The Physical Educator Vol. 76 • pp. 756–776 • 2019
https://doi.org/10.18666/TPE-2019-V76-I3-8757

PEDAGOGY

# Perceptions of Learning to Teach in a Constructivist Environment

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## Abstract

*A constructivist approach to learning in teacher education has been widely accepted. Yet little is known about constructivist environments within physical education teacher education (PETE). The purpose of this study was to examine the perspectives of PETE preservice teachers with respect to instructional strategies designed to reflect constructivist learning. Specifically, students' views of the pedagogical aspects employed were explored. Data sources included focus group interviews with 13 members of a field-based PETE methods class grounded in constructivist principles and course artifacts. Responses to interview questions were analyzed via open, axial, and selective coding. Trustworthiness was established through a researcher journal, an audit journal, and triangulation. Data analysis revealed four pedagogical aspects that contributed to these students' learning: relationships, feedback, time, and active learning. Relationships included meaningful connections with class members and instructors. Feedback was described as timely insight about their teaching and work with young people from both instructors and peers. The amount of time engaged in learning was acknowledged as being significant. Engagement with elementary school students provided active learning that allowed for the translation of theory into practice. These students' positive views of creating knowledge by applying it with elementary children may suggest a constructivist approach as a viable and powerful*

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*means for framing effective PETE programs. Furthermore, there may be an increased potential for these students to utilize similar strategies when teaching, and the cultivation of relationships may counteract the occupational socialization of beginning teachers.*

## Background

Pedagogical approaches that support constructivist approaches to learning have been widely accepted in multiple educational contexts (i.e., math, science, language arts, and physical education; Richardson, 1997). Constructivism as a learning theory acknowledges the connections among knowledge, meaning, and learning among students (Azzarito & Ennis, 2003; Fosnot, 2005). It is "a psychological theory of learning that describes how structures, language, activity, and meaning-making come about, rather than one that simply characterizes the structures and stages of thought, or one that isolates behaviors learned through reinforcement" (Fosnot, 2005, p. 34). As a learning theory, constructivism offers major implications for instructional delivery.

### Constructivism

Constructivism is based on the philosophical perspective that knowledge is constructed rather than discovered (Fosnot, 2005). This paradigm is most widely associated with the works of Piaget (1950), Piaget and Inhelder (1962), and Vygotsky (1997). Piaget emphasized that new knowledge is built on prior knowledge as learning is developed through exploration, and on individual construction of meaning (Pritchard & Woollard, 2010). Constructivism from this perspective describes how individuals process information to build knowledge and understanding within their environment (Pritchard & Woollard, 2010). Extending Piaget's work, Vygotsky (1997) emphasized the importance of social interaction and cooperative learning in the construction of knowledge while groups engage with each other. He contended that collective social experiences within various social environments affect the social orientation of individuals that ultimately influences their cognitive functions. It is suggested that new knowledge and skills are created as learners interact with each other and make sense of differences between their current knowledge and new experiences (Brackenbury, 2012).

It is commonly agreed that although teaching methods that support constructivist learning hold promise, some issues may occur when students regulate their own learning (MacPhail, Tannehill, & Goc Karp, 2013; Sigler & Saam, 2007). Therefore, due to the sophistication of teaching approaches designed to foster constructivist learning, students may need to possess better metacognitive skills to gain desired outcomes (Sigler & Saam, 2007). While learning theory does not provide a recipe for learning environments, it constrains the design of an effective learning environment (National Research Council, 1999b).

Three major principles describe a constructivist approach to learning. First, learners construct knowledge in relation to their prior knowledge. As such, learning is situated in opportunities for learners to become critical thinkers, problem solvers, and decision makers. Second, learning is an active process. This active process allows learners to recognize the meaning of past experiences and apply new knowledge during authentic opportunities. Third, knowledge is socially constructed. Learners become intentional and interactive participants in the content among each other to develop a deep, holistic, meaningful, well-connected understanding of content (Rovegno & Dolly, 2006).

