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2019

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Understanding Preservice Physical Education Teachers' Teacher Identity

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Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

May 2019

Acknowledgements

First and foremost, I would like to thank my parents, Guohua Liu and Xiaomei Kan for their unconditional support for my doctoral study. They always believe I can achieve my dreams, and they have sacrificed many things to support me in pursuing a career in the U.S. They showed me the power of love and the importance of family.

I would like to express my gratitude to my doctoral advisor Dr. Xiaofen Keating. It is my fortune to work with a great advisor like her. Dr. Keating is not only knowledgeable in our field; she is also a seasoned mentor guiding me through many research inquiries. She always lets me know whether I am on the right track and gives me the autonomy to complete tasks to achieve my academic goals in my own way. She cares for her students genuinely, and always replies to my email at her earliest convenience. Dr. Keating is also a good friend, and we had many interesting conversations daily. I truly enjoyed the accommodations for Christmas and Spring Festival gathering at her house.

I would like to take this opportunity to thank my committee members Drs. Louis Harrison, Elaine Horwitz, and Elliot Dr. Tucker-Drob. Their support throughout my dissertation study helped ensure the quality of this project. I was supported to secure a research grant from SHAPE America for this project, and my questions regarding research design, data collection, and data analyses were always answered promptly. I gained much practical knowledge about conducting research projects, all thanks to their guidance.

Last but not the least, I appreciate the support from fellow doctoral students Rulan Shangguan, Xiaolu Liu, Tracey Ely, Jessica Leitner, Sam Twito, Bob Knipe, Jeff Colburn, Rachyl Stephenson, Ashley Phelps, and Minjae Kim. Thank you for sharing your opinions and knowledge with me in all the courses and projects that we worked during my doctoral

study. Also, many thanks to my friends Rui Qiu, Sunxiao Geng, Sijiao Liang, Wenyu Lv, and Junyuan Ding. You helped me through many difficult moments and brought me laughter and fun. The time spent with you made my journey of completing my dissertation enjoyable.

Abstract

Understanding Preservice Physical Education Teachers' Teacher Identity

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The University of Texas at Austin, 2019

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Quality physical education programs are essential in preventing childhood obesity, and its implementation depends on the quality of preservice physical education teachers (PPETs) who may develop a strong teacher identity in physical education. However, existing research in PPET-TI is very sparse. This study aimed to examine the essential elements of PPET-TI and the psychometric properties of the scale measuring PPET-TI. Two studies were conducted using a mixed-methods research design. In study 1, semi-structured interviews were conducted with 19 PPETs. Three essential themes were identified: self-definition of roles and projected professional positions, teaching goals, and professional responsibilities for self-growth and changing the physical education profession. In study 2, survey items were developed based on results from study 1 and a literature review, which were evaluated by 10 experts to establish content validity. A survey of 26 items was distributed to 552 PPETs' to examine validity and reliability. Confirmatory factor analysis and model specification revealed an adequate

model fit to the data for a 17-item PPET-TI Scale consisting of three domains: self-definition, teaching goals, and professional responsibilities. Convergent validity, criterion validity, and discriminant validity of the scale scores were also adequate. The scores of the PPET-TI Scale showed an acceptable internal consistency (Cronbach's alpha = .91 for the entire scale). It is recommended to use the PPET-TI Scale for PPET recruitment, PETE program effectiveness evaluation, and PETE curriculum improvement. Future studies may use the PPET-TI Scale to identify influencing factors of identity development.

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Chapter 1: Introduction

BACKGROUND

Childhood obesity is one of the most concerning health problems that affects about 17%, that is 12.7 million children and adolescents in the U.S (Ogden, Carroll, Fryar, & Flegal, 2015). Children with obesity are more likely to have diseases such as high blood pressure, type-2 diabetes, and fatty liver (Boney, Verma, Tucker, & Vohr, 2005; Freedman, Mei, Srinivasan, Berenson, & Dietz, 2007). They are also at a higher risk of developing mental and social problems, such as low self-esteem and school bullying (US Department of Health and Human Services, 2010). Childhood obesity also increases the chances of adulthood obesity, heart diseases, type-2 diabetes, and cancer (Freedman et al., 2007).

Physical education is a core subject matter and the only subject in school that provides time and space for school-aged children to learn about movement in moderate-to-vigorous physical activity (Kohl III & Cook, 2013). Many quality physical education (QPE) programs have been found to effectively increase students' physical activity level (McKenzie et al., 2010), improve health-related fitness (Carrel et al., 2005; Erfle & Gamble, 2015), and promote positive attitudes toward physical activity and a healthful lifestyle (McKenzie et al., 2010; Quinn, 2012). All the above outcomes of QPE may help reduce risks of childhood obesity (Erfle & Gamble, 2015), save billions of dollars of medical costs by obesity-related diseases and relieve the burden on the healthcare system (Finkelstein, Trogdon, Cohen, & Dietz, 2009).

The delivery of a QPE program is dependent on physical education teachers who are passionate about, dedicated to and efficient in planning and implementing QPE programs (Dyson, 2014). Despite the constraints from the society and the teaching settings, a physical education teacher who can meet high professional standards and retain in the

teaching profession needs to develop a teacher identity (TI) that is coherent with these actions (Day & Gu, 2007). TI plays an important role in QPE for at least two reasons. First, TI is a way of being and becoming a teacher (Beijaard, Meijer, & Verloop, 2004), which represents a status of relation to the teaching profession (Lawler, 2015). Such relation can affect teachers' career intention, socialization into work, and commitment to career (Adams, Hean, Sturgis, & Clark, 2006; Day, Elliot, & Kington, 2005; Hong, 2010; van Veen & Lasky, 2005). Second, TI is also a powerful resource that organizes teachers' life (Beauchamp & Thomas, 2009) and transforms society (Varghese, Morgan, Johnston, & Johnson, 2005). TI influences teachers' beliefs of teaching and learning, self-efficacy in teaching, choices of pedagogy and attitudes toward education reform (Fernandez-Balboa, 1997; Kreber, 2010; O'Connor, 2008; Settlage, Southerland, Smith, & Ceglie, 2009; Vähäsantanen, 2015). In these two ways, TI influences the delivery of QPE programs.

One strand of research on TI focuses on the formation of identity as a significant product and a core process in teachers' socialization (Paterson, Higgs, Wilcox, & Villeneuve, 2002; Sfard & Prusak, 2005). Although TI and socialization seem to be concurrent and closely related in the field of teacher education, they are two different concepts. TI is a term about a process where an individual builds and re-builds one's self-images and ideal-images that one aspires to appear to others within an occupational context (Gee, 2000; Isbell, 2008). Occupational socialization for teachers, on the other hand, is a lifelong process that an individual learns and shapes knowledge, skills, and cultures in order to be a participating member of the teaching profession, not only within a teacher education program but also in broader contexts of institutions and society (K. Zeichner G. & Gore, 1990).

Lawson (1983) discussed three important types of socialization for teachers: the acculturation from birth, the professional socialization in the teacher education program,

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and the organizational socialization to the workplace -- the schools. TI is gradually formed during all of the three types of occupational socialization (Isbell, 2008; Lawson, 1983), along with other things that are deemed as ideal and unique to the teaching profession, including the knowledge and skills valued by the profession (i.e., "shared technical culture", Lortie & Clement, 1975) and workplace (Lawson, 1983), values and sensitivity about teaching and learning (Templin, 1979), and professional behaviors (Isbell, 2008). As such, the term socialization describes a much more complex process than TI. This study will focus on TI as one important aspect of teacher socialization.

Content knowledge and pedagogy content knowledge have been central to teacher preparation programs (Kaplan & Garner, 2017). As discussed before, the full application of these research-derived practices, usually challenged by various competing factors such as time, funding, and testing pressure, is largely dependent on the extent to which TI is in line with these practices (Kaplan & Garner, 2017). However, in current teacher education programs, unlike content knowledge and teaching skills, TI is often seen as a by-product as opposed to an important goal of the program (Franzak, 2002). If this lack of attention to TI in teacher education research and practices continues, teachers' professional growth, teaching effectiveness, emotional well-being, and career retention will be harmed (Day & Gu, 2007). Being aware of all of the important aspects of professional socialization, this study focuses on TI in the context of physical education teacher education (PETE) programs.

NEED FOR THE STUDY

The enrollment in teacher education programs in the U.S. dropped 36% from 2008 to 2014 (Aragon, 2016). In some states, such as California, had lost 53% enrollments from 2008-2009 to 2012-2013 school year (Sawchuk, 2015). The nation is experiencing an

ongoing shortage in teacher applicants (Dundar, 2014), declined number of new teachers, and a steep drop in teacher-student ratio from 27:1 in 1955 to 16:1 in 2011 (Snyder & Dillow, 2015). The shortage of physical education teachers is also widely experienced, including in states of California, New York, Oregon and Florida (Ward, 2019). In the meantime, the number of the teaching position in K-12 has been projected to increase by 14% from 2010 to 2021 in order to meet the needs of the expanding school-aged population (*National Center for Education Statistics 2013*, n.d.), implying increasing demands for new teacher recruitment. Teacher education graduates' career choice, often competing with choices of careers in other fields, is largely influenced by the kind of TI they develop in preservice training (Day et al., 2005; Hong, 2010). Therefore, preservice teachers' TI is of particular importance in addressing the increasing demands for new teachers. A deep understanding of preservice teachers' TI may shed light upon strategies that improve teacher education curriculum, teacher recruitment and placement, and teachers' socialization.

Subject matter's status is another important factor to be considered in analyzing current research on TI (Beijaard, 1995; Drake, Spillane, & Hufferd-Ackles, 2001; Lawson, 1983). Considering the long-lasting marginalized status of physical education in schools (McKenzie & Lounsbery, 2014; Rink, 2013), as well as the decreasing enrollment in PETE programs in higher education institutions across the U.S. in the past decade (Keating et al., 2017; Metzler et al., 2015; van der Mars, 2011), research on preservice teachers' TI is especially needed in the field of physical education. However, the attention to preservice physical education teachers' teacher identity (PPET-TI) is alarmingly limited (Keating et al., 2017). Although research on the socialization process, recruits' subjective warrants, and teachers' value orientation have been conducted (Behets, 2001; Curtner-Smith, Hastie, & Kinchin, 2008), empirical studies on PPET-TI in the U.S. were not found since Solmon

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and her colleagues' work in 1990 (Solmon, Worthy, Lee, & Carter, 1990). Considering the radical changes in policies, the status of the physical education teaching profession and student body in the U.S since 1990 (Tinning, 1990), a re-examination of PPET-TI in contemporary U.S. society is urgently needed.

OVERVIEW OF THE RESEARCH DESIGN

The purposes of this study were to: (a) investigate the domains of PPET-TI; and (b) develop a quantitative survey measurement of PPET-TI and examine its psychometric properties. The overarching research questions are: (a) What are the domains and their structure underlying items of the PPET-TI Scale? (b) What are the reliability and validity of scores of the PPET-TI Scale? and (c) What is the convergent, criterion and discriminant validity of the scores of the PPET-TI Scale?

To address the above research questions, a sequential mixed-methods research design was used for this study. Such research design was used in this study because two consecutive studies, each with its distinct research question(s) are needed for developing a quantitative survey of PPET-TI. Specifically, qualitative methods were used to provide information for research questions in the first study, and quantitative methods were used to develop and establish the validity and reliability of the PPET-TI measure in the second study. The research design of this study is outlined in Figure 1 below.

Methodology/Methods | **Sample** | **Analyses** | **Product**

Study 1

Phenomenological Approach

19 PPETs

Epoche
Meaning units
Meaning clusters
Composite summary of the essence

Three essential elements (domains) of PPET-identity

Study 2

Survey Development

Item pool and survey construction

An item pool of 32 items

10 subject-matter experts

Content validity evaluation

An initial 26-item scale

33 PPETs

Pilot study

552 PPETs

Establishing factor structure;
Evaluating reliability, convergent and discriminant validity

A Final 3-domain, 17-item scale

Figure 1: The Sequential Mixed-methods Research Design

First, a qualitative study was conducted in study 1 to gain insights into the in-depth information of PPET-TI in a given context. The analysis of the qualitative data provided a deep understanding of TI in the context of physical education teacher preparation programs. Second, major themes and nuanced content about TI found in study 1 guided the development of a quantitative scale measuring PPET-TI in study 2, including its domains and items. Content validity, construct validity, concurrent validity, and reliability of the scale were examined according to psychometric theories. The research questions, research design, data analysis and results of each study are discussed in Chapters 3 and 4.

SIGNIFICANCE OF THE STUDY

Findings of each research question listed above can lend many insights into future research on teacher education. First, results of identified domains and content of PPET-TI

would provide a useful conceptual framework for future studies on the topic. And second, the scale developed in this study enables researchers to measure changes of PPET-TI via longitudinal studies and thus generate new knowledge concerning how PPET-TI changes through PETE program study. Overall, findings of this study provide the base for quasi-experiment studies on the effect of teacher education coursework and/or practicum on PPET-TI, which ultimately helps improve the quality of PETE programs.

Chapter 2: Review of Literature

A synthesis of the literature on key concepts is discussed in this chapter. First, three perspectives in teacher preparation research are discussed. Second, a review of previous literature on identity and TI is presented. Third, various ways of defining and conceptualizing TI are addressed. Lastly, existing research on PPET-TI is examined with a focus on identifying research gaps and issues related to research methodology that is used in the current study. This last section is based on a published journal article I coauthored (Keating et al., 2017)[1].

AN OVERVIEW OF IDENTITY

This section outlines the three theoretical perspectives used to understand identity: the functionalist, interpretive, and dynamic perspective. The three perspectives were first introduced in the context of teacher preparation, followed by a discussion of how identity can also be analyzed through these three perspectives. In the end, a variety of conceptual frameworks of identity are summarized.

Three Perspectives of Teacher Preparation

Researchers identified three distinct perspectives in teacher preparation research (K. Zeichner G. & Gore, 1990): a functionalist, an interpretive, and a dynamic perspective. A functionalist perspective views teacher preparation as a process where teacher training program infuses necessary orientations, knowledge, and skills to pre-service teachers, so that they can make a smooth change in their personal qualities to fit in the culture of their

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[1]Keating, X., Zhou, K., Liu, J., Shangguan, R., Fan, Y., & Jr., L. H. (2017). Research on preservice physical education and preservice elementary teacher's physical education identity: A systematic review. *Journal of Teaching Physical Education*, *36*, 162–172. (I contributed to data analysis, reliability check, and results writing of this research project.)

workplace – schools and classrooms. An interpretive perspective, on the other hand, rejects the notion that pre-service teachers are passively shaped by professional training. Instead, they constantly make sense of their interactions with the professional training context, make conscious choices, and actively adjust to the teaching roles and cultures. A dynamic perspective is distinct from the aforementioned two perspectives in that it recognizes teachers' agency in resisting individual or contextual factors that intend to socialize them. Pre-service teachers and their professional training contexts may be shaped and changed during teacher preparation (Schempp & Graber, 1992). A dynamic perspective features a two-way interaction as opposed to a one-way effect by teacher education on teachers.

Understanding Professional Identity: A Shifting View of Agency

In history, scholars across disciplines, including education (Beijaard et al., 2004), psychology (Cooley, 1902/2017; Erikson, 1959), sociology (Gee, 2000; Mead, 1934), and anthropology (Holland, 2001) attempted to understand identity from different lenses. Different perspectives may guide researchers to focus on different aspects of identity, the characteristics, and the development process of identity are theorized differently from one perspective to another.

From a functionalist perspective, identity is a fixed, stable, and enduring entity to be attributed to individuals by society. Identity is a set of group memberships, labels, or categories that one agrees with (Abrams & Hogg, 2006), through one's recognition of sameness and difference between self and others (Watson, 2006). Concepts such as core identity(Dobrow & Higgins, 2005), substantive identity (Ball, 1972), roles (Adams et al., 2006), and institution-identity (Gee, 2000) are related to this view of identity. A significant function of identity is to categorize and label individuals into different groups. The development of one's identity is accomplished through socialization, in which individuals

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adopt and internalize the norms, values, beliefs, and attitudes that attributed to a certain group by the society so that they can function and perform successfully in a certain society and context (Clausen et al., 1968). In this sense, the active pursuit of personal goals is not emphasized from a functionalist view, since identity is attributed by society rather than socially constructed by individuals according to the demand of a context.

On the other hand, in recent literature, researchers examined identity from an interpretive perspective of identity more often than before. One's identity has many facets (Cooper & Olson, 1996) and it is an evolving "portfolio of self" across situations and one's lifespan (Pettifer & Clouder, 2008). One's identity is composed of the inward self-awareness as well as images learned from observing responses from the "generalized others" in social interactions (Mead, 1934). In other words, others in the context function as mirrors in which one can see oneself. Cooley (1902/2017) termed this as "looking glass self" and highlighted the importance of "others" in identity development. Mead (1934) further pointed out that not just "others" in the context, the development of identity relies on interaction with other things occurred during social interactions. By making meaning of the interactions with others, one negotiates the images she or he wants to embody, construct, and reconstruct identity to adjust to the demands in different social contexts.

