

ULRR

Chinese university-based physical education teacher educators' professional learning and development needs

Item Type	Thesis
Authors	Gong, Yueying
Download date	2026-10-24 21:46:26
Item License	https://creativecommons.org/licenses/by-nc-sa/4.0/
Link to Item	https://doi.org/10.34961/researchrepository-ul.22210093



**Chinese university-based physical education teacher educators’
professional learning and development needs**

Yueying Gong

A thesis submitted to the University of Limerick in fulfilment of the requirement for the
degree of Doctor of Philosophy

University of Limerick

Supervisors: Prof. Ann MacPhail and Dr. Ann-Marie Young

Submitted to the University of Limerick, January 2022

Abstract

Title: Chinese University-based physical education teacher educators' professional learning and development needs

Author: Yueying Gong

Supervisors: Prof. Ann MacPhail and Dr. Ann-Marie Young

The aim of this research is to explore the professional learning and development (PLD) needs of Chinese university-based physical education teacher educators (PETEds) and their views about effective ways to address them. This is significant given the limited research exploring this group of teacher educators. There are three studies in my PhD.

The first study uses quantitative methods of data collection and data analysis to examine what PLD activities that Chinese university-based PETEds most needs, and the best ways to address their PLD needs. Results indicated that the majority of PETEds had a strong desire to undertake further professional learning activities in three areas: subject knowledge and didactic with particular emphasis on professional training in specific types of sports, research-related academic activities and institutional activities. They preferred formal learning programmes as well as international learning activities to address these needs.

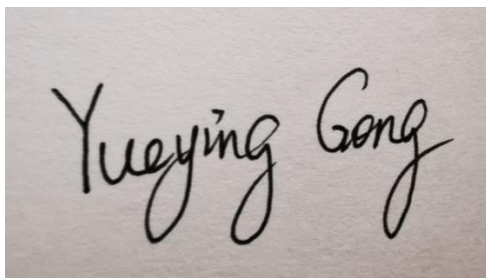
Following the results from the first study, study two uses qualitative methods to explore Chinese university-based PETEds' PLD needs for involvement in research activities. A sample of fifteen university-based PETEds were sourced after completing the survey. The results conveyed that the motives for Chinese university-based PETEds to be involved in research activities tend to be extrinsic to the individual.

Study three aims to explore how Chinese teachers who are teaching in physical education teacher education (PETE) programmes in universities position their professional identity. Fifteen interviews and five follow-up interviews were conducted. It was found that Chinese teachers who were involved in PETE programmes perceived their professional identity more as university teachers than teacher educators.

Keywords: *physical education, teacher educators, professional learning, professional development, professional identity*

Declaration

I declare that this thesis is my own work, and it was completed under the guidance of my supervisors, Prof. Ann MacPhail from the Department of Physical Education and Sport Sciences, University of Limerick and Dr. Ann-Marie Young from the School of Education, University of Limerick. This thesis has not been submitted for a degree, diploma or similar qualification at this or any other third level institution.

A photograph of a handwritten signature in black ink on a light-colored surface. The signature is written in a cursive style and reads "Yueying Gong".

Signature:

Yueying Gong

January 2022

Acknowledgements

Undertaking a Ph.D. in Ireland is a significant stage in my life. I had so many beautiful memories with incredible support during my Ph.D. I would like to thank the following people who helped in various ways during the completion of this thesis.

To Professor Ann MacPhail, thank you for your continuous guidance, encouragement, and patience throughout the whole process. I couldn't be more grateful and luckier to be your first Chinese Ph.D. student. It is one of the best decisions of my life to fly to Ireland and work with you on my research project. I would never have had this amazing journey without you bringing me into the wonderful world of academia. I improved my knowledge, and research skills through your thoughtful, considered, and honest feedbacks. We had many laughs during pizza time. Having learned from you, I will treat my future students with the same kindness and responsible way.

To Dr. Ann-Marie Young, thank you for your support, time, and continued faith in me. You are so helpful when I needed different perspectives on my research. You always encouraged me in meetings and conversations, which helped me to make progress. Our teamwork has been outstanding, Booya!

To Dr. Ainat Guberman, thank you for your effort and patience to collaborate with me. As a young scholar, I am very grateful for the opportunity to work with and learn from you.

To Dr. Deborah Tannehill, you are a very kind person to talk with. You understood Asian culture. Thank you for caring about me and sharing your stories of being a teacher educator.