Prior knowledge can be described as the way an individual understands information by making connections between knowledge already learned and new information through a process of questioning, critical thinking, and accepting or discarding old information and beliefs (Good & Brophy, 1994). With regard to learning, Palincsar (1998) believed that individuals working in pairs or groups to achieve or structure knowledge, that is, utilizing the collective memory, could reach more success than those working alone. Furthermore, Azzarito and Ennis (2003) found that the holistic learning of an individual occurred with students who reflected on prior knowledge and built on new knowledge and that they were more likely to construct new and accurate meaning. Although prior knowledge affects learning, evidence in research on teacher education points to both positive (accurate knowledge) and negative (inaccurate knowledge) results (Rovegno & Dolly, 2006).

One aspect of constructivism is the notion of active learning strategies or learner-centered teaching. According to Qualters (2012), the

use of active learning strategies with university students resulted in positive and negative perceptions. Positive aspects included a favorable attitude toward learning, enhanced ability and efficiency in studying, an improved learning environment that gave students a better understanding of individual ways of learning. Negative perceptions of active learning were described as the amount of in-class time taken for these activities, fear of not covering all the material in the course, and anxiety about changes in classroom expectations. Despite these drawbacks, the active learning these students experienced was generally positive. Brackenbury (2012) posited, "The constructivist nature of learner-centered teaching promotes learning that is created by individuals and groups, as the result of their current knowledge/thoughts/beliefs interacting with new experiences" (p. 23). The resulting outcome of learner-centered teaching methods allows for students to construct knowledge.

Social learning occurs in the context of social interactions and engagement with others in an effort to create knowledge and higher levels of reasoning and learning (Palincsar, 1998). An effective aspect of a constructivist environment occurs in a social setting where individuals have an opportunity to resolve conflicting ideas and discuss or share ideas among each other, thus creating knowledge (Glasersfeld, 1995). Furthermore, other social interactions that include discourse, cultural aspects, and context are necessary for the construction of knowledge (Pritchard & Woollard, 2010). Acceptance and valuing peers' differences to limit students' feelings of alienation, disconnection, and isolation are also important (Azzarito & Ennis, 2003).

## Pedagogical Approaches to Support Constructivist Learning

Pedagogical approaches that support constructivist learning among students in higher education have been documented in the literature (Hussain, 2012; Kalchman, 2011; MacPhail et al., 2013) and have shown promise in developing students' confidence, creativity, and critical thinking skills. Although several studies generally have focused on expert teachers teaching physical education to children and adolescents in physical education contexts (Chen, 2002; Chen & Rovegno, 2000; Dyson, 2002; Ennis & Chen, 1995), other studies have addressed teachers learning to teach using constructivist perspectives and have focused on teacher learning (McCaughtry & Rovegno, 2003; Rovegno, 1991). In particular, the use of questioning

and open-ended tasks was prominent among several physical education teachers using constructivist teaching practices (Rovegno, 1998).

Constructivist learning environments have shown promise with in-service teachers (K. Patton, Parker, & Pratt, 2013) and the recent application of pedagogical approaches to the education of preservice teachers (PSTs) has shown potential for the construction of knowledge within physical education contexts (MacPhail et al., 2013). It has been found that through the use of several pedagogical strategies in teacher education courses (i.e., activities such as critical friends' discussions, problem solving, and group challenges), the PSTs "moved from feelings of fear and apprehension to being confident as they recognized their own development" (MacPhail et al., 2013, p. 110). Another example of the effects of constructivist teaching on PSTs included a group of students enrolled in an undergraduate elementary mathematics methods course that recognized the value and impact of constructivism for all (Kalchman, 2011). Furthermore, teacher educators may consider guiding PSTs to study instructional strategies of expert teachers such as how to ask open-ended questions, identifying students' problems and successes, and offering suggestions (Chen, 2002).

Physical education teacher education (PETE) desires to develop teachers who can teach for higher order and conceptual learning. If so, this notion would imply that PETE PSTs, then, are taught via instructional strategies designed to promote the same type of learning. The rationale for this investigation was to determine if the pedagogy employed within a physical education elementary methods course promoted constructivist learning that contributed to the development of future teachers. Therefore, the purpose of this study was to examine the perceptions of PETE PSTs with respect to instructional strategies designed to reflect a constructivist approach to learning.