Neither a functionalist perspective nor does an interpretive perspective challenge the social and power hierarchy in the context where identity develops. Rejecting notions such as value-neutral context, categorization, internalization, and reproduction of social structure and power relations, a dynamic perspective viewed identity as a process of constructing and reconstruction one's relation to the various structures in the society. As Bolster (1983) stated, "people must be considered as both the creators and the products of the social situations in which they live" (Bolster, 1983, p. 303). One's identity is not given by society nor constructed to accommodate demands in the contexts. Rather, one's identity

indicates a level of power in relation to social structures. In a dialectic and problematic process, one has the agency challenge social structures just like social structures have the power to shape one's identity (Zeichner & Gores, 1990).

Conceptual Frameworks of Identity

Interestingly, Gee (2000) proposed a framework of identity that incorporates mixed theoretical perspectives discussed above. One develops his/her identity in four domains. Nature-identity refers to an individual's biological state/attributes. Institutional-identity refers to positions or roles authorized within an institution by people with the power to make that decision. Discourse-identity means a trait recognized by others in social interactions. Affinity-identity represents a culture shared within a group and distinctive from other groups. Except for nature-identity, which is determined mostly at birth by biological factors, Gee (2000) emphasized the importance of individual agency in analyzing the other three types of identity. For example, the institutional-identity is anchored on a continuum which ranges from imposition to one's calling, depending on how actively individual pursue to be that type of person (i.e., identity).

Gee's (2000) theory of identity is highlighted in this study for accommodating multiple perspectives of identity. First, the process of identification and recognition resonate to the concept of Discourse in this theory, which depicts the interactive, dynamic, and multifaceted nature of identity, representing an interpretive perspective on identity. Second, the four types of identities are not necessarily exclusive from each other. Rather, they are different dimensions of one's identity. Instead of having multiple and fragmented identities, one experiences a more or less coherent and unified identity with some dimension more salient than others in a given context. Gee's identity theory acknowledges a coherent and consistent identity that is unique to an individual across contexts,

acknowledging a functionalist perspective of identity. As Akkerman and Meijer (2011) argued, contemporary research on TI may over-emphasized the multiplicity, discontinuity, and social nature of identity. This dominant perspective may fail to answer many important questions about identity. If one's identity is claimed to be fragmented and fluctuate across settings and time, a relatively stable and coherent identity (i.e., core identity) would not be experienced. An important message conveyed from Akkerman and Meijer's (2011) work is that the three perspectives of identity should not be considered as discrete and exclusive from each other. Rather, a more integral framework that acknowledges viewpoints in multiple perspectives on identity needs to be developed.

In addition to Gee's theory, other theories were also developed to conceptualize identity. Lauriala, Kukkonen, Denicolo, and Kompf (2005) proposed a three-dimensional model of one's sense of self: an actual self (current identity embodied by the individual), an ought self (an identity expected by social norms), and an ideal self (a target identity that individual set to be accomplished). These three types of self-concept constitute one's identity. Sfard and Prusak (2005) identified two types of identity that are in line with Lauriala et al.'s (2005) model: an actual identity that is similar to the actual self, and a designated identity that is similar to the ought self. However, when describing the designated identities, Sfard and Prusak (2005) did not differentiate identities that are expected by external forces and by individual themselves. For example, thoughts of "I want to be a doctor" "I have to be a better person" (Sfard & Prusak, 2005, p. 18). The authors viewed that identity was developed from the interactions between an individual and his or her "significant narrators". Individuals constantly negotiate personal interests with external expectations, which implies an integral view of external and internal factors impacting identity. Day and colleagues proposed three types of identity: the past identity informed by personal and social history, the current identity based on current roles, and the future

identity that individuals hope to achieve (Day, Kington, Stobart, & Sammons, 2006). What shared among the three conceptual frameworks is the differentiation between an identity at present and an identity that has yet to achieve in the future.

To sum up the literature on identity, the term of identity is essentially about the self, the context, and the interaction, one-way or two-way, between the two. There is a shift from a fixed, singular and substantive view of identity to a more dynamic, plural, fragmented, and situated view of identity. Agency is the key element that sets apart the three perspectives from each other (Varghese et al., 2005), receiving much attention in recent studies, even though researchers noted to have a more integral perspective that accounts the complex natures of identity. Based on the purposes of the study, the following section focuses on a synthesis of one type of identity -- the occupational identity. The occupation here is specifically referred to as the teaching profession.

AN OVERVIEW OF TI

TI has been defined, categorized, and conceptualized in many different ways just like identity. Various theories of identity in psychology and sociology informed the work on TI (Trede, Macklin, & Bridges, 2012). In research on TI, the aforementioned three perspectives of identity (i.e., functionalist, interpretive, dynamic perspectives) can also be identified. Definition and conceptual frameworks of TI from each of the three perspectives are addressed below, followed by a discussion of research on influencing factors of TI.

Definitions of TI

From a functionalist perspective, TI is defined as a sense of membership, that is a sense of belonging to teacher community and a sense of deviation from other professional organizations, as well as one's self-efficacy in fulfilling a teacher's roles and duties that

are assigned by the society (Adams et al., 2006; Briggs, 2007; Paterson et al., 2002). From an interpretive perspective, TI is defined as a process that a teacher builds personal practical knowledge that is seen as relevant to teaching by the teacher and others in the context (Beijaard et al., 2004). In this knowledge building process, one's self-awareness meets, negotiates with, and interacts with social, cultural, institutional contexts (van den Berg, 2002). One aspires to reach a consonance between personal experiences and contextual expectation by choosing to either accept or resist others' contextual influences (Moore & Hofman, 1988; Trede et al., 2012). Unfortunately, work on TI from a dynamic perspective is still limited, and a clear definition of TI has yet to emerge from existing literature. Based on the few existing studies, TI from this perspective may be defined as the mediator of individual agency and social structure (Giddens, 1991). TI results from social interactions with others in teachers' socialization and working context, and it is also an agent that guides teachers to individually and collectively construct social systems and structures through their professional actions (Briggs, 2007).

Conceptual Frameworks Used in TI Literatures

The following section reviews conceptual frameworks emerged from research on TI. The focus is placed on the functionalist, interpretive, and dynamic perspective of identity. The differences in the three frameworks are synthesized at the end of the section.

The Functionalist Perspective

Researchers approached TI from a functionalist perspective tended to theorize TI as a set of important professional roles and duties that one needs to fulfill. Nias (2002) referred to this process as "finding the niche" in the teaching profession. For example, Beijaard and colleagues conceptualized TI from teachers' perception of professional

knowledge with which a teacher should know and do in three domains: subject matter expertise, pedagogical expertise, and didactical expertise (Beijaard, Verloop, & Vermunt, 2000). In this sense, TI is a teacher's perception of the combined expertise in these three domains.

The functionalist perspective of TI received critiques mainly for two reasons. First, such view may not account for people who do not identify with teachers even they perceive having expertise in teaching. Some may identify with other social roles depending on the context and situation. For example, a high school physical education teacher and coach who is highly qualified in teaching may identify with a coach when attending an intramural event. Second, the membership of a group is not an "all or none" dichotomy (Varghese et al., 2005). Individuals may be belonged to multiple groups and define the strength of association with different groups differently. The multiple "Is" are overlooked in this view.

The Interpretive Perspective

Different from the functionalist perspective, the interpretive perspective of TI emphasizes the meaning-making process in the interaction between the individual and the social context. In early work, scholars examined teachers' perception and knowledge about the teaching profession. For example, Moore and Hofman (1988) proposed three domains in TI: the perceived importance (centrality) of being a teacher, the attraction (valence) of being a teacher, and the relationship between one's TI and his/her other identities (consonance). This framework has been supported by later empirical studies. For example, Higgs (1993) indicated that TI is strongly experienced when one develops the attitudes and beliefs about the importance and usefulness of being a professional in a certain field. Conflicts between the practitioners' positionality and the expected values and standards

from the profession emerged as an important theme in Trede et al.'s (2012) literature review on TI.

Yet, TI is far more than just teachers' perception and evaluation of the profession (Beauchamp & Thomas, 2009; Day et al., 2006). One's sense of self should not be left out in analyzing TI. There are 'unavoidable interrelationships" (Day et al., 2006, p. 602) between the professional aspect and the personal aspect of TI. Personal involvement in teaching is universal and can date back to early schooling experiences of the teacher (Lortie & Clement, 1975). Later scholars recognized the self as the key in comprehending TI, taking into consideration of the interaction between the self and the professional context. In his early work, Beijaard (1995) proposed a model including two elements that define "who or what someone is": "the various meanings someone can attach to oneself, [and] the meanings attributed to oneself by others" (p. 282). Similarly, Dworet (1996) conceptualized TI as one's self-images (who I am now) in the context of the teaching profession, how teachers appear to others (i.e., public-images), and more importantly, to what extent do individuals let public-images influence their self-images.

A recently published work by Kaplan and Garner (2017) elaborated the content of and the relations among the key elements in Beijaard (1995) and Dworet's (1996) framework. The authors proposed a Dynamic Systems Model of Role Identity (DSMRI, see Figure 2), which propelled a more dynamic and complex model that represented both a functionalist and an interpretive perspective of TI. First of all, they defined TI as "a person's self- description as a teacher" and the "extent to which the person has established a personal commitment to the teaching profession and considers being a teacher an important aspect of who he or she is" (Kaplan, Garner, & Semo, 2015, p. 4). Such definition aligns with Gee (2000), Beijaard (1995) and Dworet's (1996) framework. The first part of

their definition deals with self-images, whereas the second part deals with the interplay between self-images and public-images.

Further, Kaplan and Garner (2017) identified four interrelated domains in TI: Self-perception and Self-definition (i.e., self-attributes that one perceives to be relevant to his or her functioning in the role of a teacher); Ontological and Epistemological Beliefs (i.e., beliefs and perceptions regarding the nature of teaching, learning, and knowledge); Purpose and Goals (i.e., purpose of actions and goals of education or a subject area); and Perceived Action Possibilities (i.e., intention and actual behaviors related to goals and purposes). These four domains were constructed in a certain context (i.e., social context, subject domain, culture, personal dispositions) and were interdependent from each other.

Although only a few studies have been available, researchers validated DSMRI in various settings. Gunersel and colleagues reported that DSMRI were able to capture changes in graduate students' identities in teaching in higher education after professional development sessions (Gunersel, Kaplan, Barnett, Etienne, & Ponnock, 2016). Peterson (2016) used DSMRI to include a set of existing scales to measure different domains of high school students' role identity in mathematics. He found that after going through identity exploration intervention, some domains in students' role identity revealed significant changes, such as achievement goals (goal and purposes domain), task values (self-definition domain), and self-regulation (perceived action possibility domain). Nonetheless, no measurement has been developed purposefully based on DSMRI. In addition, such a model has not been validated among preservice teachers.
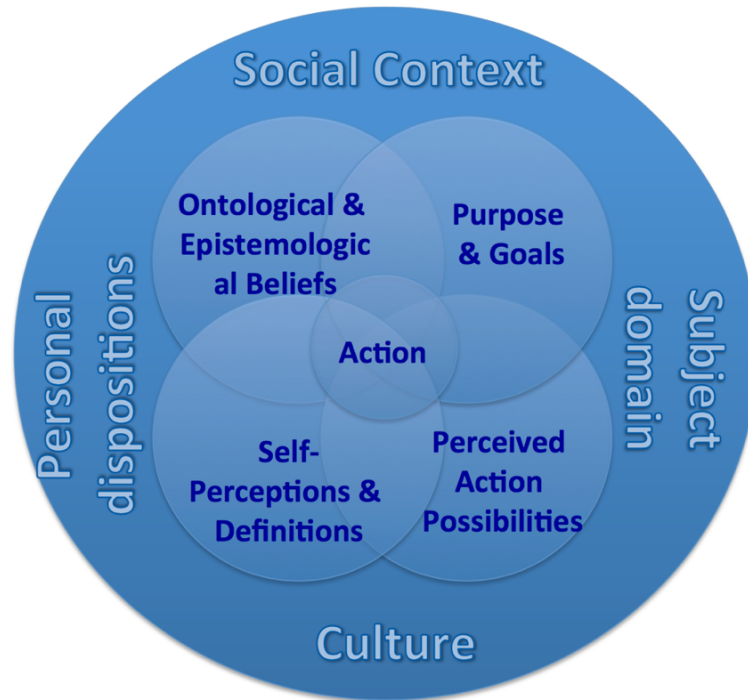
Figure 2: A Conceptual Framework of the DSMRI.

The Dynamic Perspective

While the interpretive perspective of TI raised attention to the interaction between individuals' self-concept and the external environment, a dynamic perspective of TI highlights that TI is not only shaped by the context, it shapes and changes the nature of the profession. Situated learning theory is an exemplary framework from this perspective (Wenger, 1998). In this theory, TI is a process of defining oneself in five dimensions: negotiated experiences, community membership, learning trajectory, nexus of multi-memberships, and the relation between the local and the global. One defines one's identity through negotiating one's own experience of the self and the ways others reify the self (i.e., negotiated experiences), and also through negotiating a broader constellation in the society with a local belonging to an organization (i.e., the relation between the local and the

global). This means through participation, not only one's identity is shaped by the community, but also one shapes the community. One also defines one's identity by the strength of the association with a community (i.e., community membership), and deals with the conflicts among various memberships so that multiple memberships can be unified into one identity (i.e., nexus of multi-membership). In addition, one's identity is also formed by one's past and future (i.e., learning trajectory).

Differences in the three perspectives

Various theoretical frameworks have been developed to help us understand TI. Functionalist perspective viewed TI by breaking it down to the kinds of roles that teachers need to fit in and expertise that teachers need to learn. Interpretive perspective viewed TI as a process involving interactions between various contextual factors and personal factors. Dynamic perspective approached TI as a way to transform the classroom, schools, and a broader sociopolitical context.

A REVIEW OF EXISTING RESEARCH ON PPET-TI

In this review, 14 data-based studies were identified to be related to PPET-TI (see Table 1). These studies are reviewed and discussed in four aspects: (a) definitions; (b) conceptual framework/theories; (c) research focuses and key findings; and (d) research methodological issues. The section ends with a summary of the research gaps identified from previous research on PPET-TI.

Author (Year)	Definition/Framework	Research Design	Results
da Cunha (2014)	Teacher professional identity is a socio-cultural attribute focusing on the processes of recognition occurring in the interpretations of interactional experiences in professional settings/ Gee's (2000) theory of being recognized as a certain type of teacher	Qual. (Photo Elicitation Interview Technique)	Students built their PE identities in allegiance with their PETE professors and others
Devis-Devis (1999)	Identity is a process instead of an attribute that is multifaceted, social, continuously changing; it is not singular or unitary/ Social constructionist perspective	Qual. (case study, interview)	Confronting student previous ideas and experience empowers students to re-shape their PE identity
Dowling (2011)	A postmodern perspective; Professionalism theory: democratic and managerial (Sachs, 2001)	Qual. (focus group interview)	PETE programs did not shape students' PE identities for postmodern times
Faulkner (2004)	Identity is the salient actor related to particular teaching behaviors/ Planned behavior theory	Quant. (four Likert-items)	PE identities was not a predictor of intentions to teach PE courses
Fletcher (2012)	Identity is the understanding about selves and others	Qual. (Interview)	Negative PE experience affected negatively on PE identity; PE coursework and student teaching had limited effects on shaping preservice elementary teacher PE identity. However, they challenged their prior assumptions about teaching PE

Table 1: Profile of Selected Research Studies

Author (Year)	Definition/Framework	Research Design	Results
Fletcher (2013)	Identity is a process of being and becoming, shaped by interplays between self- and public-images	Mixed methods (pre-/post survey and semi-structured interviews)	The 12-hr PE methods course enhanced PE identity, provided examples and support of QPE; No gender difference was found
Garrett (2007)	Post-structural theoretical framework	Qual. (open-ended questions)	Physical incompetence and poor performance in PE negatively shaped PE identity
Macdonald (1998)	teacher professional identities is the combination of substantial self and the situational self/ Self and identity theory	Qual. (case study interview)	Religion created tensions on forming PE identity
Macdonald (1999)	Post-structural perspective	Qual. (case study; semi-structured interview)	Students' stable Christian identity played a strong role in forming their PE identity, unfitting in modern PE pedagogical practices
Margarida (2012)	teacher professional identities is a social identity reflecting the values of the teaching profession has in the society	Qual. (case study -- The analysis of the Practicum Report and the Board Diary)	The confrontation of school reality forced the student to re-shape her PE identity
Melnychuk (2001)	teacher professional identities is a process of negotiation and is dynamic, ongoing, and accumulative	Qual. (survey; a semi-structured interview; a group interview)	Teaching beliefs and values were challenged; the student had to think about what kind of teachers he wanted to be
Sirna (2010)	Habitus, field, practice, and capital interaction theory by Pierre Bourdieu	Qual. (Semi-structured interview)	Sharing the same interests with HPE faculty members' beliefs and expectations made students believe that they fit in the profession; preservice specialists had to adjust PE identities to fit in

Table 1: Profile of Selected Research Studies (continued)

Author (Year)	Definition/Framework	Research Design	Results
Solmon (1990)	Identity is an established concept regarding self as teacher based on biography influencing teacher thinking and behaviors	Qual. (Questionnaires, observations, interviews, reflective journals, and18 videotaped classes)	Biography, time spent in student teaching are important in shaping PE identity; the ones with clear self-image as a teacher refined their PE identity. Otherwise, they adopted cooperating teachers' PE identity.
Wrench (2012)	Identity is used in reference to the performance aspects of subjectivity that qualify people relationally, including in terms of gender, ethnicity, class and occupations such as the physical education teacher	Qual. (semi-structured interviews, focus groups, reflections and email conducted and received over a 3-year period)	Teacher professional identities interacted with student biographies; PETE pedagogical practices shaped their thinking about physical education, teaching and themselves; perceiving teaching physical education focused on mastering sport skills.