To the learning community, for bringing us together strongly to care, support, encourage, and learn with each other no matter where we are, especially during the pandemic. It would be much tougher for me to go through this difficult time alone without meeting you weekly online. A special thanks to Claire and Dylan, for involving me in many learning

experiences together in the PESS, conferences, group meetings, and coffee times. You gave me very honest advice and were a huge help when I needed a hand.

To the Ph.D. researchers in the Department of Physical Education and Sport Sciences (PESS) where I spent my first two years in the foundation building, especially Jonathan, Catriona, and Brendan, who helped me a lot so much with my studies, English, and getting to know Irish culture. We had a lot of laughs during lunch breaks, and I got used to different Irish accents. After I moved to the PESS building, Ph.D. researchers in the postgraduate office were very supportive when I had questions. I want to give a special thank you to Jessica. You understood my difficulties and stress to undertake a Ph.D. as a non-English speaker. Thank you for sharing many learning opportunities. I enjoyed the talks and walks with you.

To the Sport Pedagogy Research Group (Missy, Mary, Antonio, Brigitte, Daniel, Claire, Ursula, Elaine, Dylan, Cassandra, and Jessica), thank you for all the conversations, meetings, and suggestions. I learned a lot from you about teaching and researching as a young scholar.

To my Turkish friends, thank you for the great conference experiences. We will always remember the story of “Where is Alice?”. I enjoyed the time with you during the various conferences.

To all the Chinese colleagues and friends who are interested in my research and contribute to this research project. You made my Ph.D. project more meaningful and motivated me to move forward.

A sincere thank you to the Faculty of Education and Health Sciences and Chinese Scholarship Council for the funding and scholarship to support me to do my project.

I wish to acknowledge the unconditional love of my family, especially my parents. Thanks for your support and understanding to allow me to follow my dream. Also, thanks to

Donal and his families' kindness, love, and companionship. You made my life in Ireland sunny and special.

Finally, I would like to thank myself for never giving up and always keeping going.

Table of Contents

Abstract	i
Declaration	ii
Acknowledgements	iii
Table of Contents	vi
List of abbreviations	xiii
List of Tables	xiv
List of Figures	xv
Chapter 1 – Introduction	1
1.1 Research background	2
1.1.1 Conceptual framework	2
1.1.1.1 Differing definitions of ‘teacher educator’	2
1.1.1.2 Categories of teacher educators’ professional learning	3
1.1.1.3 Importance of research activity	4
1.1.1.4 Professional identity	5
1.1.2 Professional learning and development needs of teacher educators	8
1.1.3 Professional learning and development needs of Chinese teacher educators	8
1.1.4 Professional learning and development needs of (Chinese) physical education teacher educators	10
1.1.5 Aligning professional learning and development needs with professional identity	12
1.2 The significance of research for teacher educators’ professional learning and development	12
1.3 The professional identity of university teachers and teacher educators	15
1.4 Research Aim and research questions	16
1.5 Thesis Methodology	17
1.6 Significance of the study	19
1.7 My positionality	20

1.7.1 PhD student	20
1.7.2 PhD researcher	21
1.7.3 Teacher educator	22
1.8 Thesis Outline	24
Chapter 2 - Chinese teacher education context	26
2.1 Introduction	27
2.2 Chinese teacher education in universities	28
2.2.1 Chinese teacher education programmes in universities	30
2.3 University-based teacher educators in the Chinese context	33
2.3.1 Who are Chinese university-based teacher educators	33
2.3.2 Chinese teacher educators' professional identity	34
2.3.3 Chinese university-based teacher educators in universities and schools	36
2.4 Chinese teacher educators' and teachers' professional learning and development	37
2.5 Chinese physical education teacher education	38
2.5.1 The historical review of PETE	38
2.5.2 PETE programmes in universities	40
2.5.3 Chinese research on PETE	44
2.6 Chinese physical education teachers and physical education teacher educators in universities	44
2.7 Chapter Summary	48
Chapter 3 - Professional learning and development needs of Chinese university-based physical education teacher educators	51
3.1 Preface	52
3.2 Abstract	53
3.3 Introduction	54
3.4 Teacher educators' professional learning and professional development	54
3.5 Chinese physical education teacher educators	55