## Method

### Participants

This study was conducted at a 4-year midsize liberal arts university in the Intermountain West of the United States. Participants included 12 undergraduate PETE PSTs (6 female, 6 male) and one postbaccalaureate male who were enrolled in a field-based physical

education methods course. This was a third-year required teacher licensure course that included a significant field experience. The course and the participants were chosen because of the coverage of a variety of topics related to instructional aspects of teaching and best practices in elementary physical education and because previous students had anecdotally reported the power of the learning experience provided.

### Course Design

The course was designed to employ pedagogical principles that support constructivist learning. The intent was to deepen the participants' knowledge concerning learning to teach elementary physical education students. The first eight weeks were dedicated to classroom time in which participants engaged in learning theoretical and pedagogical content based on local district standards that derived from a skill themes approach to teaching (Graham, Holt/Hale, & Parker, 2013). Instructional design embraced a constructivist theoretical approach to enhance participants' learning. For instance, small-group discussions that prompted critical thinking and problem-solving tactics were necessary for students to construct new meaning based on prior knowledge. Knowledge constructed during the classroom portion of the semester was later applied in an 8-week elementary school field-based experience. Participants were randomly assigned a partner within the course and co-taught elementary-age learners in a supervised experience at a local elementary school. There was one cooperating physical education teacher at this elementary school. Participants were responsible for developing five standardized lesson plans and teaching each lesson to approximately 12 elementary-age students. During each teaching episode, at least one faculty member of the course and the cooperating teacher were present to observe the participants' teaching and then provide immediate feedback. Feedback was facilitated through a series of questions designed to situate the participants' construction of knowledge based on prior knowledge.

### Instructors' Background

Three instructors were present during all facets of the design, implementation, and facilitation of the elementary physical education

methods course. Two faculty members were responsible for teaching the physical education methods course. One professor had taught this course for 13 years and had been a physical education teacher educator for more than 3 decades, and one teacher assistant was concurrently a doctoral candidate and had 4 years of high school physical education experience. The third instructor was the cooperating elementary physical education teacher who had 8 years of teaching experience.

## Data Sources

Data sources included focus group interviews, artifacts, and field notes. First, for a more in-depth understanding of how these students learned in an environment designed to promote constructivist learning, four focus group (range of 2–5 participants) interviews were conducted with class members via open-ended, semistructured questions that led to probing questions. The interviews ranged from 40 to 65 min and were designed to solicit participants' understanding regarding learning to teach in a constructivist environment. Topics concentrated on events, people, contexts, and circumstances salient to their learning. For instance, open-ended questions such as "What were your thoughts about the social and sometimes informal nature of the interactions with peers and teachers?" or "What do you feel has contributed to that growth as a teacher?" were designed to have students interrogate their learning in relationship to the experiences designed for them. Interviews occurred at the end of the semester and were conducted by a teacher assistant not responsible for student assessment; the course instructor did not see or hear any interview data until after grades were submitted. All interviews were digitally recorded and transcribed verbatim. Relevant artifacts, such as participant group projects, and observational field notes of class debriefs between the course faculty members and participants, and between the cooperating physical education teacher and the course faculty members and participants were examined.

## Data Analysis

Data were analyzed utilizing inductively derived categories from this data set and deductive categories based on a priori constructs from relevant literature. Open, axial, and selective coding (Corbin & Strauss, 2008) were used in the interpretation of the data and

development of categories representing participants' perceptions of instructional strategies designed to reflect constructivist learning. During the open and axial coding phase, interview transcripts were individually read several times, with notations made in the margins. From each transcript, significant phrases or sentences that pertained directly to aspects affecting learning within this environment were identified. Open coding involved the process of conceptualizing, defining, and developing categories of results in terms of their properties and dimensions (Corbin & Strauss, 2008). Also during this phase, notes were written about possible meaning, or what Creswell (2007) refers to as memo writing. These memos consisted of questions, comments, and ideas about evolving categories. At this stage, individual analyses were compared, insights shared, and interpretations challenged. The goal of the axial coding was the systematic development and seeking out of the relationships between concepts and categories.

In the selective coding phase, clusters of data were related to each other and themes were formed, and dominant categories were determined. This was done through an interrogation of the initial data categories to determine which category encompassed the most data from the perspectives of all participants. The most relevant excerpts from each category obtained by inductive coding were integrated to portray these participants' perceptions of an environment designed to support constructivist learning. Direct quotes were identified from participants' interviews; all participants are identified by pseudonym.