Table 1: Profile of Selected Research Studies (continued)

Definitions of PPET-TI

A few scholars defined PPET-TI as an attribute that needs to be identified and genuinely internalized into one's own identity (da Cunha, Batista, & Graça, 2014; Faulkner, Reeves, & Chedzoy, 2004; Fletcher, Mandigo, & Kosnik, 2013; Margarida, Ana, Amandio, & Paula, 2012). For example, Fletcher and his colleagues noted that "an important part of any process of identification is that of labeling, and this can be represented in terms of naming or categorizing and how people 'respond to or treat us'" (Fletcher et al., 2013, p. 171). Similarly, Margarida and colleagues stated that "when pre-service teachers incorporate the specific content of teacher profession, they can be recognized as a teacher. Thus…(teachers') identity represented a way to identify each other in professional contexts" (Margarida et al., 2012, p. 667).

On the other hand, PPET-TI was viewed as a process involving relating, negotiating and positioning personal identity within professional and social contexts by other scholars (Devis-Devis & Sparkes, 1999; Garrett & Wrench, 2007; MacDonald & Kirk, 1999; Melnychuk, 2001). For instance, MacDonald and Kirk (1999) defined identity as the process of making and remaking one's self in order to "meet the contingencies of different social settings and social positioning, as people fulfill the expectation of teacher, daughter, lover, father, and on" (MacDonald & Kirk, 1999, p. 134). Garrett and Wrench (2007) specifically defined PPET-TI as "the ways in which student teachers [negotiate and] position themselves around the discourses of sport and physical education" (Garrett & Wrench, 2007, p. 23). Dowling (2011) defined PPET-TI as PPETs' discourses around acknowledging and/or rejecting the prevailing meanings of "being a good teacher" and their choice from competition viewpoints about 'good' practices in physical education, aligning with a dynamic perspective of TI.

Three key elements of PPET-TI emerge from the definitions listed above: (a) self-perception on the profession of physical education (self-images); (b) perception of others' perception concerning being a physical education teacher (public-images); and (c) the interplay and negotiation of the above two images (Keating et al., 2017). Understanding teacher agency is evident in all the reviewed definitions of PPET-TI.

Conceptual Frameworks of PPET-TI

Among the reviewed 14 articles, eight studies were based on a postmodern or post-structural framework (Devis-Devis & Sparkes, 1999; Dowling, 2011; Garrett & Wrench, 2007; Macdonald, 1998; MacDonald & Kirk, 1999; Melnychuk, 2001; Sirna, Tinning, & Rossi, 2010; Wrench & Garrett, 2012). These frameworks denied the modernism view of a unified, fixed, and individual identity, but emphasize that teacher develop multiple identities, which is an ongoing flux from time to time and from context to context, rooted deeply in social interaction. Theories including Bourdieu's (1977) theory of habitus, filed, practice and capital, Malik's (1997) notion of narrative self and Gidden's (1991) notion of self as a reflexive project were used in these eight studies. These theories share a common interest in the competing discourses of 'good' practices and desired images of a physical education teacher between PPETs and the professional and social context. The theories helped researchers gain insights into the ways that PPETs position themselves around the discourses about sport and physical education, and their choice of engaging or rejecting various and often conflicting viewpoints. Accordingly, PPET-TI are theorized as one's lived experiences and stories around dominant discourses in several areas: personal beliefs (Macdonald, 1998; MacDonald & Kirk, 1999), physical education pedagogies and learning (Wrench & Garrett, 2012), sports (Dowling, 2011; Garrett & Wrench, 2007; Sirna et al., 2010), and physicality (Garrett & Wrench, 2007; MacDonald & Kirk, 1999).

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A symbolic interactionism framework was used in four studies (da Cunha et al., 2014; Fletcher, 2012; Fletcher et al., 2013; Margarida et al., 2012). Theories of social identity (Jenkins, 2014) guided three studies (i.e., Fletcher, 2012; Fletcher et al., 2013; Margarida et al., 2012), whereas Gee's (2000) four perspectives of identity were used to support da Cunha et al.'s (2014) work. These theories highlight the interactions between PPETs' self-images and perception of public-images. TI is theorized as a set of labels and categories that identified by PPETs themselves and recognized by others, and hence TI provides PPETs ways to relate to and distinguish from other individuals and groups in a professional context. These theories represented an interpretive perspective of TI.

Two studies (i.e., Faulkner et al., 2004; Solmon et al., 1990) were based on theories concerning self-identity and action. Faulkner et al. (2004) referred to the theory of planned behavior (TPB, Ajzen, 1985) in which the author theorized TI as the salient part of one's self that predict intentions and particular behaviors. Solmon and colleagues (1990) theorized a teacher's TI as one's personal identification with the role of a teacher based on biography, which informs and guides one's thinking and behaviors in teaching. These theories do not necessarily fall in the functionalist perspective of TI but shared a common intention of relating TI to behaviors.

Research Focuses and Major Findings Concerning TI

Beijaard et al. (2004) identified three trends in research on TI: the formation of TI (i.e., how do teachers construct their TI), TI as a life story lived by teachers (i.e., lived experiences by teacher and told by text or language) and the characteristics constituting TI (i.e., core-identities that recur in various settings and contexts). The majority of the reviewed 14 articles (11 articles) focused on the formation of TI. The rest three studies examined preservice physical education teachers' lived experiences through narrative

studies (i.e., Devis-Devis & Sparkes, 1999; Margarida et al., 2012; Wrench & Garrett, 2012). However, no work has been done to identify the core and essential elements of PPET-TI so far. The denial of a functionalist perspective and modernism framework on TI (Akkerman & Meijer, 2011) may partially explain the limited number of studies on characteristics of PPET-TI. Clearly, scholars were more interested in studying the ongoing, reflexive, and fluid features of identity in a specific social context than in identifying general and universal features of PPET-TI across settings.

Nonetheless, the findings of research on PPET-TI formation usually depicted the content of a formed TI at the time when the study was conducted, which provided some insights about what may potentially constitute the core and essential elements of PPET-TI. From the 14 previously published studies, the following characteristics of PPET-TI were found. PPETs perceived themselves to be people who: (a) care for planning teaching, delivering content and assessing students' learning (da Cunha et al, 2014); (b) constantly search for professional excellence and develop mastery of content knowledge, practical knowledge, and predominately, sport skills (da Cunha et al., 2014; Dowling, 2011; Wrench & Garrett, 2012); (c) individually and collectively reflect upon their teaching practices (Dowling, 2011; Margarida et al., 2012); (d) create enjoyable experiences in physical education to help students counter risks of obesity and develop a physically active and healthy lifestyle (da Cunha et al., 2014; Sirna et al., 2010); (e) become the new generation of teachers that desire to challenge stereotypical images associated with physical education and physical education teachers, and alter the traditional physical education program (Wrench & Garrett, 2012); and (f) actively participates in physical activity and/or sports to maintains a fit and healthy body appearance (Faulkner et al., 2004; Sirna et al., 2010; Wrench & Garrett, 2012).

PPET-TI development is influenced by both personal experience and contextual factors at multiple levels. Three major themes emerged from a review of the 14 studies on PPET-TI: (1) student teaching has a major influence on PPET-TI construction (Solmon et al., 1990); (2) Inconsistent findings regarding the effect of teacher education program on PPET-TI were found (Devis-Devis & Sparkes, 1999; Dowling, 2011; Melnychuk, 2001); and (3) sport skills/performance, physical competence, and body image are salient personal factors that shape PPET-TI (Sirna et al., 2010; Wrench & Garrett, 2012).

As Mockler (2011) noted, the professional environment is the most significant factor in shaping TI. Student teaching or practicum were reported to have a profound effect on PPET-TI (re)construction. Among these, the role model is the most worth-noting factor. For example, Solmon and associates (1990) found that the time spent on student teaching influenced PPET-TI. Those who had vague self-images as a teacher prior to student teaching tended to adopt the identity their cooperating teacher had, suggesting that they tended to be strongly influenced by the professional environment. Sirna et al. (2010) reported that if PPETs had similar beliefs and expectations for their teaching to these of their university instructors, they felt a closer fit in the profession and hence a higher level of PPET-TI. Otherwise, they tended to adjust their beliefs and behaviors to meet the expectations of their university professors in order to develop a sense of belonging and a stronger PPET-TI. Dowling (2011) concluded that the PETE programs had little influence on shaping PPET-TI in postmodern time because PETE programs failed to interrupt preservice teachers' modernist or classical ideas about teaching practices in PE and to provide them a space to explore a broader PPET-TI other than being a sport performer.

However, two studies found promising results regarding the positive influence of PETE program on PPET-TI, if PPETs' beliefs were challenged and interrupt. Melnychuk (2001) reported that after a secondary school physical education advanced professional

term, students' beliefs and values were challenged and their TI shifted. Devis-devis and Sparkes (1999) illustrated a case study in which a textbook that confronted preservice teachers' belief and identity as an athlete caused an identity crisis. The crisis, if given immediate attention from the university instructors, a loss of PPET-TI can be prevented.

Sport competence and/or mastery was frequently mentioned in PPET-TI studies as a source of shaping TI. For example, Wrench and Garrett (2012) found that childhood sport participations, success in sports, and volunteering as a sport coach in schools significantly shaped a positive and strong commitment to a PPET-TI. However, a TI that emphasizes the role of coaching implies "reproductive rather than transformative" pedagogies (Wrench & Garrett, 2012, p. 9) and can be problematic. The authors also pointed out that PPETs with a TI exclusively about coaching aimed to train highly skilled students and were less likely to develop interests in teaching students with a diverse background. Therefore, it is necessary to re-examine the PETE recruits TI before they enter the program, as opposed to relying on PETE program to interrupt and shape PPET-TI.

Critical Issues Related to Research Design and Methods

To date, the majority of studies (i.e., 12 out of 14 publications) on PPET-TI were qualitative studies. The narrative approach (i.e., da Cunn, 2014; Devis-Devis et al., 1999; Margarida et al., 2012) and the case study approach (Devis-Devis et al., 1999; MacDonald et al., 1998; MacDonald & Kirk, 1999; Margarida et al., 2012) were the two major qualitative research methodologies used. The boundary of a case, however, varied across studies. For example, in Devis-devis and Sparkes's (1999) study, the case was a preservice physical education teacher who experienced an identity crisis when being required to read a textbook for a course. In MacDonald and Kirk's (1999) study, the case was 12 health and PETE students who self-identified as Christians. The other studies did not elucidate a

specific research approach, but research methods including semi-structured interviews, open-ended questionnaires, group interviews, observations and artifacts (PPET's journal, photos, and videos of teaching) were frequently used in the 12 qualitative studies.

Quantitative studies on the topic are very sparse so far. Faulkner et al.'s (2004) study was the only quantitative study using survey research methods. They developed a four-item survey that measured PPET-TI. The survey used a 7-point Likert response format and demonstrated a relatively high internal consistency (Cronbach's alpha = .85). The content of the survey revealed a focus on fitness and health aspect of physical education teaching (e.g., "I think myself as a health-conscious person" or "I think myself as someone who generally thinks about the health benefits of PE"). However, other important aspects in physical education, such as movement skills, social skills, and regular participation in physical activity recommended by Society of Health and Physical Education in America (SHAPE America, 2014) were overlooked in this survey. Fletcher et al. (2013) argued that Faulkner's conceptualization of PPET-TI as self-identity might exclude the social context and social interaction associated with identity formation, and hence suggested to use "identity" instead of self-identity in the literature.

There was only one mixed methods research on PPET-TI (Fletcher et al., 2013). Building upon Faulkner et al.'s (2004) work, Fletcher et al. (2013) used the four-item survey to inquire the change of PPET-TI after preservice teachers who took a physical education teaching methods class. In addition, the researchers conducted semi-structured interviews three times with 10 participants in order to understand how such changes in TI occurred throughout the course. Mixed methods research has its unique advantages in terms of holistically investigating critical questions (Mertens, 2014). To enhance the quality of research on PPET-TI, mixed methods research needs to be considered.

In essence, qualitative research methods were used much more often than the other research methods, generating new knowledge without generalizability. Only a limited number of studies used quantitative survey methods. Experimental and quasi-experimental studies were not found. There is a need to utilize quantitative and mixed methods for a better understanding of PPET-TI.

Limitations of Previous Studies and Implications for Future Research

Research on PPET-TI is still in its infant stage, given the limited total number of studies found. Overall, the major limitations found in existing studies include but not limited to: (a) a lack of attention to PPET-TI in research, especially to research on the characteristics of PPET-TI; and (b) the limited use of research methods to examine PPET-TI from different theoretical perspectives.

First, although existing studies on PPET-TI examined identity from various approaches (Dowling, 2011), much attention has been paid to TI formation and/or determinants of TI. So far, there was only one study conducted by da Cunda (2014) that specifically investigate the characteristics of PPET-TI, providing a detailed and rich narrative answer to questions regarding one's identity, such as "who am I", "what do I do", and "why do I do". The majority of existing studies on PPET-TI clustered around the influence of contexts (e.g., PETE program study, student teaching practicum, the school physical education teacher's office) and personal factors (e.g., religious beliefs, intention for teaching physical education, personal experiences in sports and physical education, and body image) on PPET-TI. Researchers selectively studied some factors spoke to their interests in relation to TI formation, yet a whole picture of PPET-TI, what Gee (2000) termed "core identities" that persist across settings and can be found universally among teachers were still ambiguous (Akkerman & Meijer, 2011). Akkerman and Meijer (2011)

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critiqued a narrow focus on the shifting, fluid, and social nature of TI, and appealed to scholars to consider the unified, coherent, and individual feature of TI. Beijaard (1995) suggested that "teachers of similar age and sex share similar experiences, perceptions, attitudes, satisfaction, frustration, and concerns, and the nature of their motivation and commitment alters in a predictable pattern as they get older" (Beijaard, 1995, p. 284). Therefore, it is necessary for researchers to investigate these shared characteristics and draw an overarching picture of PPET-TI. Such endeavors serve as the first step to address a national wide shortage of teacher applicants and enrollment in PETE programs.

Second, quantitative research enables researchers to generalize the findings beyond the confines of a single context by revealing the central tendency and shared characteristics of PPET-TI. An absence of a valid and reliable measurement scale of PPET-TI may cause a limited number of studies based on quantitative methods. Because without a valid survey scale, it is impossible to collect quantitative data to explore this topic. As discussed before, the only survey developed by Faulkner et al. (2004) needs examination not only in the construct and structural validity but also content validity. Moreover, the four-item survey only measured PPET's teaching goals in fitness and health, and other important aspects in TI such as self-perception as a teacher, teaching goals related to movement competency, and beliefs about teaching reality and learning process were left out. Hence, there is an urgent need to develop a survey scale that can measure TI in physical education in all essential components with confidence.

Overall, the limitations concerning methodologies in existing studies on PPET-TI revolved around the question of how PPET-TI develops over time, which was in relation to a restricted set of factors such as personal beliefs and teaching practicum using qualitative methods such as interviews, document analysis, and/or case studies. However, it is still unknown how PPET-TI can be quantitatively measured. This question should be

answered first before studying PPET-TI change and identifying factors affecting PPET-TI. To this end, a quantitative survey needs to be developed in order to understand the whole picture of the content and structure of PPET-TI.

Chapter 3: Identifying Essential Components of PPET-TI

The purpose of this study (study 1) was to identify the essential components and the contexts of PPET-TI being experienced. Specifically, this study aimed to answer two research questions: (a) what are the shared common components of PPET-TI; and (b) in what context were these elements experienced?