3.6 PETEds' research related academic interest	57
3.7 PETEds' subject knowledge and didactics.....	58
3.8 Method	59
3.8.1 Survey	59
3.8.2 Data collecting	60
3.8.3 Participants	60
3.8.4 Data analysis	61
3.9 Results	66
3.9.1 Professional learning and development activities valued by Chinese university- based PETEds	66
3.9.2 Factors influencing the engagement in professional learning and development	68
3.9.3 Qualitative data: most important professional learning and development needs and how to address them.....	69
3.9.3.1 Research related academic activities	70
3.9.3.2 Updating subject knowledge and didactics.....	70
3.9.3.3 Professional training in specific types of sport	71
3.9.3.4 English and international relations.....	71
3.10 Discussion.....	72
3.10.1 Research related academic activities	72
3.10.2 Subject knowledge and didactics	73
3.10.3 A preference of formal learning programmes and international frameworks	73
3.11 Concluding thoughts	74
3.12 Chapter Summary	76
Chapter 4 - Chinese higher education-based physical education teacher educators' professional learning needs for involvement in research activities	77
4.1 Preface	78
4.2 Abstract	79

4.3 Introduction	80
4.4 Chinese teacher education context	81
4.5 Teacher educators' professional learning	83
4.6 Teacher educators' motives for involvement in research activities	84
4.6.1 Extrinsic motives	84
4.6.2 Intrinsic motives	85
4.7 Teacher educators' research and teaching	86
4.8 Methodology	87
4.8.1 Participant selection	87
4.8.2 Participants	88
4.8.3 Interviews	88
4.8.4 Data analysis	89
4.8.5 Trustworthiness of the data	91
4.9 Results and discussion.....	91
4.9.1 The motives for doing research	92
4.9.1.1 Academic promotion.....	92
4.9.1.2 Institute expectation	93
4.9.1.3 Intrinsic motives	94
4.9.2 Deliberate positioning within research fields	94
4.9.2.1 Hot topics	94
4.9.2.2 Large projects	95
4.9.2.3 Teacher education	96
4.9.3 Infrastructures that support research or teaching.....	97
4.9.3.1 Research and teaching practice	97
4.9.3.2 Research-intensive and teaching-intensive universities.....	98
4.9.4 The expectations of, and from, mentorship.....	99

4.9.5 The strengths and weaknesses of collaborative research	100
4.9.5.1 Strengths of collaborative research	100
4.9.5.2 Lack of collaboration	101
4.9.5.3 Barriers to collaboration	102
4.10 Conclusion	103
4.11 Chapter Summary	107
Chapter 5 - The complexity of professional identity: Chinese university teachers teaching in physical education teacher education (PETE) programmes	108
5.1 Preface	109
5.2 Abstract	110
5.3 Introduction	111
5.4 Being a teacher educator	113
5.5 Being a Chinese teacher educator	114
5.6 Being a Chinese physical education teacher educator	116
5.7 Teacher educators' professional identity	118
5.8 Methodology	119
5.8.1 Participant selection	119
5.8.2 Participants	120
5.8.3 Interviews	122
5.8.4 Data analysis	122
5.8.5 Trustworthiness of the data	124
5.9 Results	124
5.9.1 Understanding of teacher educators' professional identity	124
5.9.2 Working Context	126
5.9.2.1 Involvement in PETE	126
5.9.2.2 Diverse working tasks and student population	126
5.9.2.3 Work related to pre-service and in-service teacher education	128

5.9.3 Interaction with PSTs.....	129
5.10 Discussion.....	131
5.10.1 Understanding the terms ‘teacher educator’ and ‘university teacher’	131
5.10.2 Diverse work responsibilities inside and outside of teacher education.....	133
5.10.3 The turning points during interaction with PSTs	135
5.11 Conclusion	136
5.12 Chapter Summary	139
Chapter 6 - Discussion and Conclusion	140
6.1 Introduction	141
6.2 Key Findings	141
6.3 Accessing learning and experiences through PLD.....	144
6.3.1 Teacher Educators matter	144
6.3.2 A family/community for teacher educators.....	146
6.4 The 'what' and 'how' of learning in PLD.....	148
6.4.1 Research-related professional learning and development needs	149
6.4.2 Teacher education and research-related professional learning and development needs.....	151
6.5 Conclusion	151
6.6 Future research considerations.....	152
6.6.1 Identifying teacher educators	153
6.6.2 The relationship between professional PLD needs and professional identity	153
6.6.3 Teacher educators’ work responsibilities in teacher education	154
6.6.4 A community for university-based PETEds at a local institution.....	155
6.6.5 Professional development and learning needs across the stages	155
6.6.6 Time for action.....	156
References.....	157
Appendix.....	186