## Trustworthiness

Trustworthiness was established through several techniques. First, triangulation employing multiple investigators and multiple data sources confirmed the findings (Merriam, 2009). Data were triangulated for analytical purposes across both data sources (interviews and artifacts). Investigator triangulation occurred through the use of three investigators analyzing data. In addition, member checking improved the credibility of this study. While formal member checks are the primary goal of the research process, the researchers also incorporated informal member checks (Creswell, 2007; Lincoln & Guba, 1985). During interviews, the researchers interpreted the participants' responses back to them, seeking accurate analysis of

the participants' perceptions, attitudes, and experiences. Next, the researchers kept a journal to purposefully search for variations in participants' perceptions of the facilitation process (Merriam, 2009). Finally, an audit trail in the way of a transparent description of the research steps taken from the start of a research project to the development and reporting of findings (M. Patton, 2002) was made available for a colleague who was at a higher academic rank and understood constructivist learning and PETE but was not part of the project. This colleague served as a peer debriefer who could challenge the logic behind the researchers' interpretations (Lincoln & Guba, 1985).

## Results

Data analysis resulted in the identification of four themes with respect to instructional strategies designed to reflect constructivist learning. For these participants, (1) relationships with peers and instructors, (2) feedback, (3) time, and (4) active learning influenced their understanding of learning to teach.

### Relationships: "Kinda like a team"

The instructional strategies implemented in this course were perceived to contribute to the building of relationships and proved to be the most salient result for these PSTs. These relationships involved not only members of the class but also the instructors. For the students, it was as if the students and the teachers were a bonded unit, "kinda like a team, we were all going through it together . . ." (F1), in learning to teach elementary physical education:

> . . . it was just the environment; it wasn't just class. I feel sometimes we go to class and we just go to class, we don't really create relationships or anything. The people who were in this class, now those are the people who if I have a question I will ask. But I won't go to any other teachers and ask them or people in other classes. I'll figure it out. (F1)

These students recognized the informality of the environment as essential to their comfort level and the subsequent relationship building. A student indicated, "You know other classrooms the teacher tends to just stand in the front of the classroom, there is no

personal relationship. There's no exchange of ideas, they just stand there" (M3). In turn, this environment allowed them "to make connections and build relationships" (F1). For them, "it didn't matter about what the situation was or who it was, you could go up to almost anybody" (F2). This relaxed and relational environment that emphasized and supported the social nature of learning through the development of relationships revealed four aspects: comfort and security, accountability, balance, and transfer to teaching and learning.

Fundamentally, the relationships developed allowed students to feel safe in their learning. At a basic level, it "was good to have someone there to pick you up if you need it." A particular female student who began as a very unsure learner, stated,

> I started to form bonds with people in my classes. Once I did that, that allowed me to engage in class, but before I didn't really know anyone, I felt like the dumbest person. In all of my classes, I didn't want to speak up, because my classmates would be like 'why is that girl talking?' Just the relationships that were formed [here]. I mean I'm sure people think that [that she is dumb] now, but at least I'm OK with that! (F2)

The safeness students felt with each other was obvious to instructors. Students felt safe in sharing not only the high points learning to teach but also the low points. Instructor field notes revealed,

> I walked out in the hall after the first lesson and there I found Sharon and Jamie. Sharon was in tears—her lesson had not gone as she had wanted and she particularly struggled with management. Jamie knew of her insecurities and vulnerability; he was amazing. He listened, comforted, reassured in a way that I never would have been able to.

Others indicated what this relational comfortableness allowed them: "With either of you two [the instructors] we feel comfortable we can come with almost anything at any time and you're willing to help and there's that comfortable setting that you get. I think it does make a difference" (F4).