METHOD

Research Design

Descriptive phenomenology was used in this study. Phenomenologists are interested in what was experienced in a phenomenon such as anxiety, and how did people experience the phenomenon, such as the conditions and contexts where the phenomenon was experienced (Creswell, 2013). Therefore, the phenomenological approach helps answer the research questions in study 1. In addition, such approach was used because it emphasizes setting aside researchers' personal assumptions of the phenomenon being studied before examining participants' experiences, and attending to the immediate experience of a phenomenon, so that new meaning may emerge and more authentic meaning can be added of previous understanding in the phenomenon (Creswell, 2013). Because PPET-TI in the U.S. has yet to be fully examined recently, instead of relying on previous assumptions and knowledge, a "fresh" view of this phenomenon can be revealed through the phenomenological methodology.

Another important reason for choosing this phenomenological methodology is that it helps build a quantitative measure in study 2. In addition to an in-depth description, phenomenologists seek for the shared, essential, and common experiences lived by

participants, which are more likely to be applied to a larger population being examined in study 2. Indeed, phenomenological methodology "lies somewhere on a continuum between qualitative and quantitative research." (Creswell, 2013, p. 78) Along with other aforementioned contributions, the descriptive phenomenology methodology is used in study 1.

Conceptual Framework and Interview Questions

In this study, PPET-TI is defined as one's self-description as a future physical education professional and commitment to the mission and responsibilities expected by the physical education profession. DSMRI (Kaplan & Garner, 2017) is used to develop the conceptual framework of PPET-TI. Accordingly, PPET-PI consisted of the following four key constructs: (a) self-definition in major and career; (b) beliefs about teaching and learning in physical education; (c) Teaching goals; and (d) possible actions that will be taken to achieve teaching goals (see Figure 3). A list of interview questions was developed based on each of the four key constructs (see Appendix A).
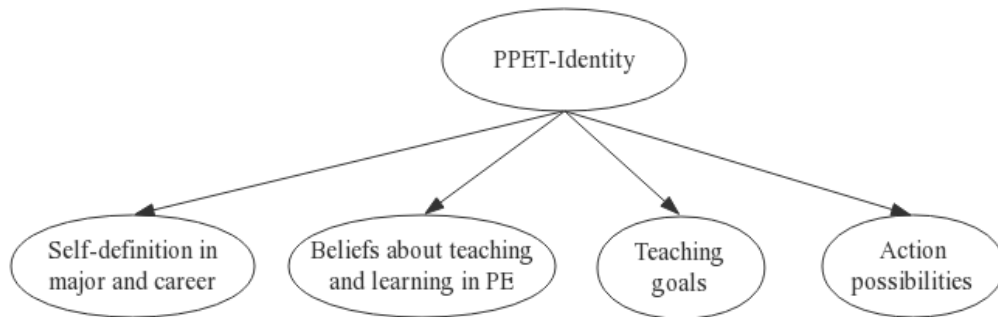
Figure 3: A Conceptual Framework of PPET-TI.

Participants

In total, 19 PPETs from six universities participated in study 1 (11 males and 8 females, M_{age} = 25.05 ± 6.13 years). The sample size met Creswell's (2013) recommendation for a phenomenological study (i.e., 10 to 25 participants). There were nine White, five Hispanic/Latino, three Asian, one African American, and one Bi-racial PPETs. Five PPETs were student teaching while the rest of the PPETs had a few opportunities to observe or teach physical education in public schools as a program requirement. All the universities were four-year institutions, including master's colleges, private universities, and large state universities. Three universities are located in a southern state, and the other three are in a western, eastern and central state, respectively. All the participants choose a pseudonym to ensure the confidentiality of their participation.

Procedures

The coordinators of six PETE programs were contacted for participants recruitment. Upon approval, a recruitment email was distributed to PPETs. PPETs of diverse cultural background and stages in the teacher education program were encouraged to participate. Those who consented to participate were selected to ensure PPETs from a diverse background (i.e., gender, age, ethnicity, year of enrollment, university type, university location) were represented in the final sample. A 60- to 75-minute semi-structured phone interview was conducted with each individual participant. An interview protocol including a list of open-ended interview questions was used to guide the interview process (see Appendix A). All the interviews were audio-taped and then transcribed verbatim in NVivo 11 for analyses.

Data Analyses

Before data analysis began, a recommended reflection of the researcher's positionality and presumption about the phenomenon being studied (i.e., epoche, Moustakas, 1994) was conducted. This process was undertaken in order to set aside the researcher's presumption and focus on participants' experiences related to PPET-TI. Furthermore, each participant was assigned a letter (A to S) in order to set aside presumptions about the experiences of participants from a specific gender and ethnicity group.

After the epoche process, the data analysis procedure suggested by Moustakas (1994) was followed. First, significant statements (i.e., meaning units) from interview data that are relevant to PPET-TI were coded into the four components in the conceptual framework (see Figure 3). New codes were created to capture the nuances of meaning units. Next, meaning units entailing similar content were grouped into meaning clusters (i.e., themes) within each component of the conceptual framework and new codes. Themes not shared by majority participants ($N \geq 10$) were dropped, as the phenomenological method aims to reveal the shared common experiences of the phenomenon being studied (Creswell, 2013). The relationships among the remaining themes were examined, resulting in a web of themes that illustrated both the content and structure of participants' experiences in TI. Lastly, composite description of what and how PPETs' experience their TI was written. This summative description of the essence of PPET-TI was sent to all the participants for a member checking (Miles, Huberman, & Saldana, 2013). In total, six participants responded to the member checking request.

After the initial open coding process, 511 meaning units were identified. These meaning units were then further coded into 12 meaning clusters. Examples of meaning clusters include being treated as a physical educator, valuing the enjoyment of K-12

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students, and defending choice of major. After examining the degree to which meaning clusters shared among participants, five meaning clusters were dropped because they were not shared among a majority of participants.

Trustworthiness

Member checking, participants' profiles, the epoche, peer debriefing, and sampling strategies supported adequate trustworthiness of this study. According to Mertens (2014), trustworthiness in qualitative studies consists of five essential aspects: credibility, transferability, dependability, confirmability, and transformative criteria. Criteria used to evaluate the quality of study 1 is selected based on the ontological and epistemological basis of phenomenological studies. Credibility refers to the extent to which the results represent participants' true experiences of a phenomenon. My previous experience working with PPETs, an in-depth interview with each participant, and member checking ensured the credibility of study 1. Transferability deals with the ability to apply findings in this study to other contexts. The sampling strategies enable me to access a diverse sample of PPETs from different universities and ethnicity groups. The composite description with support of excerpts and quotes from participants' interview responses along with participants' profiles summaries provide readers the bases to make decisions whether the results can be transferred to contexts or populations of their own interests. Dependability means that if the study were to be replicated, the results would be consistent. The responses from member checking ensured that the results obtained from interviews represent participants' experiences after five months. Confirmability is determined by the degree to which the results are objective. My training and study in PETE and TI may be inherent issues in this aspect. However, the "epoche" process (Husserl, 1970) in which I bracketed my assumption and experiences of PPET-TI enhanced the confirmability of this study. Peer

debriefing of the findings helped evaluate the level of reliability of the findings. Three university peers majoring in PETE were engaged in reviewing coding and emerging themes and reached an agreement of 90% of the coding and themes. The reviewers' agreement rate surpassed the recommended level of 80% and suggested a good consistency of the findings (Marshall & Rossman, 2014). Lastly, the transformative criterion requires researchers to attend to the voices of diverse people. The PPETs recruited for this study came from diverse sociocultural backgrounds. This ensured me to provide a "balanced and fair view of all perspectives" (Mertens, 2014).

Researcher's Positionality

I came to the U.S. for graduate level study in 2010. When I started my doctoral study in 2013, I had little knowledge of physical education in the U.S. I was born and educated in China throughout my K-12 and undergraduate education. School teacher is a prestigious profession in my country. Teachers are held accountable for meeting professional standards and students' learning outcomes. Physical education programs in my K-12 experiences focused on sports such as basketball and soccer, and a futumajority of my physical education teachers were used to be professional athletes. Girls lacked motivation in participating than boys, partially due to a social norm of feminine appearance. These previous experiences in K-12 physical education made me conceive physical education as a male-dominant and sport-oriented profession, which are responsible for teaching students in movement competency and sport rules. However, I did not believe girls should be expected differently than boys in physical education. I used to be a competitive swimmer in elementary school, and my successful athletic experiences made me believe girls can be as competent as boys in physical education.

To enrich my understanding of physical education, during my doctoral study, I took undergraduate PETE courses that were essential and required to be certified to teach K-12 physical education in Texas, including methods courses and student teaching with other PPETs in the program. I experienced what PPETs would typically experience in my institution, which helped me develop a thorough understanding of what it means to be a PPET. Bringing with my previous athletic experiences and research interests in learning about the various standards, appropriate practices, roles, and professional ethics, my thoughts of the type of person I am and would like to become in this profession (i.e., my TI) were shaped. In the meantime, others' feedback and comments on my program study, others' beliefs about physical education, and images of physical education professionals portrayed on social media influenced the nuances of the types of person I aspired to become. The changes in my own TI amazed myself. Furthermore, my undergraduate degree was in psychology and earned my master's degree in sport and exercise psychology. As such, I have always been very interested in psychological issues in teaching and learning in physical education.

I assume PPET-TI is multi-faceted, fluid, and dynamic yet with a group of core characteristics that shared among PPETs. This means that the context and previous experiences are also critical to shaping PPET-TI, even though the self is in charge of constructing and reconstructing one's TI. From my K-12 experiences, I believe a strong TI means one describes oneself as a future physical education teacher and is committed to the mission, best practices, and professional responsibilities defined in the physical education profession. After studying PETE in my doctoral program, I expanded my understanding of TI. I believe physical education teachers are responsible for more than teaching movement competency. Rather, they should also teach students how to develop a lifelong healthy lifestyle. I think that a strong and positive PPET-TI is an important educational goal in any

PETE programs. A part of my professional career will be devoted to helping PPETs develop positive professional identity through PETE programs.

RESULTS

Seven meaning clusters were identified, and then they were grouped into three meaning constituents (i.e., themes). A summative description of how PPETs experience identity development in their teacher preparation programs was composited. The essential meanings of PPET-TI were reported below in each theme.

Theme 1: Self-Definition of Roles and Projected Professional Positions in the Physical Education Profession

Overall, PPETs described their current primary role as a passive learner, when they were working with university professors, cooperating teachers, and peer PPETs. They reported that they sometimes played other roles, such as a substitute teacher, counselor, and coach when they independently work with K-12 students. PPETs who had participated in organized sports and were confident in public speaking and building a relationship with young children projected that they would soon pursue a career in physical education.

When being asked about the roles they played so far, all of the participants except for one (A) indicated that most of the time, they felt they were passive learners who were expected to accept and process knowledge being taught to them. They experienced this type of role identity across a variety of contexts, including in theory classes, pedagogy classes (i.e., teaching methods in elementary and secondary physical education), field observation, and student teaching. PPETs perceived very little power and agency in this role. They said:

> The teacher [in my university courses] was in the position who has all the knowledge and then I'm just supposed to soak it all up. (F)

There is just much work to do [in the university courses], and sometimes you just have to finish them no matter what. (L)

During the field practicum and student teaching, most PPETs perceived themselves as the apprentice of the cooperating teacher they shadowed. Many indicated they only went to observe the physical education classes, and their learning task at schools was to replicate school teachers' teaching practices. PPETs described their interactions with the cooperating teacher:

I admire the teacher at my school. He was fantastic. I want to be like him someday. (G)

My cooperating teacher would tell me many things about his teaching, such as his philosophy. He also would send me some materials, like his lesson plan for me to study and use. (K)

The teacher has everything set up and ready to go, and that helped me a lot. I just used whatever she had in place and focus on my students. (M)

In addition to the role of apprentice, some PPETs have gained hands-on teaching experiences through their student teaching practicum and frequently perceived a role as "above student yet below the teacher." One PPET said:

I felt I was in a very weird middle, grey, area where the students... they listened to me but they kind of know I will not be there for long. So they don't care that much, but they still try to do something. (A)

All the PPETs reported that they felt they had a certain level of authorities in front of students in the school. Especially if the cooperating teacher gave a proper introduction about why the PPET was in the class, they believed they were entitled to do some instruction like the cooperating teacher. In the meantime, they were very conscientious about the power dynamic when the cooperating teacher was present in the class, which usually means they would hold back when they intended to teach something or provide feedback for students. This was particularly common among PPETs who disagreed with their cooperating teacher's teaching philosophy or practices. Majority of PPETs observed

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discrepancies between how they were taught to teach and how their cooperating teachers taught. PPET O said, "I didn't say anything because you don't want to undermine a teacher [who is teaching students]. It's his class. But I know I would not do that with my students."

The extent to which PPETs experience that identity as a physical educator seemed to be dependent on two conditions: a) whether the cooperating teacher was present in the class; b) whether the students in the class paid attention and followed instruction. About half of the participants ($n = 10$) had encountered situations where the cooperating teacher was not with them for the entire class period or left the class in the middle of a lesson due to emergencies. The participants reported they had to make a quick adjustment and take over the role of a teacher and "you are in charge of everything in that class, all in a sudden." (C) In most cases, students showed respects and looked up upon PPETs. Some participants reported that students asked them about information related to fitness activities, losing weight, and their study at universities:

> My students would ask me what I did for my daily workout, and I would share with them so they can be physically active in their own time. (G)

> The students, they were young. I am an adult to them, though I was thought to be a high school student many times. Now I think about them, they see me as their teacher, and call me Ms. XX [Participant's last name]. (M)

> At first, I was a little bit nervous. Will they understand me and follow what I said? It turned out very well. (O)

When being asked about their projected relation to the physical education profession, the participants showed some interests in teaching physical education in a variety of positions. This included teaching aid (before obtaining a teaching certificate), multi-subject teachers (a combination of physical education with other school subject matters), an elementary physical education teacher, and a secondary school coach and

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physical education teacher. Some PPETs have developed a clear career path, whereas others were wary about several career possibilities:

> I cannot think of other jobs for me. Maybe in the future, I will go for an administrative position, like an assistant principal. But I will be very happy about just teaching physical education in middle school. (K)

> Right now I just want to be open to anything. I will take whatever offered to me. If it is a sport management position, I will take it. If it is physical education, I will take it, too. (I)

Those who projected career in physical education described themselves in the light of socially accepted qualities for a physical education teacher, such as competency in sports, public speaking, passion for teaching, and building rapport with children,

> Growing up I played many sports. I have always been very active. I think that will help me find a job in schools. (B)

> I am comfortable talking to different people, [such as] students, parents, my boss, professors. (N)

> I guess for me it's more like a problem... I can't stop talking. When others are nervous about public speaking, I am just too good at it. (E)

> I'm very good at coming up with activities with different equipment, so that the students are always on their toes, and they have different things to do in class. They won't be bored in my classes. (I)

> I show my students my passion, and I think when they see I am passionate about it, they become passionate as well. (D)

> I have three kids. I spent a lot of time with them, and I know how to work with kids. (O)

Theme 2: Teaching Goals in Physical Education Classes

Participants were also asked to imagine a typical work day and job duties when they become a physical education teacher. Four sub-themes emerged from the analysis. First, all 19 participants emphasized on teaching healthy lifestyles and enhancing fitness

levels in their daily teaching. They expressed concerns about childhood obesity and believed it is their responsibility to address this problem through physical education. PPETs who have completed student teaching practicum indicated that they have been teaching students about healthy living in and outside of class, and intended to carry over to their future teaching:

> I would eat a kiwi in front of my students [during lunch break], and they asked me what that is in my hands. I told them it is a kiwi, and it is 'go food' [healthy food], and they can eat for lunch. (H)

> I taught about fitness in almost all my classes. We did a dance routine for warm-up. We would do body-weight exercises like push-up and planks. I told my students that I had done this workout a day before I teach them, just to motivate them. (N)

Another sub-theme related to teaching goal revolved around teaching students the importance and value of physical activities. Among the 15 PPETs discussed this sub-theme, 12 of them highlighted that they wanted to teach about the value of physical activities:

> "I don't want to just talk about what are we learning today…I think more importantly, I want to talk about why are we learning these. It is for your healthy body." (L)

> "I want to make sure my students understand the stories behind all we do in class…It is not just sport, sport, sport. It is more about finding the activity you like doing so you can be active for the rest of your life." (C)

> "I sometimes would rather let them [students] stop and listen to me. I want them to understand how important it is to be physically active for a lifetime." (N)

All of the 15 PPETs believed that helping students enjoy the class is the key to quality teaching. They aspired to change the sport-oriented programs into more inclusive programs where "students will be interested in being physically active and leading a healthy lifestyle for life." (J) To achieve this goal, the PPETs described practices related to

engaging students' interests, providing enjoyable and stimulating activities, and embodying a teacher who is approachable and humorous. A PPET described his future class:

> "My class will never be boring. I am very flexible in teaching. If a game does not work the way I expect, I just change to another. This way every student learns something and has fun in my class." (B)

Some PPETs planned to use a variety of pedagogical strategies to make sure students would have positive experiences in physical education, such as student-select activities, free-play time, making small groups, modification of game rules, and avoid using physical activities as punishment.