Appendix A. PETE programme in 2020 in Zhengzhou University.....	186
Appendix B: Ethical Approval	189
Appendix C: Chapter 3	190
Appendix C.1: Participants Information Sheet.....	190
Appendix C.2: Chinese University-based Physical education Teacher Educators’ Professional Learning Needs Questionnaire	191
Appendix D: Chapter 4 and 5	201
Appendix D.1: Participant Information Sheet	201
Appendix D.2: Informed Consent Form for Chapter 4 and 5.....	202
Appendix D.3: Interview Protocol for Chapter 4 and 5	203
Appendix E: Chapter 5	206
Appendix E.1 Participant Information Sheet for Chapter 5.....	206
Appendix E.2: Follow-up Interview Protocol for Chapter 5	208
Appendix F: Proof of Publication for Chapter 2	211
Appendix G: Proof of Publication for Chapter 3	212
Appendix H: Proof of Publication for Chapter 4	213

List of abbreviations

CFA	Confirmatory factor analysis
EFA	Exploratory factor analysis
GUS	General university students
InFo-TED	International Forum for Teacher Educator Development
IST	In-service teachers
PAF	Principal Axis Factoring
PETE	Physical education teacher education
PETEds	Physical education teacher educators
PLD	Professional learning and development
PSTs	Pre-service teachers
SSS	Social sport students
STS	Sport training students

List of Tables

Table 2. 1 Primary Initial Teacher Education Curriculum standards in universities (Chinese Ministry of Education 2011a)

Table 2. 2 The evolution of initial PETE system

Table 2. 3 The distribution of PETE programmes in higher education

Table 3. 1 Interests in professional learning and development factor loadings

Table 3. 2 Interests in professional learning and development factor loadings

Table 3. 3 Interests in professional learning and development activities (expressed as mean value 1–6)

Table 3. 4 Variables influencing the engagement in professional learning and development activities (expressed as mean value 1–6)

Table 3. 5 Identified themes and categories with frequencies arising from PETEds' most important professional learning and development needs

Table 4. 1 Demographics for the sample of PETEds across eight provinces

Table 4. 2 Data analysis example.

Table 5. 1 Demographics for the sample of teachers involved in PETE across eight provinces.

Table 5. 2 Data analysis example

List of Figures

Figure 1.1 Mixed-methods design	19
Figure 2.1 The regional distribution of universities that provide PETE programmes (Huang et al. 2016).	42

Chapter 1 – Introduction

This chapter provides an introduction to this study, including a summary of the research background, the theory used in this thesis, the research aim and questions, thesis methodology, significance of the study, and the outline of this thesis.

1.1 Research background

1.1.1 Conceptual framework

While it is agreed that teacher educators are central to good teacher education (Vloet and Van Swet 2010) and the education system as a whole (Smith 2003, 2017, Vanassche and Kelchtermans 2016), teacher educators have been described as ‘hidden professionals’ (Høydalsvik 2019; Livingston 2014; Tack et al. 2018). Increased attention needs to be given to ‘hidden teacher educators’ in a bid to understand who they are and their identities, professional learning needs and complex working responsibilities (Livingston 2014). This PhD sets out to provide this attention.

1.1.1.1 Differing definitions of ‘teacher educator’

The differing definitions of ‘teacher educator’ are dependent on the country and work context where teacher educators reside, the position and perspective that teacher educators undertake, and on the choice made by individuals to identify (or not) as a teacher educator (White 2019). Interestingly, the European Commission provided a broad definition, “*Teacher Educators are all those who actively facilitate the (formal) learning of student teachers and teachers*” (2013, p. 8). Teacher educators do not always have access to sufficient support for their professional development (European Commission 2013). The terms ‘professional learning’ and ‘professional development’ are used interchangeably (MacPhail et al. 2018), and the distinction between these two terms is not always explicitly evident across the literature (MacPhail et al. 2019). The importance of informal learning experiences should not be

underestimated when trying to understand the work teacher educators do in different national locations and the professional support they need (Livingston 2014; MacPhail et al. 2014). Many international teacher educators favour a more informal way of connecting with colleagues in PLD activities (MacPhail et al. 2019; Smith 2017; Tack et al. 2018; Van der Klink et al. 2017). MacPhail et al (2014) stated that professional development refers to more structured upskilling opportunities, such as formal courses. Professional development activities typically include observation, on-the-job coaching and mentoring, in-service courses, team teaching, formal and informal collaborative learning, self-directed study, professional reflection, and research (Dymoke and Harrison 2006; Bates, Swennen and Jones 2011; Czerniawski, Guberman and MacPhail, 2017). While researchers and academics have their own preference for the use of ‘professional learning’, ‘professional development’ or ‘professional learning and development (PLD)’, in this PhD research, ‘professional learning and development’ activities include both formal and informal learning activities.