On a pragmatic level, these relationships "held them more accountable" (M1). At one level, this accountability included "getting the assignments done" (M1); it provided a motivation beyond

themselves and grades, that is, a responsibility to another person. An older undergraduate student indicated,

> When you are by yourself you don't really collaborate as much and you also don't maybe plan as much. I felt like I planned a lot more because of the cooperative experience and I planned in much more detail. Usually when I am teaching by myself it is a little flashcard that, you know, okay, this is what you're are doing first, this is what you're doing second, but here we both had to be on the same page. I think it made our teachings better as well . . . (M3)

At another level, there was an accountability to teach well; at times, these two areas of accountability became the balance as well. One student recognized,

> Jeff and I brought different things to the table. He helped me with the writing assignments, but at the same time I helped him with the teaching. His management skills aren't so strong; he doesn't manage as well. So I would step in and kinda help him; so we kind of helped each other out. (M1)

This interaction allowed the students to balance and enhance each other's individual way of learning while holding each other accountable for the necessary work.

They recognized that collaborative thinking was not a weakness, but allowed them to develop thoughts and plans beyond their own ideas. One student stated,

> We really worked well together by feeding off each other and learning from each other; you can't know everything yourself as an individual. You learn so much more when you have someone there to go through it with who is doing the same thing. You may look at something the exact same and he might see one perspective and you may see another. When you see it like that you may get to see twice as much compared to when you see it by yourself. (F1)

These students were able to translate the learning environment they were experiencing to the teaching of elementary school students. One undergraduate student indicated about his learning,

> I think I learned that you can have fun with the kids. It's more about the relationships that you build with the kids and the connection with the kids that is more powerful than the actual lesson plans itself. You need to force those relationships and build up trust because kids will respond to you if you have that. (M4)

They began to recognize certain instances in the university classroom that broke the artificial teacher–student barrier, such as the instructor "giving Angela a hard time about a cell phone . . . It's evident that it's not by-the-book type of thing" (M4) and how these might translate to the elementary school setting. Simple strategies such as "listen to their recess stories" (M4) and "look at their tee shirts" (M1) clearly established that building relationships was an ongoing and important step. Such strategies allowed them to know their students "interests or things that they're good at or that they like; things that motivate them give them challenges accordingly, which they will like because it has to do with what they are their interested" (F2).

### Feedback: "It wasn't like we had to wait"

The perceived feedback given in this environment was different to that given in other environments. Feedback involved multiple aspects regarding students' teaching experiences and work with young children that came from a variety of sources, and it clearly was a critical component of the learning process. One student indicated, "The biggest contributor for myself was the feedback that was given from both of you [instructors] and the cooperating teacher" (F1). Another student said, "Having a partner I was able to get more feedback" (F2). Receiving feedback was not sufficient in itself; however, the timing in which it was given "helped with student growth" (M1). One student explained, "Both of you [instructors] being there all the time watching us teach allowed for immediate feedback, as well as the cooperating teacher" (M1). This immediate feedback encouraged students to instantly reflect on their teaching: "It wasn't like we had to wait and think what is she [instructors] talking about, it was fresh and on our minds" (M3). Because relationships had developed among these students, it led to even more immediate feedback. One one undergraduate student indicated,

> My classmates can give us feedback too, so that was good because that was feedback that we can get almost all of the time whenever we are working or even if we called them or sent them a text message or if we e-mailed you all [instructors] we knew that we would hear back, but it was even more immediate. (F4)

For these students, having their peers' immediate response and shared ideas created for more exciting lessons. One student made this clear: "You can be just so much more creative, because you have two people's brains going on at the same time. People are creatures of habit and so when you have two people, that can help kind of spice things up" (F3).

Not only did sharing perspectives with one another lead to more enjoyable lessons, but it also allowed students to use that feedback the next time they taught. An older undergraduate student explained,

> Using that feedback and applying it is what helped me learn the most and getting direct feedback about lessons and then trying to apply that feedback during the very next teaching helped me grow the most from the first teaching to the end. (M2)

Students could recognize the relevance of feedback and look beyond to the bigger picture. One student articulated,

> We make mistakes and people [instructors, cooperating teacher, class peers] are there to tell us, like, you did this wrong, and to give us ways to fix it. But if you all [instructors, cooperating teacher, class peers] are not here to give us feedback, then this [learning experience] is pointless because we're not in "the real world," we're still "just students." (M5)

The multiple aspects and sources of timely feedback, however, led to something bigger than being "just students" (M1); they provided students with the skills to be effective communicators in a job in "the real world" (M1). One student explained,