> "One thing that I will do for sure is to reward my students of activity time. I learned from my class that you should not use physical activity as any sort of punishment, like running laps if you talk when the teacher is talking. Instead I want to reward my students free-play time at the end of the lesson, so they will love playing." (I)

> "I am very good at organizing classes. I made small groups in my class. You know why? Because there should not be many students waiting for their turn, and waiting means being boring! So I made sure I had enough equipment for each group, and I made small groups of three to four students." (F)

In addition, PPETs, especially male PPETs, preferred their students to perceive them to be a fun person who can joke around because they believed this is how they can show caring and support for students, which led to positive experiences in physical education:

> "My students think I am…approachable. I do not sugarcoat things, and I say what I meant, but in a fun way. I made jokes about myself a lot, and sometimes with students. But I made sure that they are not offended, and they don't see me as their buddy. So yes, my class should be very fun to take." (E)

Teaching psychomotor skills was frequently mentioned as a teaching goal in the interview, although less frequently than the above two sub-themes. Only two PPETs

indicated that they wanted to teach students in recreation and lifetime activities, including yoga, Zumba dance, and martial art. A majority of PPETs wanted to educate movement competency in the light of playing sports:

> I want to teach students to play many sports, like basketball, football, volleyball… all of them. (E)

> My students will learn about all those fun games and sports. They will learn the fundamental skills like shooting a basketball, kicking a soccer ball, so they can find something they like and play for a lifetime. (C)

> When being asked what specific skills they plan to teach, PPETs provided a rather narrow scope of movement patterns, such as shooting, kicking, dribbling, and using rackets. They also expected differentiated expectations for students in different grade levels, and for athletes and non-athletes. Many PPETs described their responsibilities in elementary school physical education are similar to babysitting and unstructured play. They would be satisfied if their class "is organized chaos," (D), and every student is participating in the activities "and have fun." (A, B, E, F, J, I, N) PPETs believed elementary school students are "too young to understand those complicated concepts and rules in sports," (B) and they are not physically ready nor skillful enough to participate in sports like adults, such as a five Vs. five basketball game. In secondary schools, however, PPETs thought they become an educator who can focus on teaching knowledge and skills because the middle and high school students are mature enough to understand the rules and execute the skills and tactics.

> If the students are not performing that well, if they make some mistakes in my [physical education] class, I would not be so picky about them. I know they are not going to compete in sport, so it is ok. I just want to make sure everyone is having a positive experience in my class. (K)

Like PPET K, some PPETs implied that they adopt a different attitude and hold lower expectations for students in physical education classes and students in athletic class periods:

> You can tell that the physical education teacher I had [shadowed]... they are different in physical education and in athletics [periods]. They laid back, and just let students have a good time. I kind of go with the same way. (B)

The deviation from national standards and expected appropriate practice guidelines (SHAPE America, 2009; 2014) was not surprising. More than half of the PPETs indicated strategic compliance with professional guidelines in their program study.

> "The standards are just documents of ideal teaching. It is too ideal to be met." (E)

> "I personally don't think I can always have more than 50% of class time in MVPA [moderate-to-vigorous physical activity] time in my class. Sometimes in order to teach, you got to have students sit and listen, or have group discussions. I care more about students' learning than that number [50%]" (J)

> "Standards are important. But I think the reality is not meant for the standards. It's nice to have standards out there and for people to read. But in reality, you need to work with what you have." [K]

In conclusion, PPETs described their goals in physical education related to enhancing students' fitness levels, promoting and modeling healthy lifestyles, teaching sport skills, and help students enjoy physical education, so that they may carry on their interests in physical activity outside of the class. The PPETs set lower expectations and primarily managerial objectives for elementary school students. They also had lower expectations for non-athletes in physical education in psychomotor skill learning. The PPETs teaching goals were often misaligned with national standards and appropriate practice guidelines.

Theme 3: Professional Responsibilities for Self-growth and Changing the Physical Education Profession

In addition to teaching physical education classes, all the PPETs reported they were accountable for improving teaching effectiveness and the academic status of physical education in schools. First, horning movement competency in a variety of sports was repeatedly discussed among PPETs, especially among female PPETs. Many PPETs acknowledged that they might not be able to correctly demonstrate skills included in sports and physical activities they had never participated before and planned to learn from online videos, friends, and professionals. "I want to make sure I know enough about whatever I am going to teach. Otherwise, it is hard to bring out that confidence. Being confident is very important."(M) Besides, time management and showing a healthy appearance were the two major areas that concerned PPETs:

> I am not saying that I need to be perfect, like having six packs or super athletic. I want to show my students I am a normal and average person. What I do...is eating food, living a healthy life, and exercise regularly. (H)

> I think time management is a big issue for me. I am working on it. If I don't want my students to think I am lazy, unorganized, always forgetting things, I need to start to plan ahead of time now. (J)

All the PPETs agreed that it is their responsibility to defend physical education when it is misunderstood. PPETs were aware of the negative stereotypes associated with physical education teachers and profession, such as "dumb teacher" and "easy job." They experienced questioning and negative responses when announcing their chosen career paths as physical education:

> My friends were like, well, G is going to university X, and he's doing PE? (G)

> My parents are like typical Asian parents. They want you to be a doctor, lawyer, or engineers. My relatives don't even know what kinesiology is. (N)

Yet, PPETs are willing to cope with misunderstanding and marginalization of physical education. They often disowned these negative images and aspired to change of stereotypical images of physical education teachers in a variety of ways. For example, they tried to avoid being impacted by the stereotypes, showing evidence of effective teaching, and educating non-majors:

> I don't let those negative thoughts impact me. People don't know what it takes to teach physical education. You can't blame them for not knowing. (D)

> I am a fixer…I will fix what is wrong about physical education in school nowadays and be the most effective teacher I can ever be to prove them wrong. (E)

> I have always found myself defending against my paths. I will show the parents what their children learned in my physical education and how much weight they have lost. (H)

> I found some education majors do not even know my major. I just tell them what physical education is about and what we had to do in [college] classes. (I)

PPETs also expressed concerns for the physical education program in schools. They shared a common interest in changing a sport-oriented physical education curriculum towards a fitness-oriented curriculum, and engaging school and community in physical activity promotion:

> I feel the current physical education program is still very old-fashioned and sport-oriented...I will do it differently, something non-competitive…Everyone is a winner in my class. (D)

> Children should not sit for all day… nobody can… I plan to help the school become more physically active. Something I want to try is a before- and after-school physical activity program, like an open gym or running club… I have learned some ways to make students move in the classrooms, and I want to teach other teachers about brain breaks.

DISCUSSION

Existing literature concluded that TI is a multi-facet construct (Chong et al., 2011; Day et al., 2006). However, the components of PPET-TI have yet to be fully explored. Considering that there has been a shift in the mission of physical education toward teaching students the knowledge, skills, attitudes, and habits of leading a lifetime healthy lifestyle (SHAPE America, 2014), it is much needed to update our knowledge about PPET-TI in contemporary society. This study investigated PPET-PI using a phenomenological approach and revealed three essential components that were commonly experienced by a group of 19 PPETs: self-definition, teaching goals, and perceived professional responsibilities.

The three components were in line with the DSMRI framework (Kaplan & Garner, 2017): self-definition and perception, purposes and goals, and perceived action possibilities. The component of ontological and epistemological beliefs in DSMRI did not emerge from the analyses of this study, which can be attributed to two reasons. First, DSMRI was developed in the context of in-service teachers' professional development (Kaplan et al., 2015). Compared to in-service teachers, pre-service teachers (except for student teachers) are generally exposed to K-12 school settings for a very limited amount of time. Therefore, they have not accumulated many experiences in impacting learning and the teaching contexts, which limits their ability to tie their TI with epistemological and ontological beliefs about teaching and schooling. As a result, a majority of PPETs in this study used socially accepted norms of teachers to describe themselves, such as having a caring, patient, and engaging personality.

Another potential reason for the difference in the components of TI may be due to that the few epistemological and ontological beliefs shared by the participants were discussed in light of potential actions that PPETs intended to take. For example, PPETs

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believed they are responsible for reforming the current school physical education from a sport-oriented program to a health-oriented program. Meaning units related to epistemological and ontological beliefs were so few and all closely tied to perceived action possibilities. Therefore, the two components in DSMRI were combined in this study. The following section discussed each of the three components identified from the current study.

Theme 1: Self-Definition of Roles and Projected Professional Positions in the Physical Education Profession

The most prominent finding in theme 1 was that almost all the PPETs identified as a passive learner with a limited agency instead of a teacher in a variety of contexts, including in college classroom, K-12 schools, and daily lives. In these contexts, PPETs viewed themselves as receivers of knowledge, teaching practices, beliefs, and values from teacher educators and school teachers. It is not surprising, as previous studies have shown that without deliberate interventions, pre-service teachers tend to adopt teacher educators' or school teachers' beliefs and practices (da Cunha et al., 2014; Sirna et al., 2010; Solmon et al., 1990).

The predominant self-definition as a passive learner is a cause for concern. First, Solmon and colleagues (1990) found that PPETs without a clear and robust TI tended to struggle in program study and rely heavily on the support from cooperating teachers. This means that the PPETs had few opportunities to reflect on their TI, and they committed to their cooperating teachers' TI too soon. According to Marcia (2002), this stage of identity development is termed identity foreclosure, where individuals are willing to conform to the expectations on roles, values, and goals for the future set by others. This may put PPETs at greater risks of an identity crisis (Marcia, 2002). On the other hand, PPETs with a clearly defined TI entered students teaching with confidence. They achieved greater success in

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teaching performance, navigating in challenging teaching contexts, and negotiating conflicts in teaching styles. Second, simply adopting cooperating teachers' TI may reproduce the problematic cultures that have been prevailing in K-12 physical education departments and further marginalize physical education in schools, if the cooperating teachers adopt a sport-oriented and male-dominant perspective of physical education (Magarida, 2012; Sirna et al., 2010).

Nonetheless, PPETs experienced more or less level of TI across contexts. PPETs reported that in one particular context, a strong TI was experienced: when the PPET was the only adult left with K-12 students in a class to implement instructions and the students in the class reacted to PPETs' instruction as expected. When cooperating teachers were present in the class, even they were not engaged in teaching, PPETs felt a much lower TI. Being recognized and treated as a teacher, which Gee (2000) termed as Discourse-identity, is an essential process for TI development (da Cunha et al., 2014; Fletcher, 2012).

According to Solmon and colleagues (1990), a less defined TI impacted the cooperating teachers' mentoring. They assumed PPETs with low TI were not capable to fulfill the roles of a teacher without support. Some cooperating teachers role modeled and helped PPETs to the extent that it was almost impossible to fail in teaching. To break this vicious circle (i.e., PPET's less defined TI leads to excessive mentoring from cooperating teachers, which further impedes the development of TI), it is critical to provide space and opportunities for PPETs to fully experience the teaching process and contexts, whether the teaching objectives are met or not met (Solmon et al., 1990). It is also essential to allow PPETs to make sense of and interpret their experiences based on their values and beliefs, and ultimately negotiate and adjust their beliefs about what kinds of teacher they want to become (Anspal, Eisenschmidt, & Löfström, 2012; Flores & Day, 2006; Trede et al., 2012).

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Findings related to perceptions of qualities required for teaching physical education confirmed what has been reported in previous literature about the subjective warrants held by PPETs (Marcia, 2002). Although the types of subjective warrants revealed in this study remained relatively unchanged compared to previously published studies (e.g., Barney & Pleban, 2006; Lawson, 1983; MacDonald & Kirk, 1999; Solmon et al., 1990), it is worth noting that the importance attributed to different subjective warrants changed. Leading an active lifestyle, role modeling health-related behaviors, and creating an enjoyable learning environment were deemed as more important qualities than sport expertise and maintaining an athletic body build. Although some researchers found a limited impact of a PETE program on changing PPETs' identity (Dowling, 2011; Fletcher, 2012), this study revealed different perspectives of an ideal physical education teacher. PPETs' self-images are now more diverse and balanced, compared to a predominantly sport-focused self-image in the past (Lawson, 1983).

Teacher education literature has highlighted the importance of facilitating pre-service teachers to reflect on personal biographies and teaching (Keating et al., 2017; Timoštšuk & Ugaste, 2010). Reflection helps PPETs make sense of their teaching (M. Curtner-Smith & Sofo, 2004) and negotiate their teaching experiences with their pre-existing beliefs about teaching and learning (Beltman, Glass, Dinham, Chalk, & Nguyen, 2015; Melnychuk, 2001; Wrench & Garrett, 2012). Timostusuk and Ugaste, (2010) suggested that preservice teachers should (a) look back what actions have been taken, (b) foster a habit to ask themselves "how and why a certain situation [in teaching] came into being" (p. 1569), (c) analyze the role of beliefs and identity underpinning actions in teaching, and (d) come up with plans for alternative ways of teaching. Teacher educators may utilize informal conversations, personal journals of teaching (Tsangaridou, 2005; Tsangaridou & O'Sullivan, 1997), analysis and critique of videos of teaching by self or

others (Colasante, 2011; Tsangaridou & O'Sullivan, 1994), drawings (Beltman et al., 2015), and microblogging such as Twitters (Wright, 2010).

Theme 2: Teaching goals in physical education classes

The second theme that emerged from the analysis was about PPETs goals in physical education teaching. The findings of this study showed a somewhat narrow scope of teaching goals among PPETs in comparison with the national physical education teaching standards (SHAPE America, 2014). Overall, PPETs aspired to help students enhance fitness, achieve lifetime health, and enjoy physical activities, which are only two of the five National Standards for Physical Education set by SHAPE America (2014). Other teaching goals outlined in the national standards were occasionally discussed by PPETs, including movement competency, knowledge of movement and performance, and personal and social responsibilities. These findings were different from earlier work. For example, Placek and colleagues (1995) found that skill or physical activity learning was ranked the highest by PPETs, followed by physical fitness development. Instead, the findings were consistent with more recent literature. For instance, Collier and Hebert (2004) found that lifetime activities and physical fitness activities were indicated as the most important teaching approaches by 69% of the PPETs, far more than traditional games and movement education.

A number of factors have been identified to impact PPETs' goals in teaching in the existing literature, including previous experiences in K-12 physical education (Matanin & Collier, 2003; Randall & Maeda, 2010; Richards, Templin, & Graber, 2014), which is also termed as apprenticeship of observation (Lortie & Clement, 1975); curriculum value orientation (Behets, 2001; Curtner-Smith & Meek, 2000); PETE coursework learning (Gorozidis & Papaioannou, 2014; Sofo & Curtner-Smith, 2010); PETE faculty members

(Graber, 1995); and cooperating teachers as the major providers of information during student teaching practicum (Amaral-da-Cunha, Batista, MacPhail, & Graça, 2018; Banville, 2006). Often, it is difficult to shape a TI if there is dissonance between professional expectations and previous schooling experiences. For example, Matanin and Collier (2003) found that PPETs rejected their PETE program training regarding the purpose of physical education and appropriate practices. Likewise, PPETs in this study frequently observed discrepancies between cooperating teachers' practices and their learning in a PETE program. As they feared the cooperating teachers might not welcome their teaching practices and styles, their motivation and self-efficacy of applying PETE program learning in the teaching could be hindered.

Although existing literature on TI suggested that personal biographies may be the most influential factor of pre-service teachers' TI (Beauchamp & Thomas, 2009; Hong, 2010), this study showed the effect of PETE programs on shaping PPETs' teaching identity, especially in the area of teaching goals. Since decades ago, there has been a trend of emphasis on personal health (Crawford, 1980), and was quickly adopted in the philosophy of physical education (Kirk & Colquhoun, 1989; Tinning, 1990). While the subject content of physical education is still mainly about sports, the rationale of teaching sports changed from movement skill mastery to personal health (McKenzie & Lounsbery, 2014; Waddington et al., 2017) and fitness (Richards & Padaruth, 2017). In the interviews, PPETs reported that their teacher educators challenged them to reconsider the mission of physical education. As a result, PPETs more or less viewed sports as a means to achieve personal health and fitness, rather than skill mastery as they were taught in K-12 schools.

The narrow scope of physical education teaching goals, which clusters around physical activities and fitness, should not be considered as quality physical education. Dyson (2014) argued that a narrow view of physical education would jeopardize the future

development of the discipline. Furthermore, researchers criticized the trend of healthism in physical education (Alfrey et al., 2019; Green, 2003; Hokowhitu, 2014), a concept referred to the 'preoccupation with personal health as a primary focus for the definition and achievement of well-being' (Crawford, 1980, p. 368). Such ideology assumes that any individual can achieve health and a slim body through self-regulation in exercises and diet (Kirk & Colquhoun, 1989), which fails to take in to consideration that health is grounded in many factors beyond one's choices and volition, such as socioeconomic, cultural, environmental, genetic and biological factors. Barker-Ruchti, Barker, Sattler, Gerber, and Pühse (2013) argued that healthism normalizes white ideology about the ideal body (i.e., slim, regular exercises, and invisible muscles) while alienating and stigmatizing other body types, especially overweight bodies. This can hinder the inclusion of students from a variety of sociocultural backgrounds and health status in physical education (Garrett & Wrench, 2008). Some PPETs in this study rejected healthism. They were aware of the complexity of maintaining health and body shape, and they spoke openly with students about their body being an average, imperfect, ongoing project. Overall, the narrow teaching goal embedded in PPETs' TI calls for more interventional research on the topic as quality physical education must have quality preservice teachers. The misalignment between the teaching standards and perceived teaching goals by PPETs is a cause for concern.