1.1.1.2 Categories of teacher educators’ professional learning

Ping, Schellings and Beijaard’s (2018) systematic review of ‘what, why and how teacher educators learn’, identified four main content categories of teacher educators’ professional learning and included pedagogy of learning about teaching, research and reflection, knowledge base and professional identity. The same study summarised four main categories of teacher educators’ professional learning activities that they undertake: (i) learning through academic engagement, (ii) learning through collaborative activities with colleagues, student teachers, teachers at school or a group of teacher educators, (iii) attending research-related and educational professional development programmes, and (iv) learning through collaborative and individual reflective activity. To best understand and support teacher educators’ PLD, it is important to investigate what skills and knowledge they need and how they effectively acquire such skills and knowledge (MacPhail et al. 2018). The professional

development needs of teacher educators have been an under-researched area (Smith 2017; Lunenberg, Dengerink, and Korthagen 2014), with a raised awareness of teacher educators' PLD needs in different countries being more recently explored through empirical studies conducted across numerous countries (e.g. Czerniawski, Guberman and MacPhail, 2017).

The motivations for teacher educators to improve their professional skills is influenced by numerous contextual factors, e.g. career stages, professional identities and aspirations for the future (Lunenburg et al. 2017; Smith 2017). Ping, Schellings and Beijaard's (2018) found the reasons for teacher educators' engagement in professional learning included external requirements, personal interest and responsibility, and professional role transition.

1.1.1.3 Importance of research activity

Teacher educators note research and teaching as their PLD preferences (Czerniawski, Guberman, and MacPhail 2017; Griffiths, Thompson, and Hryniewicz 2014; Guberman et al. 2020; Van Der Klink et al. 2017), encouraging us to ensure that both deserve equal priority and attention (Hryniewicz 2010). The importance of research activity for teacher educators' career development and promotion continues to heighten (Guberman and Macdossic 2019; MacPhail et al. 2019; MacPahail and O'Sullivan 2019) with, for example, publication being a strong factor in teacher educators' professional recognition and, in turn, promotional opportunities (Guberman et al. 2020). Teacher educators are expected to be 'research driven' (Tack and Vanderline 2014) and encouraged to be research active within the field of teacher education (Lunengerg, Dengerink, and Korthagen 2014). As Loughran (2014) argued, research is a tool for teacher educators to improve the knowledge about their own teaching practice, (future) teacher's learning and teacher education. Guberman and Mcdossi (2019) reported that a combination of external and internal motivations were the reasons for teacher educators to engage in professional learning related to research. However, teacher educators

have reported frustration in attempting to balance teaching and research activities (Griffiths et al. 2014; Czerniawski, Guberman and MacPhail 2017; MacPhail et al. 2019; MacPhail and O’Sullivan 2019).

1.1.1.4 Professional identity

There is a growth in teacher educators’ interest to engage in meaningful professional development activities related to their professional identity (Czerniawski, Guberman, and MacPhail 2017). The exploration of teacher educators’ professional identities is significant to teacher educators’ professional learning and in capturing a wider commitment to promoting the improvement and understanding of teacher education in general (Czerniawski 2018, p. 8-10).

Lunenberg, Dengerink and Korthagen (2014) described teacher educators’ roles as teacher of teachers, researcher, coach, curriculum developer, and gatekeeper. It is important to acknowledge that the concept of role is not synonymous with identity (Britzman 1992), and that teacher educators’ professional identity is informed by day-to-day professional activities that are reliant on social interaction in diverse socio-cultural groups (Czerniawski 2018, p. 10). A key concept emerging from the identity literature is the notion that, *‘Identity is not a singularity but is better conceived of as overlapping, dynamic, unstable, and relative. It involves multiple ‘selves’, each continually re-constructed and re-expressed in the various personae and responsibilities taken on during our course of work’* (Davey 2013, p. 117). Professional identity has been defined as the ‘valued professional self’ and may be continually (in)formed and (re)shaped by interacting with others and in response to the contexts in which we act and work (Davey 2013, p. 162-163). Teacher educators’ understanding about who ‘counts’ as a teacher educator are the fundamental aspects of teacher educators’ professional identity (Davey 2013, p. 70). To define and capture the necessary aspects of professional identity, and what it looked like for teacher educators,

Davey (2013) suggested five perspectives or ‘lenses’ (i.e. ‘Becoming’, ‘Doing’, ‘Knowing’, ‘Being’ and ‘Belonging’). This framework informed the development of the second-round interview protocol in this PhD research. The *Becoming* lens centres on the teacher educators’ intention and aspirations regarding becoming teacher educators, motivations and expectations for taking this step, induction experiences in teacher education, professional development and their initial induction experiences in teacher education (Davey 2013). The *Doing* lens focuses on teacher educators’ daily ‘work’ and the associated professional tasks (Davey 2013). The *knowing* lens considers the various knowledge-bases teacher educators believe they had, or need, and the pedagogical dispositions, perceived specialisms, and skills that they view as distinctive to teacher educators (Davey 2013). The *being* lens centres on teacher educators’ self-image and effective aspects of how they experience teacher education, and the ideal professional personal personae they adopt (Davey 2013). The *belonging* lens focuses on the specific communities of interest and practice that they are aligned (or not) to, and how they perceive ‘fitting’ into their wider professional cultures (Davey 2013).