> When you get a PE job, you're not going to be by yourself and you're going to need to be able to know how to ask other people or just be able to know how to collaborate with others

and bounce ideas off of one another, share ideas, and see how there are more than one way of doing things. (M1)

### Time: "Five days a week"

The instructional strategies in this course were unique not only in the amount of time spent in class but also in how time was situated. The PSTs perceived that this instructional strategy was beneficial and contributed to their learning. This course met 5 days a week, 3 days in 1-hr sessions and 2 days in 2-hr sessions. These students acknowledged that the time they were engaged in learning was significant in terms of the number of times the course met per week with peers and the time spent teaching elementary students. One undergraduate student described the 5-day-a-week course meeting schedule as positive: "I'd rather have it [class] five days a week for shorter periods of time than two days a week for [longer]" (F3). Another undergraduate student agreed that the time allowed for continuity of the course and was beneficial: "It allows it [course content] to stay fresh [so you can] transfer from piece to piece [and it] helps a lot to apply it to another situation" (F1). The time spent in class was instrumental in allowing the students to interact on a regular basis with one another and to develop as PSTs.

One undergraduate student shared how the frequent class meetings affected her ability to engage with others within the course, which ultimately affected her learning: "We felt comfortable with each other because we've been together for so long. We pretty much lived with each other, so it made it more comfortable to ask each other questions" (F2). The structure of the course allowed these students to spend a considerable amount of time working and teaching alongside one another. One student stated, "Having class five days a week definitely helped, we knew what was going on in people's lives, so we felt more comfortable to ask questions" (F1). Another student said, "When you are leaving class, you are, like, see you tomorrow, and you know you will see them tomorrow and the next day and the next day" (M3). The time spent in this course led the students to being comfortable and thus assisted in the learning process for these students.

Overall, the time spent in the course was described as much different from other classes these students attended. An undergraduate student shared the effectiveness she felt during class:

> Something that is drastically different from the [previous] two courses is that you actually teach the same kids more than once. In [another] course, it's like plan a lesson for 30 minutes and try to teach these kids, but you only spend 20 minutes because of management and then reflect what this lesson would have been like, whereas in [this course] we had time to correct our mistakes with the same people. (F1)

Another student similarly explained how he was able to grow into a more effective teacher from having more time in class:

> Just the amount of experience we got with everything that we did, that was probably the most change. [We] developed a whole lesson or unit opposed to a 20-minute lesson a couple of times. We got to see how the kids developed and change your future lesson plan based on how they did. That more experience in a classroom was good. (M3)

The increased amount of time during this teaching experience allowed students to refine and reflect on their lessons. One undergraduate student stated, "You had time to teach this group of kids and then reflect how all of that went and you can change or keep it the same, whereas before it was a one-time shot because we always had different kids. So being able to have more real-life but not all the way real-life teaching was helpful" (M2). Overall, the design of the course allowed for more practical teaching time in schools and was well received and appreciated by these students.

### Active Learning: "It's another thing to know how to do it"

The creation of an active learning environment was an intentional instructional strategy employed. The practical and authentic nature of learning for these students was paramount while they learned about teaching. At one level, they appreciated being actively engaged in the university classroom while they learned about teaching. A

male student indicated that his way of learning was different than others': "I learn by stating what I think, having that challenged" (M1). Yet it was the 8-week supervised school teaching experience, "just being in the school setting with kids" (M1), that provided what they saw as a piece of reality allowing for the translation of theory into practice. The postbaccalaureate student stated,

> I think for me, since I came here after doing a bachelor's degree, I see the difference in programs. This one has much more of an applied experience versus the one I came from. I think I definitely have grown a lot as a teacher because of that experience, being in the schools, observing more, seeing and interacting with teachers more. I think I have definitely developed more of a confidence in myself teaching through those experiences and through the progression from elementary to secondary schools. (M2)

In essence, it was the active experiences that provided the opportunity for students to connect conceptual knowledge so that they could self-assess the extent of their learning. One undergraduate student explained,

> We sat through a lot of management stuff and teaching things. You think you know it until you get into the classroom and realize it's one thing to know it and it's another thing to know how to do it. (F4)