Theme 3: Professional Responsibilities for Self-growth and Changing the Physical Education Profession

PPETs in this study believed they responsible for role modeling maintaining fitness and movement skill, reform physical education programs, and advocate for physical education and physical activities. They tapped into three of the six standards in the National Standards for Initial Physical Education Teacher Education (SHAPE America, 2017):

Skillfulness and health-related fitness, planning, and professional responsibilities. They mainly concerned about whether they could be prepared before class, demonstrate skills proficiently to students, promote physical activities in schools and uphold the academic status of physical education. The findings of this study confirmed what has been reported by previous studies that PPETs were generally concerned about subject knowledge and skill competency related to a variety of physical activities (Gower & Capel, 2004; Meek & Behets, 1999), especially activities they were not exposed to during K-12 education, such as gymnastics (Sloan, 2007). After PETE program learning, PPETs recognized the importance and efforts required for lesson planning (da Cunha et al., 2014; Matanin & Collier, 2003; O'sullivan & Tsangaridou, 1992), promote health and physical activities in schools (Collier & Hebert, 2004; Kibbe et al., 2011; McMullen, van der Mars, & Jahn, 2014).

The rest of the standards were not commonly discussed by PPETs in this study, including content and foundation knowledge, instructional delivery and management, and assessment of student learning. It seems that developing competencies in pedagogical knowledge and content pedagogical knowledge was not deemed as an important agenda in their professional life. Considering that majority of the PPETs ($n = 17$) were in their junior and senior year of program study, it is very likely that these PPETs did not incorporate these standards in their plans for professional growth.

Again, personal biographies and cooperating teachers have a great impact on PPETs' understanding of what and how they need to learn to teach (Curtner-Smith & Sofo, 2004). Researchers have found that pre-service teachers tended to devalue general pedagogical knowledge (i.e., learning theory, teaching strategies), especially if the knowledge contradicted with their beliefs, previous schooling experiences (Merk, Rosman, Rueß, Syring, & Schneider, 2017) and cooperating teachers' values and beliefs. For

example, Matanin and Collier (2003) found that PPETs disagreed with proactive and positive behavior management strategies and rejected the notion of assessing students based on their motor performance. It was found that beginner teachers were subject to revert from effective pedagogies learned in the PETE program, a concept referred to wash-out (Blankenship & Coleman, 2009; Zeichner & Tabachnick, 1981). It is possible that PPETs in this study were impacted by both factors. In the interviews, most PPETs mentioned PETE standards in light of as a document describing an ideal class, as opposed to objectives they were held accountable. The ideal situations were very different from what they had experienced or observed in K-12 physical education. On the other hand, PPETs believed pedagogies learned from PETE programs may not be necessary, because they witnessed less effective physical education teachers were welcomed in schools, discouraging them from implementing innovative pedagogies and curriculum models.

It was found that PPETs perceived stereotypes and the marginalization status of physical education. Through PETE program study, they developed a variety of dealing strategies, such as disowning negative characteristics attributed to physical education teachers (e.g., lazy, mean, unintelligent), rejecting the untrue statement of physical education (e.g., physical education is an easy job), communicating their values and identity to others, and educating the significance of physical education in schools. The impact of these advocacy strategies was somewhat restricted to the PETE program, teacher education department, and close friends and family. Schools, professional organizations, communities, social media were not mentioned in the interviews as the sites for advocacy. SHAPE America (2013) provided guidelines for physical education advocacy, which highlighted the collaborations with professional organizations, utilizing social media to increase the publicity of quality physical education, and directing information toward school administrators and parents. The data from the current study suggested that there is

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a need to strengthen the preparation of PPETs in terms of professional advocacy. This is extremely important in the era of competing for more instructional time for physical education in schools.

IMPLICATIONS

PPETs in this study viewed themselves as passive learners who are prepared to become future physical education teachers unless the teacher role was entitled to them by the cooperating teachers. To strengthen PPET's TI, teacher educators and cooperating teachers may consider making changes in the following two areas. First, as discussed above, teacher educators need to facilitate PPETs' reflection on personal history and experiences on their TI in coursework and practicum. Second, the gradual induction through micro-teaching, peer-teaching, school-service learning, and student teaching practicum may help PPETs assume a teacher role and explore a variety of ways of teaching (Solmon et al., 1990). During this TI development process, cooperating teachers need to treat PPETs as independent instructors and let go their fears for PPETs to experience unsuccessful teaching, as they need to fail so they can succeed in later practicum. By allowing PPETs to explore their own ways of being a teacher, these strategies can help PPETs develop a genuine sense of TI.

Several research gaps are identified in this study. Because a majority of existing studies on influencing factors of teachers' beliefs and identity used qualitative methods (Fan et al., 2018; Keating et al., 2017), it is unclear which factors made the most significant impact on PPETs' identity. Future studies, especially quasi-experimental studies are needed to shed lights upon the target areas for teacher educators to intervene and shape PPET-TI. Also, Keating and her colleagues (2017) pointed out that existing literature regarding PPET-TI development was situated in its corresponding study sites and may not

be appropriate to generalize to other PETE programs. This warranted future studies utilizing both qualitative and quantitative methods to investigate PPET-TI development. Of particular interests for this project, a quantitative measure of PPET-TI is developed in the following chapter.

CONCLUSIONS

The findings of study 1 revealed three domains of PPET-TI: self-definition of roles and future position in physical education, commitment to teaching goals, and commitment to professional responsibilities and self-growth. This theoretical framework reflects the analyses of 19 PPETs experiences of identity during their PETE program study, which is different from the DSMRI model due to disciplinary and contextual differences between the two frameworks. The three-domain framework serves as the base for the development and validation of the PPET-TI Scale discussed in the following chapter.

Chapter 4: Scale Development (Study 2)

The purposes of study 2 were three-fold: (a) to develop a measurement scale of PPET identity based on findings from study 1 and existing literature; and (b) to evaluate the psychometric properties of the PPET-TI scale, including construct validity and reliability. Four phases were taken to develop and validate the PPET-TI and are described below in chronical order.

PHASE 1: DOMAIN AND ITEM DEVELOPMENT

Phase 1 focused on the domain and item development. The three major themes emerged from study 1 were used as the domains of the PPET-TI Scale: (a) self-definition (in the role of future physical education professional); (b) commitment to teaching mission (as defined in SHAPE America standards for physical education); and (c) commitment to professional responsibilities. Scale items for each domain were generated utilizing the following resources: excerpts of participants' responses in study 1, SHAPE America standards for physical education, the standards for initial PETE programs, and existing measures of occupational identities, including in physician teachers (Starr et al., 2006), music teachers (Isbell, 2008), nursing (Worthington, Salamonson, Weaver, & Cleary, 2013), and in-service physical education teacher's TI (Cheung, 2008). More than eight items were written for each domain to consist of an initial item pool of 32 scale items for further evaluation. Negatively worded items were included in each domain to avoid respondents' bias (Groves et al., 2011).

PHASE 2: CONTENT VALIDITY

Participants

In phase 2, the content validity of the initial PPET-TI Scale was evaluated by experts in the field of TI and socialization in physical education. In total, 10 out of 22 experts who were contacted consented to evaluate the content validity of the scale. The experts were identified from a search of publications concerning PPETs' identity, beliefs, and self-perception. All the experts were tenure-track faculty members from undergraduate PETE programs. The majority of experts were from the U.S. ($n = 7$), and the rest worked in universities from Australia ($n = 2$) and Canada ($n = 1$).

Procedures

Experts in related fields were contacted via email, which included an URL link that directs them to take a Qualtrics online survey. In the survey, the experts were asked to select the most relevant domain for each scale item. In addition to the three domains, a category of "others" was also provided in case the expert believes the item is relevant to none of the domains. The experts were also invited to comment on the appropriateness of each domain and items.

Data Analyses

The agreement among experts' approval of each domain and their selection of domain for each item were calculated in Microsoft Excel. Domains and items receive a low experts' agreement (agreement <. 80) were removed. In addition, experts' comment on the appropriateness of domains and items were reviewed and modifications were made accordingly.

Results

In general, the experts agreed with the structure and domains of PPET-TI. All the experts agreed with Domain 1 (i.e., self-definitions). Domain 2 (i.e., commitment to teaching goals) and Domain 3 (i.e., commitment to professional responsibilities) had 90% of expert agreement. Three items were removed due to low experts' agreement (i.e., < 80%): "Valuing physical activity will be beyond the goals of my teaching", "Personal and social responsibility will be beyond the goals and scope of my teaching", and "I will avoid talking about physical education to others." The first two items were intended for Domain 2 but were matched with Domain 3 by some experts. The last item was matched with Domain 1 only by 50% of experts, although it was intended to measure Domain 1.

According to experts' feedback, some items were rephrased to tease out grammar errors and enhance clarity. For example, the item "I see myself more as a coach than a teacher in the future" was modified to "I am more interested in coaching than teaching physical education". Similarly, the item "I will attend workshops and conferences related to physical education teaching" was modified to "I will attend professional development related to physical education" in the end in order to include a broader type of professional development opportunities. In addition, for all the items in Domain 2 (i.e., commitment to teaching goals), a different prompt was used according to the suggestion of three experts. Specifically, a prompt of "In your future teaching, to what extent do you plan to prioritize" was used instead of a narrative prompt "I plan to/will…". Because of this, three negative-worded items were removed as the content would not fit the prompt: "I will not teach specific knowledge of movement and performance", "Only when I have extra time, will I teach students specific knowledge of movement and physical performance", and "Enhancing students' health-related fitness is not my teaching focus." In the end, a scale

with three domains and 26 items was developed by the end of phase 2 for pilot testing in the next phase.

PHASE 3: PILOT TESTING

Using the scale developed in phase 2, pilot testing was conducted to check the survey structure, item understanding and estimated time for completion. A total of 33 PPETs (N_{male} = 17, N_{female} = 16, M_{age} = 22.82 ± 5.31 years) from four PETE programs completed the pilot testing survey on Qualtrics online survey. Most participants were in their junior (n = 13) or senior year (n = 12). They first completed the PPET-TI Scale and then were asked to comment on items that they found difficult to understand or not applicable to them. The participants also completed items for divergent validity and background information (see methods section in Phase 4), in order to estimate the approximate length of survey completion.

All participants indicated that the items were easy to understand and applicable to physical education majors. Minor modifications to item wording and survey flow were made after analyzing the distribution of the score of each item. Because most items in the domain of commitment to teaching goals are strongly and positively skewed, the prompts of the items were changed from "to what extent do you prioritize" to "how likely will you spend a significant amount of time in". The response scale still used a 7-point Likert format, but the response choices were changed from "To an extremely small extent – To an extremely large extent" to "Extremely unlikely – Extremely likely" to better correspond to the prompt. The average survey completion time was 15 minutes.

As a result of content validity evaluation and pilot testing, 26 items were retained in the preliminary PPET-TI Scale. In total, 8, 10, and 8 items were included in the domain

of self-definition, commitment to teaching goals, and commitment to professional responsibilities, respectively. The preliminary scale items are listed in Appendix B.

PHASE 4: FIELD TESTING

Phase 4 geared toward establishing the underlying structure of the scale, convergent validity, criterion validity, discriminant validity, and reliability of the scores. Specifically, the underlying structure of the scale was established among competing prior measurement models using confirmatory factor analysis (CFA). Convergent validity and discriminant validity was evaluated by referring to the Fornell and Larcker's (1981) criterion. Criterion validity was established through examining the correlations between PPET-TI Scale scores with scores of two established questionnaires. Additional evidence of discriminant validity was sought through heterotrait-monotrait (HTMT) ratio of correlations method (Henseler, Ringle, & Sarstedt, 2015). Score reliability was tested through internal consistency based on Cronbach's alpha statistics.

Participants

In total, 582 PPETs from 59 PETE programs in 4-year universities participated in phase 4. After data screening, it was found that 29 participants responded to all the survey items except for the demographic information items. Their responses were retained for further data analysis for validity and reliability, resulting in a total sample size of 552 (M_{age} = 21.80 ± 3.37 years). The sample sizes met the recommended minimum 1:10 ratio between the number of estimated model parameters and sample size for CFA (Kline, 2015), which suggests a sample size of 550. Overall, a diverse of PPETs participated in this phase. Table 2 displayed the demographic and academic background information of the 523 participants (excluding the 29 participants who did not respond to these questions).

Variables		*n* (%)
Gender	Male	284 (54.30%)
	Female	239 (45.70%)
Ethnicity	White	443 (84.70%)
	African American	31 (5.93%)
	Hispanic/Latino	32 (6.12%)
	Asian/Pacific Islander	6 (1.15%)
	Native American	1 (0.19%)
	Bi-racial/Others	10 (1.91%)
Class standing	Freshmen	40 (7.65%)
	Sophomore	90 (17.21%)
	Junior	149 (28.49%)
	Senior	204 (39.01%)
	Advanced degree	40 (7.65%)
[a]Institution type	Doctoral university	217 (41.65%)
	Master's college/university	268 (51.44%)
	Baccalaureate college	36 (6.91%)

Table 2: Demographic and Academic Background of Participants in Phase 4

Note: [a]The basic classification framework of the Carnegie classification of institutions of higher education was used.

Measures and Instruments

PPET-TI

The preliminary version of the PPET-TI Scale developed in phase 3 was used to assess PPET-TI. The scale included three domains and a total of 26 items. The participants used a 7-point Likert response format. The construct validity and reliability were acceptable according to the results in study 2. The average score of the entire PPET-TI Scale was calculated to assess the strengths of PPET-TI. The higher the score, the stronger one's PPET-TI is.

Occupational Commitment and Intention to Quit

Literature has shown a strong association between TI with career commitment (Day et al., 2005; Morrison, 2013) and teacher attrition (Dunn & Downey, 2018; Hong, 2010; Schaefer, 2013). The questionnaires of occupational commitment and intention to quit were selected to examine the criterion validity of the PPET-TI Scale. The two scales were initially developed by Hackett, Lapierre, and Hausdorf (2001) and later modified and validated among pre-service teachers by Klassen and Chiu (2011). Klassen and Chiu's (2011) version was used in this study (see Appendix D). The occupational commitment questionnaire measures the level of attachment to the teaching profession, which includes six items (Cronbach's alpha = .88). The 3-item intention to quit questionnaire measures the aptness of withdrawing from the teaching profession (Cronbach's alpha = .89). Both questionnaires utilized a 7-point response scale ranging from strongly disagree (scoring 1) to strongly agree (scoring 7). The average score of both questionnaires was calculated.

Demographic Information

Participants answered questions about their demographic and academic background, including age, gender, ethnicity, religious affiliation, sexual orientation, university, class standing, and current major (see Appendix E).

Data Collection

First, faculty members of 137 PETE programs were contacted to distribute a recruitment email to their PPETs, and 59 faculty members consented to participate. For the three faculty members who chose to distribute the survey in class, a short URL link to the Qualtrics survey was provided. The other 56 faculty members were provided a recruitment email including a brief overview of the survey and the same short URL link to the Qualtrics survey. After responding "yes" to the informed consent form, the participants were directed to complete the preliminary PPET-TI Scale, two scales about their career commitment and intention to quit, and demographic information. All the questions were set as "force response" to avoid missing data. The measures used in phase 4 are discussed below. In total, 50 participants who completed the survey were randomly selected and contacted for receiving an incentive of $10.

Data Analyses

The raw data were screened for missing data using pairwise deletion. Because the online survey used the "force response" function, no missing data were found as participants could not submit their responses if there remained any unanswered items. Next, using box-plots, the outliers for each item were identified and removed. The normality of item scores was examined using the Shapiro-Wilk test to determine the type of estimator to be used in factor analysis (Meyers, Gamst, & Guarino, 2017; Wang & Wang, 2012).

Construct validity of the PPET-TI Scale scores was examined in four aspects: factor structure, convergent validity, criterion validity, and discriminant validity (Kline, 2015). After construct validity analysis was completed, Cronbach alpha was calculated to measure the internal consistency of each subdomain and the overall scale, respectively. Alpha was set at $p < .05$ as the significant level. Specific data analysis procedures are presented below.

