may consider the influence of peer feedback in team-based learning situations as part of methods and activity courses.

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