The development of a professional identity as teacher educators mostly happens while working as a teacher educator and by interacting with student-teachers, colleagues and others involved in teacher education (Swennen, Jone, and Volman 2010). Many teacher educators recruited from working in schools experienced the transition of a teacher educator’s professional identity from a school teacher to teacher educator (Amott 2017; Boyd and Harris 2010; Murray and Male 2005; Swennen, Shagrir, and Cooper 2009). However, many Chinese university-based teacher educators began their career as university teachers, working with student teachers, without previous teaching experience and therefore did not experience such a shift (Wang 2017). Izadinia (2014) reported self-support and community support activities as the main factors influencing and facilitating teacher educators’ transition and their professional identity development. This framework informed the design of the first-round

interview guide related to Chinese physical education teacher educators' (PETEds') professional identity. Self-support activities are those which develop teacher educators' skills and knowledge as teacher educators and are used to make sense of their own professional identity (Izadinia 2014). This includes learning from daily experiences of working as university-based teacher educators and supervising student teachers (Swennen, Volman, and Van Essen 2008) and using self-evaluation and personal readings to improve teaching (Murray and Male 2005). Community-support activities are stimulated by the teacher educators' community and group activities that facilitate teacher educators' professional development and identities, such as team planning (Izadinia 2014).

Teacher educators' identities develop over time through their work and explanation of their professional experiences within a cultural context (Swennen and Volman 2019). Professional identity connects individuals' self-perceptions within cultural and social contexts (Swennen and Volman 2019). Historical and cultural factors need to be considered when supporting teacher educators' PLD. In terms of the concept of culture, Useem, Useem and Donoghue (1963) explained that "*Culture has been defined in a number of ways, but most simply, as the learned and shared behavior of a community of interacting human beings*" (p. 169). Chinese teacher educators encounter difficulties in identifying as the more mainstream definition of teacher educator (Cui 2018; Qiu 2015; Zheng 2015). In the Chinese cultural context, educators from different settings or institutes are generally called 'teachers'. This is similar to the findings of Swennen, Jones, and Volman (2010) who report that teacher educators can be aligned as 'generic teachers' given they are members of the larger community of teachers that serve numerous levels and subject areas. To more effectively support Chinese teacher educators' PLD and professional identities, attention needs to turn to the historical and cultural factors that have shaped teacher education in China. Chapter two of this PhD study explains the historical and cultural PLD factors in relation to Chinese teacher

education, physical education teacher education (PETE), university-based teacher educator and PETEds.

1.1.2 Professional learning and development needs of teacher educators

Teacher educators play a crucial role in the education system and significantly impact the quality of teacher education (Lunenberg et al. 2017; Smith 2003). It is acknowledged that teacher educators' work is diverse, and complex and they need high-quality learning opportunities for continuing professional development (Kelchtermans, Smith, and Vanderlinde 2018), however, in many countries they do not always get the support they need for their professional development (European Commission 2013, 4). A report titled '*Supporting Teacher Educators - for Better learning Outcome*' (European Commission 2013) seems to be the only international policy report in recent decades with a focus on supporting teacher educators' work and professional learning and development (PLD). While numerous reports have been published to increase the quality of teachers, education, and teacher education at national and international levels, there is still little increase in the documents and research which specifically support the PLD of teacher educators.

1.1.3 Professional learning and development needs of Chinese teacher educators

The lack of attention to Chinese teacher educators' PLD and their PLD needs appears to be even more prevalent in the Chinese context. This lack of attention and support for teacher educators in the Chinese context was reported by Tang (2012b) stating that there was no education, or teacher education policy, association, academic conferences or journals for teacher educators, and no master's and doctoral thesis attaching importance to teacher educators and their professional development before 2012. This is vastly different from the attention to teachers. To improve the quality of Chinese teacher education, Cui (2018)

elaborate more attention and support be provided to the group of teacher educators. Recently in an attempt to revitalise teacher education in China, the Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform (2018) published *The Revitalisation plan of teacher education (2018-2022)*. This plan highlights the significance of teacher educators and provides suggestions for supporting teacher educators' PLD:

The national and provincial education administrative departments should increase their support for teacher educators' domestic and foreign academic visits and enhance the education of doctoral students in subject discipline courses and pedagogy in higher education. The calculation of teacher educators' workload and achievement evaluation in higher education should fully reflect the characteristics of the work of teacher education...Two-way communication needs to be promoted between higher education-based teacher educators and primary and secondary school teachers, as well as enterprise staff. A community of teachers (lecturers) in teacher education can be established through two-way temporary post and part-time jobs between higher education, schools, and enterprises (Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform 2018).