Factor Structure of the Scale

First, CFA was performed to evaluate and refine the factor structure of the measurement model developed in phase 3 (see Figure 4). The fit of the proposed factor to the data collected in phase 4 was evaluated in M*plus* 7.4. Because the distribution of scores of almost all the items violates the normality assumption, a rescaling-robust estimator (robust Maximum-likelihood, MLR) was used in CFA (Meyers et al. 2017; Wang & Wang 2012). Fit indices including chi-square test, Root Mean Square Error of Approximation (RMSEA) and 90% confidence interval (CI), Comparative Fit Index (CFI), Tucker Lewis index (TLI), and Standardized Root Mean Square Residual (SRMR) were used to examine the overall model fit. Non-significant chi-square test, RMSEA < .06, CFI and TLI greater than .95, and SRMR < .08 were recommended for a conclusion of an adequate model fit (Brown, 2015; Hu & Bentler, 1999). The original model was re-specified according to existing theories such as DSRMI and role socialization theory (Richards, 2015), modification index (MI), and standardized factor loadings (< .50) and residuals (> 1.96) (Brown & Moore, 2012). The fit of re-specified models to data was evaluated in the same process as described above. A Satorra-Bentler scaled Chi-square test was carried out to examine the difference in model fit between the proposed and re-specified model (Satorra & Bentler, 2010).
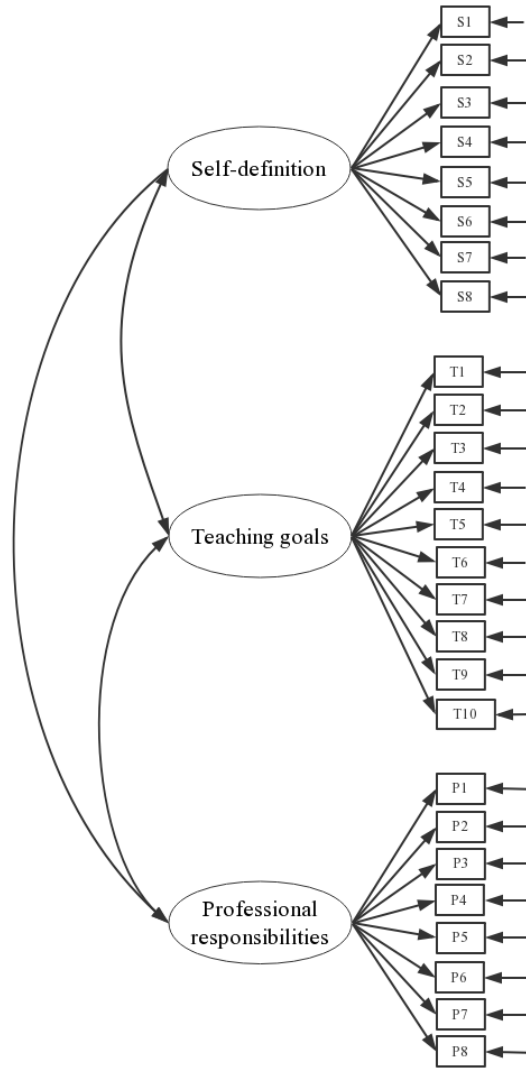
Figure 4: A Proposed Measurement Model of PPET-TI.

Convergent Validity and Criterion Validity

After the factor structure was confirmed, convergent validity was assessed. Convergent validity is indicated by the correlation between indicators (i.e., items) assumed to measure the same construct, which is preferably moderately correlated. The Fornell and Larcker criterion was used (Fornell & Larcker, 1981). Factor loadings of items were

obtained from CFA results and were expected to be higher than .50 and significant (Brown, 2015). Composite reliability (CR) measures the overall reliability of a set of items that intended to measure the same construct (i.e., factor) by which is expected to be higher than .70 to claim good convergent validity (Hair, Black, Babin, & Anderson, 2010). CR value (ρ_c) was calculated based on the following formula:

$$\rho_c = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum(1 - \lambda_i^2)} \tag{1}$$

where λ_i is the standardized factor loading for item i. CR was calculated in an online calculator (Colwell, 2016). The average variance extracted (AVE) which measures the amount of variance captured by a factor in relation to the variance due to random measurement error is expected to be greater than .50 for an acceptable convergent validity (Fornell & Larcker, 1981; Hair et al., 2010). AVE was calculated in SPSS 25.0 based on the following formula:

$$AVE = \frac{\sum \lambda_i^2}{\sum \lambda_i^2 + \sum(1 - \lambda_i^2)} \tag{2}$$

where λ_i is the standardized factor loading for item i.

Criterion validity was assessed by calculating the Pearson correlation coefficients between PPET-TI scores and scores of occupational commitment questionnaire and intention to quit questionnaires were analyzed using SPSS 25.0. A significant and positive correlation between occupational commitment and a significate and negative correlation between intention to quit with PPET-TI were expected to establish criterion validity.

Discriminant Validity

Discriminant validity refers to the distinction between variables intended to measure different constructs. Three approaches were used to assess the discriminant validity of the scale. First, Pearson correlations between subscales were calculated. Meyers et al. (2017) suggested that the correlation between factors should not exceed .80. Second,

according to Fornell and Larcker (1981), discriminant validity cannot be ascertained unless the factor explains more variance of its own items than the variance of items that are intended for other factors. Therefore, the value of $\sqrt{AVE}$ of a factor should be greater than the correlations between that factor and all the other factors in the measurement model. A table of between-factor correlation was created in Excel to compare with $\sqrt{AVE}$ of each factor.

Third, heterotrait-monotrait (HTMT) ratio of correlations was calculated to further assess discriminant validity (Henseler et al., 2015). HTMT method was recently developed and have shown a superior capacity than Fornell and Larcker criterion in detecting a lack of discriminant validity in Monte Carlo simulations (Henseler et al., 2015) and in empirical studies (Ab Hamid, Sami, & Sidek, 2017). One of the advantages of HTMT method is that it does not require parallel measures of the developing scale (Henseler et al., 2015). HTMT statistics can be derived from multitrait-multimethod (MTMM) matrix (Campbell & Fiske, 1959), which measures the average of heterotrait-heteromethod correlations relative to the average of the HTMT correlations and is expected to be lower than .90 (Campbell & Fiske, 1959). For each pair of factors ξ_i and ξ_j, HTMT was calculated using the following formula in Henseler et al.'s (2015) work:

$$HTMT_{ij} = \frac{\frac{1}{K_i K_j}\sum_{g=1}^{K_i}\sum_{h=1}^{K_j} r_{i_g,j_h}}{\sqrt{\frac{2}{K_i(K_i-1)}\sum_{g=1}^{K_i-1}\sum_{h=g+1}^{K_i} r_{i_g,i_h} \times \frac{2}{K_j(K_j-1)}\sum_{g=1}^{K_j-1}\sum_{h=g+1}^{K_j} r_{j_g,j_h}}} \tag{3}$$

where K_i is the total number of items in the factor ξ_i; K_j is the total number of items in the factor ξ_j; g denotes the gth item in factor ξ_i; h denotes the hth item in factor ξ_j; r is the correlation between two items.

Reliability

After the measurement of construct validity was completed, scale and item reliability were evaluated based on the remaining items. Cronbach's alpha for each remaining domain and for the entire scale was calculated to provide evidence of internal consistency. A cut-off value of .70, .80, and .90 are considered to indicate moderate, good, and excellent internal consistency (Meyers et al., 2017). In addition, Pearson correlations were calculated between items and their intended domain, as well as between items and the entire scale to determine which items should be removed using the cut-off values of: (a) item-domain correlations < .50; and (b) item-scale correlations < .40 (DeVellis, 2016).

Results

Factor Structure

The original 3-factor and 26-item model showed a poor fit to the data. Fit indices were presented in Table 3. To re-specify the model, factor loadings and modification index were examined. In total, nine items were removed. Specifically, item S4, S6, T6, and P3 were removed due to their low factor loading (i.e., < .30). Item S2 and item S8 showed significant error covariance. A review of the content deemed item S2 as a redundant item as both items describe an individual's perceived public-image. Because item S8 ("I believe others think of me as a future PE teacher") is more relevant to the construct of PPET-TI, item S2 ("I believe others see me as a PE major") was removed. Item S7, T9, P1 and P5 showed significant cross-loading on two or three domains and were removed. After the removal of nine items, a CFA of the re-specified model was performed.

A good model fit to the data was found for the re-specified model, with three domains of 17 items (see Table 3). The three domains were labeled as self-definition, teaching goals, and professional responsibilities. All the fit indices met the recommended

cut-off value for a good model fit (Hooper, Coughlan, & Mullen, 2008). All the factor loadings were higher than .57 and significant at $p < .001$ level (see Table 4). A scaled Chi-square difference test showed that the re-specified model showed significant improvement in model fit, scaled χ^2 (4) = 68.25, $p < .001$. The re-specified measurement model was illustrated in Figure 5.

Measurement Model	χ^2	RMSEA (90% CI)	CFI	TLI	SRMR
Proposed	1038.11***	.07 (.06 - .07)	.89	.88	.07
Re-specified	273.57***	.05 (.04 - .06)	.97	.96	.06

Table 3: Model Fit Indices for Proposed and Re-specified Models.

Note: ***$p < .001$; RMSEA: root mean square error of approximation; CI: confidence interval; CFI: comparative fit index; TLI: Tucker Lewis index; SRMR: standardized root mean square residual.

Item	Factor Loading	*M*	*SD*
Self-definition			
S1	.94	6.19	1.39
S3	.97	6.17	1.38
S5	.58	6.08	1.34
S8	.57	5.67	1.39
Teaching Goals			
T1	.77	6.57	.80
T2	.83	6.42	.81
T3	.85	6.47	.85
T4	.88	6.56	.81
T5	.81	6.38	.94
T7	.74	6.47	.90
T8	.74	6.44	.86
T10	.79	6.64	.76
Professional Responsibilities			
P2	.83	5.32	1.55
P4	.72	5.60	1.37
P6	.75	5.54	1.48
P7	.82	5.35	1.56
P8	.85	5.61	1.54

Table 4: Descriptive Statistics and Factor loadings of the Final PPET-TI Scale.

Note: All *p* values for factor loadings were below .001 level. *M* = mean; *SD* = standard deviation.
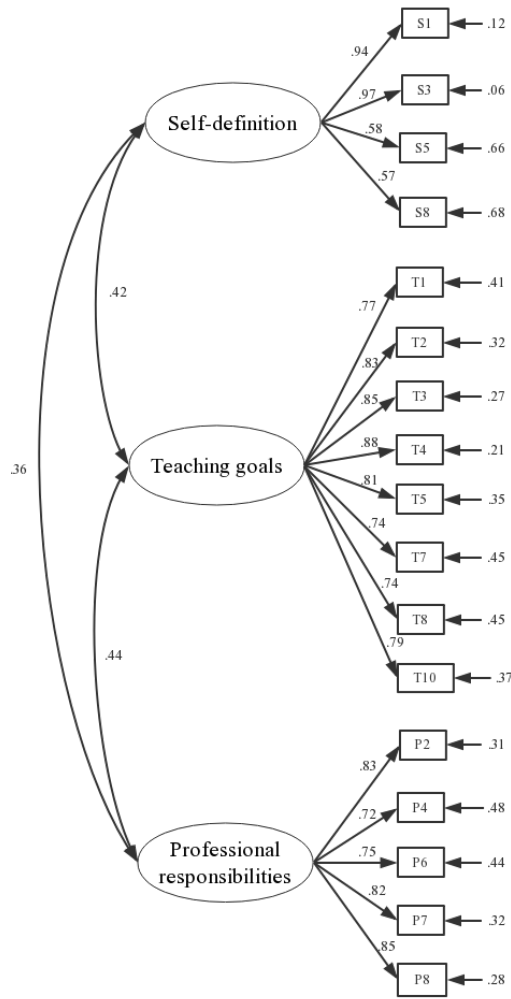
Figure 5: Latent Factor Solution for the PPET-TI Scale.

Convergent Validity, Criterion Validity, and Discriminant Validity

The convergent validity of the scale was supported. There were significant and moderate correlations between factors ($r = .36 - .44$, $p < .001$. The AVE and CR value of each factor met recommended cut-off values (i.e., AVE > .50, CR > .70). Criterion validity was also established. The correlations between each factor and scores of two established measures were moderate and significant. Specifically, scores of the PPET-TI Scale and the subscales were positively correlated with the score of career commitment scale and

negatively correlated with the score of intention to quit scale. Table 5 displayed the results of convergent validity and criterion validity.

	S	T	P	AVE	CR	CC	IQ
S	**.79**			.62	.86	.65	-.53
T	.42	**.80**		.64	.94	.40	-.34
P	.36	.44	**.80**	.63	.90	.42	-.22
Total Scale	.70	.82	.80	.64	.97	.62	-.46

Table 5: Factor Correlations, AVE, CR and Correlations with Two Established Measures

Note: The *p* values for correlations were below .01 level. S: self-definition; T: teaching goals; P: professional responsibilities; AVE: average variance extracted; CR: composite reliability; CC: career commitment; IQ: intention to quit. The diagonal elements of the correlation matrix (in bold) were the value of $\sqrt{AVE}$ of the factor in that row.

Discriminant validity of the PPET-TI Scale was also supported. First, the correlation between factors did not exceed the recommended .80 level (Meyers et al., 2017). Second, the $\sqrt{AVE}$ values of each factor (see values in bold in Table 5) were larger than the correlation between factors. HTMT ratios of correlations between factors were all below the .90 cut-off value (see Table 6).

	Self-definition	Teaching goals
Self-definition	-	
Teaching goals	.48	-
Professional responsibilities	.42	.48

Table 6: Heterotrait-monotrait Ratio of Correlations between Factors

The internal consistency of each factor and the entire scale showed acceptable reliability of the scores of the PPET-TI Scale. Cronbach's alpha value for each factor and the entire scale was above .80 level (see Table 7). The item-factor correlations (i.e., factor loadings) were acceptable (i.e., $r > .50$, see Table 4). The item-scale correlations exceeded .40 level (see Table 8). The final version of the PPET-TI Scale is included in Appendix C.

Factor	Cronbach's Alpha	Number of items
Self-definition	.84	4
Teaching goals	.93	8
Professional responsibilities	.90	5
Entire scale	.91	17

Table 7: Cronbach's Alpha of Factors and the Scale

Item	Correlation with the Entire Scale
S1	.61
S3	.63
S5	.59
S8	.54
T1	.67
T2	.70
T3	.69
T4	.73
T5	.69
T7	.64
T8	.67
T10	.65
P2	.66
P4	.67
P6	.65
P7	.68
P8	.70

Table 8: Item-scale Correlations.

Note. The *p* value of each correlation coefficient was below .01 level.

Discussion

Existing studies on PPET-TI have been utilizing qualitative methodology. An absence of a quantitative measure of PPET-TI limited researchers' capacity to examine this topic across different contexts and speculate factors that can shape PPET-TI. The purpose

of this study was to develop a measurement instrument of PPET-TI and provide psychometric evidence of the scale. Following four steps (Groves et al., 2011), the PPET-TI Scale was developed through item-pool creation, content validity evaluation, pilot testing, and validity and reliability evaluation. The results revealed the same underlying three-domain structure of PPET-TI that was found in study 1: self-definition, teaching goals, and professional responsibilities. The 17-item PPET-TI Scale showed adequate construct validity, convergent validity, criterion validity, discriminant validity, and reliability. Findings of survey development and validation are discussed in the following sections.

Content Validity

Domains and items had acceptable content validity since experts' agreement rate on the item-domain matching was greater than 80% (Meyers et al., 2017). A content validity study is deemed of great importance as it can inform researchers the representativeness of the items for their intended domain, and the clarity of the items (Rubio, Berg-Weger, Tebb, Lee, & Rauch, 2003). Therefore, it is critical to recruit a sufficient number of qualified content experts, so that the measure can be evaluated by experts from diverse perspectives (Grant & Davis, 1997). In this study, the sample size (N = 10) met the recommended number for content experts (i.e., three to 10) (Rubio et al., 2003). The experts were all tenure-track faculty members who have published peer-reviewed articles in TI and self-perception in the field of PETE, which ensured the level of expertise of the experts recruited in this study. Moreover, experts were recruited from 10 PETE programs located in three countries (i.e., U.S., Canada and Australia), and their research work related to TI was based on different theoretical lenses (see Table 1). The

diverse program and research background of the experts improved the representatives of survey items in different contexts (Rubio et al., 2003).

Construct Validity

The sample size of the validity study in Phase 4 ($N = 552$) met the recommended sample size for CFA. Kline (2015) recommended a minimum 1:10 ratio between the number of estimated model parameters and sample size. In this study, the initial proposed measurement model included 26 items loading on three factors, suggesting 55 estimated model parameters and thus suggesting a minimum sample size of 550. The sample represented sex and racial composition among PPETs reported in 2016, with predominantly White students, and with male slightly more than female students ("DataUSA: Health & Physical Education", n.d.). PPETs from a wide range of racial groups were recruited, including Black or Africa American, Asians, Hispanic, Native American, and multi-racial groups. In addition, PETE programs from both research heavy and teaching oriented four-year institutions were included in this study.