Active learning became important while these PSTs engaged in the teaching process. They recognized that "unless you can apply theory it means nothing" (F4). They readily acknowledged that in "every class we go to, kids learn differently at different rates, blah, blah" (F4), but now we "go in and actually see that and apply it" (F4). Implementing active learning with elementary students revealed for them the power of these experiences in student learning. One undergraduate student shared,

> So when you actually give students the control to do something and they can take ownership and they can get excited about it because, like, you're still guiding them in the correct direction, we're not telling them they are going

to dribble the basketball five times, so you're giving them the freedom. (F3)

## Discussion

The purpose of this study was to examine the perceptions of PETE PSTs with respect to instructional strategies designed to reflect a constructivist approach to learning. With this in mind, several pedagogical strategies that support the tenets of constructivist learning were employed. First, learners constructed knowledge in relation to their prior knowledge. Lesson reflections in peer groups situated them in opportunities to become critical thinkers, problem solvers, and decision makers. Second, learning was an active process. The PSTs designed their own lessons, taught them to young learners, and then reflected on them. By doing such, they actively engaged in their own learning process and could draw from past experiences and apply their knowledge during new, authentic opportunities. Third, knowledge was socially constructed, in large through the social contextualized process of providing feedback. The work with a teaching peer and the peer observers allowed these beginning teachers to become intentional and interactive participants and to learn from and with each other to develop a deep, holistic, meaningful, well-connected understanding of content (Rovegno & Dolly, 2006). The students in this study expressed positive responses with this instructional approach in regard to their learning, which aligned with each principle of constructivism.

The results from this study indicated a powerful learning experience for all members, who described notable differences compared to traditional methods of teaching in their other classes. Students enjoyed and valued the practical nature of the course and the immediate feedback received from the instructors, peers, and cooperating teacher. The establishment of personal and meaningful teacher and student relationships was instrumental and necessary for students to feel comfortable asking the instructors and their peers questions (Pritchard & Woollard, 2010; Vygotsky, 1997). Building these unique relationships, however, took time. Faculty not only allowed time for PSTs to grow and develop their own learning, which led to constructing their own views of teaching, but the course design of 5 days a week provided frequency coupled with quantity. Conscious efforts

were made between the instructors and students, as well as among the students, when they were given the opportunity to establish positive relationships.

This study adds to an increasing body of evidence suggesting pedagogies that support a constructivist approach to learning are a viable and powerful means for framing effective teacher education programs. Loughran (2006) explained that the art of teaching is confined to two aspects of knowledge and practice: teaching about teaching and learning about teaching. In this particular study, the instructors' knowledge with respect to teaching how to teach created a sense of awareness around the importance of implementing strategies that support constructivist learning principles. Essentially, this creation of knowledge existed with the students as well, which was built upon the practical implications of bridging theory into practice (Loughran, 2014). Knowledge and practice of teaching teaching must go beyond the rhetoric of the sheer dissemination of pedagogical knowledge; rather, Loughran (2014) stated, "teaching teaching is about thoughtfully engaging with practice beyond the technical; it is about using the cauldron of practice to expose pedagogy (especially one's own) to scrutiny" (p. 5).

The establishment of a constructivist conceptual framework within teacher education programs that is based on shared discoveries during practical teaching and learning experiences can ultimately lead to a mutual understanding about teaching how to teach and learning to teach. If such environments are achieved, teacher education practices "can begin to bring to the surface the sophisticated thinking, decision making, and pedagogical reasoning that underpins pedagogical expertise so that it might not only be recognized but also be purposefully developed" (Loughran, 2014, p. 5). Though these sentiments are contradictory to the current structures of higher education (e.g., cost efficiency, high class enrollment, and online learning contexts), these principles that support constructivist learning have been reported to enhance student learning and sense of belonging (Richards & Gaudreault, 2017) and are plausible for teacher educators to implement into their teacher education programs. Furthermore, because pedagogies that promote constructivist learning enhance critical thinking and reflection, they can serve to encourage preservice teachers to challenge their initial

assumptions regarding teaching and learning in physical education. The result may well be developmentally appropriate school-based physical education designed to meet the needs and interests of children and adolescents.

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