This reform is still at the early stage of promoting Chinese teacher education, and it is still only the intention of policies rather than their implementation (Rao 2020). The Chinese Ministry of Education (2017) issued another significant document titled *Measures for the Implementation of Teacher Education Program Accreditation in Higher Education Institutions (Interim)* which created a three-level monitoring and accreditation system for teacher education programs with accreditation starting from 2018. This accreditation standard

indicates a higher level of expectations for teacher educators' qualification, academic title, teaching and research abilities. It also includes the experience of foreign academic visits, teaching experiences in schools and attending continuous development activities.

These two recent reports called for Chinese teacher education institutions and stakeholders to take larger responsibilities to enhance the quality of teacher education as well as provide support and opportunities for teacher educators' PLD. The Chinese government do have a suggestion for teacher educators' professional development, however, there was very little evidence of teacher educators' voices being heard concerning their PLD needs. As Qiu (2015) suggested that policymakers and institutions should listen carefully to teacher educators' voices to investigate and understand their needs before making policies and designing professional development activities. Teacher educators are 'university teachers' and 'researchers', however, as 'teachers of teachers' they have their own professional development needs (Ma and Hu 2018). In an attempt to capture Chinese university-based teacher educators' voices with respect to PLD needs, this thesis explores Chinese university-based physical education teacher educators' PLD activities, what they prioritise and need, and how best to support such needs.

1.1.4 Professional learning and development needs of (Chinese) physical education teacher educators

While some recent international studies have explored PLD needs of higher education-based teacher educators with different subject backgrounds (Czerniawski et al. 2018; Czerniawski, Guberman, and MacPhail 2017; MacPhail et al. 2019), we argue that it is very meaningful to explore the deep insight of teacher educators in one specific subject area, as it has been suggested that studying groups of academics within their subject areas can provide useful insights into the contemporary academics' professional lives (Boyd and Smith 2016). This

approach is appropriate as Chinese preservice teachers (PSTs) and teacher educators in different subject areas are generally separated in different departments instead of in the same faculty. This thesis focuses on a group of Chinese university-based physical education teacher educators, which are referred to as ‘PETEds’. In this research, Chinese university-based PETEds are defined as professionals who are involved in educating physical education PSTs and/or providing PLD activities for in-service physical education teachers. This research examines what their PLD needs are and how they perceive their professional identity. My interest in researching PETEds and desire to contribute to the research on PETEds nationally and internationally started with a 25-year scoping review of research carried out on, with and by PETEds (McEvoy, MacPhail, and Heikinaro-Johansson 2015). This review resulted in discovering 96 related articles in English conducted in 15 countries, however, China only carried out research for one article by interviewing seven Chinese university-based PETEds (Andriamampianina and Moussa 2005). After searching literature in Chinese, ‘university physical education teachers’ was a much more prominent phrase than ‘university-based PETEds’. Further exploration of this and related discussion is captured in the section titled ‘Chinese physical education teachers and physical education teacher educators in universities’ in Chapter 2. While there has been a significant interest in PETEds recently (McEvoy, MacPhail, and Heikinaro-Johansson 2015), similar research has been limited within the Chinese context, a context uniquely different to many other countries. It was evident that physical education literature reflects a relative absence of research on PETEds in China (Zhong and Huang 2020), as well as PETEds’ professional learning in the international literature (Coulter 2019). Furthermore, there was no research examining how Chinese university-based PETEds’ perceive their own professional identity, which became another focus in this research.

1.1.5 Aligning professional learning and development needs with professional identity

Researching Chinese teacher educators' professional development, Qiu (2015) called for further research to explore teacher educators' self-understanding of their professional identities and responsibilities fully within the Chinese context. The construction of teacher educators' professional identity is not only a key approach to become a teacher educator, but also an element to promote teacher educators' professional development (Ma and Hu 2018). It was evident that teacher educators received comparatively little attention and the research area of teacher educators' professional identity was under-researched and relatively neglected before 2010 (Swennen and Bates 2010). Over the past years, teacher educators' professional identity has become an emergent research topic in teacher education both nationally and internationally (Czerniawski 2018; Høydalsvik 2019; Izadinia 2014; Ma and Hu 2018; Mannes 2020; Swennen, Jones, and Volman 2010; Yuan 2020), however, not so much research in this area has been conducted in Asia (Izadinia 2014).