While researchers are concerned about invalid responses caused by careless or inefficient effort responding (C/IE responding, Curran, 2016) in web-based surveys (Fleischer, Mead, & Huang, 2015), this pattern was not found in this study. C/IE responding manifests in ways such as selecting the same option for each question or randomly selecting options. The rate of invalid responses was 5.15% (i.e., 30 out of 582). An important factor that leads to C/IE responding is lack of motivation (Curran, 2016). In this study, PPETs were motivated in a variety of ways. They were contacted by their PETE coordinators and instructors. Throughout the semester, they received several emails and were encouraged to participate. In the recruitment email, the benefits of participation were

highlighted, including helping them reflect career and identity, contributing to the profession, and a high chance of receiving participation incentives.

The construct validity of the PPET-TI Scale was established through CFA of the factor structure the measurement model. A three-factor model showed a good fit to the data, confirming the three themes identified in study 1. The three factors (i.e., domains) are: (a) self-definitions, which refers to the extent to which a PPET assumes a future physical education teacher role and projects a career in physical education teaching; (b) teaching goals, which describe the extent to which a PPET prioritizes the teaching standards required in SHAPE America National Standards (SHAPE America, 2014); and (c) professional responsibilities, which defines the likelihood of a PPET to take actions to engage in professional development activities for the purpose of self-growth and improving school-based physical education programs.

The three factors were moderately correlated with each other ($r = .36$ to $.44$). The correlation between self-definition and professional responsibilities was relatively lower than that between self-definition and teaching goals, and between teaching goals and professional responsibilities. This implied that perceiving self to be a future teacher does not guarantee one's intention to fulfill professional responsibilities, such as advocate for physical education and contributing to professional organizations. The relationship between self-images, intention, and behaviors are mediated by many factors (Sheeran & Webb, 2016). After assuming a teacher role, PPETs need to develop the knowledge, skills, motivation, and capacity in their PETE program study and be supported by PETE program, public schools, and professional organizations to fulfill their professional responsibilities (Armour, 2010).

Criterion Validity and Discriminant Validity

Criterion validity was supported. The score of the PPET-TI Scale was found to positively correlated with career committeemen score and negatively correlated with intention to quit score to a moderate extent, $r = .62$ and $.46$, respectively (DeVallis, 2003). This finding was seemingly consistent with previous studies that teacher retention was impacted by TI (e.g., Day & Gu, 2007; Noordin, Rashid, Ghani, Aripin, & Darus, 2009; Schaefer, 2013). However, previous studies defined TI differently from this study. For example, Schaefer (2013) concluded that a teacher's career commitment is determined by whether s/he can develop new identities and shift existing identities to meet the demands of the school reality. In other words, the author defined TI as an identity desired by the schools, and the development of this identity helps teacher attrition. The present study, however, defined TI in light of the alignment with expectations from the physical education profession, which may often contradict with expectations from school expectation (Richards, Templin, & Gaudreault, 2013). The criterion validity results of this study showed that the TI desired by the profession was positively associated with preservice teachers' attrition to the profession.

Discriminant validity of the PPET-TI Scale was also supported. The moderate intra-factor correlation suggested that the three factors measured relevant yet distinct aspects of PPET-TI. The $\sqrt{AVE}$ values of each factor surpassed intra-factor correlations, suggesting that each factor was best capable of explaining the variance of its own set of items, and hence were distinct from each other. HTMT ratio of correlation reinforced the discriminant validity by showing that the average correlation among items of the same factor was greater than that among items of different factors. In conclusion, the PPET-TI should be understood as a multi-facet concept, with three relevant yet distinct underlying domains.

Reliability

The internal consistency of the scale was examined to provide reliability evidence. The Cronbach's alpha coefficients of the entire scale and subscales were greater than .80 (alpha = .84 to .91), suggesting adequate reliability of the scale scores. In addition, the factor loadings and item-scale correlations were moderate and significant (λ = .54 to 97; r = .54 to .70), which indicated that the scale items consistently measured the same construct (i.e., PPET-TI or one of the domains).

The lowest item-scale correlation was found for the item "I believe others think of me as a future PE teacher", r = .54. This implies that others' opinions may not be as predictive of PPET-TI as much as factors described in other items, such as perceived possibilities in attending professional development (item-scale correlation = .70) and having a teaching goal in movement competency (item-scale correlation = .70). This finding differed from previous studies that highlighted the role of the interactions between public-images and self-images in TI development (Beijaard, 1995; Fletcher et al., 2013; Gee, 2000). Physical education is marginalized among subject matters in schools and physical education teachers experienced isolations in schools (Gaudreault, Richards, & Mays Woods, 2017; Richards, Gaudreault, & Woods, 2017). As a result, PPETs may have developed strategies to resist and disown negative opinions about physical education (Mansfield, Beltman, Broadley, & Weatherby-Fell, 2016). This was also found in study 1, where PPETs stated that they became accustomed to others' negative opinions and misunderstanding of physical education and developed strategies to ignore and disown outsiders' opinions. In conclusion, public-image still played an important role in PPET-TI, yet it may not be deemed as important as other factors.

Feasibility

The length of the PPET-TI Scale is not long. The average time to complete all the measures in phase 4 was 12 minutes, according to the completion time recorded by Qualtrics online survey tool ("Qualtrics," n.d.). The measures included consent form, demographic questions, 26 items about PPET-TI, and nine items about career commitment and intention to quit. Therefore, it is estimated that the 17-item PPET-TI Scale would take less than 10 minutes to complete and therefore the scale is considered as a short survey (Galesic & Bosnjak, 2009). Considering the academic learning demands among PPETs can be high, the short length of the survey certainly increases its likelihood of completion.

Implications

This study made important contributions to the literature of TI and the practice of teacher education in the field of physical education. First, the three-domain model of PPET-TI identified in study 1 was confirmed in study 2. This conceptual framework was grounded in the analyses of empirical data, which refreshed our understanding of PPET-TI in contemporary society and provided a much-needed framework that has not been established in the existing studies. For future endeavors on this topic, researchers are suggested to use this framework to examine the most relevant elements in PPET-TI.

Second, the quantitative measure developed and validated in this study enables a line of future research on PPET-TI. Using the scale, researchers are now able to collect longitudinal data and track changes of PPET-TI throughout their PETE program study. It is also important to utilize quasi-experimental research designs to identify factors that cause changes in PPET-TI. Beauchamp and colleagues (2009) summarized four categories of factors that may shape PI: personal bibliographies, teacher education program context, school environment, and macro sociopolitical environment. Furthermore, cross-sectional

studies are needed to shed light upon individual differences in PPET-TI, such as differences among gender, racial, religion, age, year of enrollment, and body image. Although qualitative studies have been conducted in this area (e.g., MacDonald et al., 1998; Sirna et al., 2010; Solmon et al., 1990), quantitative studies help generalize findings beyond one study context.

PETE faculty members may utilize the PPET-TI Scale in recruitment, course planning, and program evaluation. Researchers have found that new recruits with a strong coaching-orientation and a weak teaching-orientation were not likely to shift their projected career and teaching objectives in line with physical education teaching, even after years of PETE training (Curtner-Smith et al., 2008). The PPET-TI Scale includes measures of projected roles, careers, and teaching goals, which can be useful for screening teacher education program applicants with a hardcore coaching orientation. The score of PPET-TI provides the current level of TI of respondents and hence should be taken into consideration in PETE course preparation. For example, the teacher educator should emphasize the importance of basing lesson planning and student assessment on national standards, if the score of the teaching goal subscale is relatively low. Lastly, TI needs to be treated as the centerpiece instead of a by-product of teacher preparation (Flores & Day, 2006; Kaplan & Garner, 2017). PETE program should periodically assess PPET-TI for ongoing program evaluation and PPET summative assessment.

Limitations

Despite the contributions of this study to the research on PPET-TI, there are several limitations. First, only a few baccalaureate colleges participated in the validity and reliability study (i.e., phase 4), which may limit the ability of generalization of the results in regional teaching institutions. Second, only one reverse-worded item was retained in the

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final version of the scale. Other reverse-worded items were deleted because of their low factor loadings. This may increase the chance of acquiescent response bias ("Qualtrics," n.d.). But researchers also found that reverse-worded items could negatively impact scale reliability (Roszkowski & Soven, 2010). Curran (2016) proposed to use a variety of techniques of controlling response bias, such as screening short response time and outliers, which were used in the present study. Third, the survey was distributed online, which may cause possible self-selection bias in sampling. Further validation studies of the PPET-TI Scale need to consider including regional teaching-oriented institutions and using a stratified sampling strategy to overcome sampling bias in survey research (Groves et al., 2009).

Conclusions

Overall, this study validated the three-domain conceptual framework and a quantitative measure of PPET-TI. The PPET-TI Scale showed adequate validity and reliability. As the first study to establish a quantitative measure, this study enables researchers to conduct a line of future studies. Specifically, the PPET-TI Scale provides a way for researchers to track changes of PPET-TI and conduct quasi-experimental studies to speculate factors that may cause such changes. Teacher educators may also use the PPET-TI Scale to assess PPETs' dispositions, planning meaningful learning activities to intervene in TI development and evaluate program effectiveness. As Flores and Day (2006) stated, "becoming a teacher involves, in essence, the (trans)formation of the teacher identity." (p. 220)

Appendices

1. Self-definitions in major and career

    a. At this moment, in the PETE program, what experiences have you gained in PETE program/School/work?

    b. How would you describe yourself in your PETE program study?

    c. What kinds of teacher do you want to become?

    d. What do you aspire to do after you graduate?

2. Beliefs about teaching and learning in physical education

    a. How do you think of teaching physical education in K-12 schools?

    b. How will your students learn in your physical education class?

3. Teaching Goals

    a. What goals do you plan to achieve in teaching physical education?

    b. How did you develop these goals?

4. Action possibilities

    a. What do you plan to do in order to achieve the teaching goals you set?

    b. What have you tried to achieve the teaching goals you set?

APPENDIX B. PRESERVICE PHYSICAL EDUCATION TEACHERS' TEACHER IDENTITY SCALE (BEFORE VALIDATION)

Thank you for your interests in participating in this study!

This is a survey and not a test. **There is no right or wrong response to any statement below.** Please give a thoughtful and honest response to each statement.

1.   Please select a response from the scale below that best describes your agreement with each statement below.

At this moment,

	Totally disagree	Mostly disagree	Slightly disagree	Neutral	Slightly agree	Mostly agree	Totally agree
1. I often envision myself becoming a PE teacher.							
2. I believe others see me as a PE major.							
3. I see myself as a future PE teacher.							
4. I am more interested in coaching than teaching PE.							
5. I do not see myself as a PE teacher in the future.							
6. I do not want other people to know that I will become a PE teacher.							
7. Teaching PE is my dream job.							
8. I believe others think of me as a future PE teacher.							

2. People have very different opinions about what should be taught in PE. Now think about what you want to focus on in your future PE classes, and select a response from the scale below that best describes your teaching focus.

In your future PE classes, how likely will you spend a significant amount of time in:

	Extremely unlikely	Moderately unlikely	Slightly unlikely	Maybe	Slightly likely	Moderately likely	Extremely likely
1. Helping students enjoy a variety of physical activities?							
2. Students' movement competency in a variety of physical activities?							
3. Students' health-related fitness?							
4. Teaching knowledge and skills of living a physically active lifestyle?							
5. Teaching knowledge about movement and physical performance (concepts, principles, strategies, etc.)?							
6. Teaching 2-3 sports each school year?							
7. Teaching self-discipline, rules and etiquette?							
8. Helping students master a variety of movement skills?							
9. Teaching collaboration and leadership skills?							
10. Raising awareness of the importance of participating in physical activities?							

3. Please select a response from the scale that best describes your planned involvement in the activities in each of the statement below.

In the next several months, how likely will you:

	Extremely unlikely	Moderately unlikely	Slightly unlikely	Maybe	Slightly likely	Moderately likely	Extremely likely
1. Raise society's awareness of quality PE?							
2. Contribute to PE-related professional organizations? (e.g., organizing events, fundraising, donation)							
3. Decide not to become involved with professional organizations related with PE?							
4. Actively engaged in projects/initiatives related to school health and physical activity?							
5. Take actions to change others' negative and/or stereotypical opinions about PE?							
6. Take actions to help improve PE curriculum and programs for K-12 schools?							
7. Start or maintain an active membership of professional organizations related to PE?							
8. Attend professional development learning opportunities related to PE?							

APPENDIX C. PRESERVICE PHYSICAL EDUCATION TEACHERS' TEACHER IDENTITY SCALE (FINAL VERSION AFTER VALIDATION)

Thank you for your interests in participating in this study!

This is a survey and not a test. **There is no right or wrong response to any statement below.** Please give a thoughtful and honest response to each statement.

1. Please select a response from the scale below that best describes your agreement with each statement below.

At this moment,

	Totally disagree	Mostly disagree	Slightly disagree	Neutral	Slightly agree	Mostly agree	Totally agree
1. I often envision myself becoming a PE teacher.							
3. I see myself as a future PE teacher.							
5. I do not see myself as a PE teacher in the future.							
8. I believe others think of me as a future PE teacher.							

2. People have very different opinions about what should be taught in PE. Now think about what you want to focus on in your future PE classes, and select a response from the scale below that best describes your teaching focus.

In your future PE classes, how likely will you spend a significant amount of time in:

	Extremely unlikely	Moderately unlikely	Slightly unlikely	Maybe	Slightly likely	Moderately likely	Extremely likely
1. Helping students enjoy a variety of physical activities?							
2. Students' movement competency in a variety of physical activities?							
3. Students' health-related fitness?							
4. Teaching knowledge and skills of living a physically active lifestyle?							
5. Teaching knowledge about movement and physical performance (concepts, principles, strategies, etc.)?							
7. Teaching self-discipline, rules and etiquette?							
8. Helping students master a variety of movement skills?							
10. Raising awareness of the importance of participating in physical activities?							

3. Please select a response from the scale that best describes your planned involvement in the activities in each of the statement below.

In the next several months, how likely will you:

	Extremely unlikely	Moderately unlikely	Slightly unlikely	Maybe	Slightly likely	Moderately likely	Extremely likely
2. Contribute to PE-related professional organizations? (e.g., organizing events, fundraising, donation)							
4. Actively engaged in projects/initiatives related to school health and physical activity?							
6. Take actions to help improve PE curriculum and programs for K-12 schools?							
7. Start or maintain an active membership of professional organizations related to PE?							
8. Attend professional development learning opportunities related to PE?							

This section asks about your feelings and thoughts about the physical education profession as your future career.   Please select a response from the following scale that best describes how you agree or disagree with each of the statement below.

1 = Totally disagree
2 = Mostly disagree
3 = Slightly disagree
4 = Neutral
5 = Slightly agree
6 = Mostly agree
7 = Totally agree

If I could get a job different from being a physical education teacher that paid the same, I would take it.	1	2	3	4	5	6	7
I definitely want a career for myself in physical education.	1	2	3	4	5	6	7
I think about quitting the physical education major.	1	2	3	4	5	6	7
If I could do it all over again, I would not choose to major in the physical education.	1	2	3	4	5	6	7
If I had all the money I needed without working, I still want to work in the physical education profession.	1	2	3	4	5	6	7
I intend to quit the physical education major.	1	2	3	4	5	6	7
I like the physical education major too well to give it up.	1	2	3	4	5	6	7
Physical education is an ideal profession for me.	1	2	3	4	5	6	7
I am disappointed that I ever entered the physical education major.	1	2	3	4	5	6	7
I spend a significant amount of time reading physical education-related journals, books or online information.	1	2	3	4	5	6	7
I expect to move into another major.	1	2	3	4	5	6	7

The following questions are about your background information. Please answer each question. Thank you!

1. Which university are you currently enrolled in? _____

2. What is your current class standing?
    a. Freshmen
    b. Sophomore
    c. Junior
    d. Senior
    e. Post-baccalaureate
    f. Graduate level

3. What is your declared major?
    a. I have not declared a major yet
    b. Physical Education
    c. Health and Physical Education
    d. Other (please specify) _____

4. What is your gender?
    a. Male
    b. Female
    c. Other (please specify)_____

5. What is your age? _____

6. What is your ethnicity?
    a. White
    b. Black or African American
    c. Hispanic/Latino
    d. Asian
    e. American Indian or Alaska Native
    f. Native Hawaiian or Pacific Islander
    g. Other _____

7. Which religion do you associate yourself with?
    a. Christian
    b. Muslim
    c. Catholic
    d. Buddhist
    e. Judaism
    f. Atheist

g. Agnostic
h. Non-religious
i. Other _____

8. Do you consider yourself to be:
   a. Heterosexual or straight
   b. Gay or lesbian
   c. Bisexuali
   d. Asexual
   e. Prefer to self-describe _____
   f. Prefer not to say

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