In the next section, literature on teacher educators' PLD in relation to their engagement in research and their professional identity will be critically reviewed.

1.2 The significance of research for teacher educators' professional learning and development

Being a teacher educator in the current environment means that research is becoming an increasingly important part of their work, providing for teacher educators' professional development needs to improve their understanding, practice, and sharing of research with others (White and Swennen 2020). It is common to find that research is widely acknowledged as a key element of university-based teacher educators' PLD needs in the national and international context (Byman et al. 2020; Czerniawski et al. 2018; Czerniawski, Guberman, and MacPhail 2017; MacPhail et al. 2019). My interest of study two (chapter four) was

strongly driven by the results of study one (chapter three). The survey data identified that the area of research related academic activities was one of Chinese university-based PETEds' most important PLD needs, and this area included the richest qualitative data in this research.

Undertaking research and producing articles for national and international publications is one of the main expectations of the teacher educators and it is understood as part of their professional development (Høydalsvik 2019). Teacher educators are expected to be 'research driven', developing a research disposition, preparing consumers and producers of research (Tack and Vanderlinde 2014). The authors of a recent book asked questions about why research is significant for teacher educators and what the benefits are for them, as they often use their own time to engage in research studies (Shagrir 2020, 172). The authors identified six significant functions of research conducted by/for and about teacher educators: (i) teacher educators were expected to engage in research as part of their job, especially in research-driven universities, which may lead to publications, and contribute to academic status of teacher education programmes and make teacher education more visible through research (MacPhail 2020); (ii) searching for more opportunities through collaborative research for teacher educators at local, university, national and international levels (Shagrir 2020); (iii) improving teacher educators' work in the reflective process through self-studies (Attard 2020; Beaton 2020; Russell and Flores 2020); (iv) research conducted by teacher educators supports teacher educators' PLD (Leijgraaf 2020; White, Timmermans, and Dickerson 2020); (v) research conducted by and for teacher educators contributes to the understanding and research-based practice knowledge of the work of teacher educators (Holdsworth 2020; Seifert and Bar-Tal 2020); and (vi) signature research for teacher educators can contribute to the visibility of the profession of teacher educators (Swennen and Powell 2020). Teacher educators can become stressed when asked to consider combining their teacher education practices and research activities (Gleeson et al. 2013). It was proven that teacher educators are

accompanied by the pressure from universities with an expectation to focus on securing research funding and increasing research outcomes (Furlong 2013; MacPhail et al. 2019; Stern 2016). A related challenge that may arise for those teacher educators who predominantly focus on their 'educational capacities' that appear to be more aligned with progressing in an academic career (Czerniawski et al. 2018).

Teacher educators' professional development is shaped by their personal motivation and initiative as well as by the possibilities and impossibilities of education and teacher education context (Swennen, Jones, and Volman 2010). Guberman and Mcdossi (2019) reported that the reasons for teacher educators to engage in research is a combination of external and internal motivations which include personal interests and enjoyment, contribution to practice, and the contribution to academic promotion (the most prevalent external motivation) and positions within the institution. Little was known about PETEds' motivations to do research (Lawson 1990), and chapter four made contributions to this research area. Our understanding about how and why PETEds engage in research is largely due to the work of Mitchel (1992a, b; 1997), and, in general, there was no research explicitly focused on the research practices of PETEds (McEvoy, MacPhail, and Heikinaro-Johansson 2015). The recent study of McEvoy, MacPhail, and Heikinaro-Johansson (2018) provides insights into the research worlds of an international group of higher education-based PETEds and explores their motives for research engagement. Their study found that PETEds were often motivated by job requirements or a wish for promotion, with feelings of frustration and stress to embark on formal thesis or specific funded projects. In general, motives for higher education-based PETEds to engage in research tended to be more personal or altruistic feelings (e.g. enjoyment and passion). Their study also identified that time, research skill gaps and English language barriers were challenges for PETEds to undertake research endeavours, and collaboration with others was seen as one of the main facilitators. (McEvoy,

MacPhail, and Heikinaro-Johansson 2018). On the other hand, some teacher educators argued that teacher educators should not be forced to be involved in research, but rather that involvement in research be based on teacher educators' interests and the implications for practice and ability (Chetty and Lubben 2010). However, feelings of frustration can arise when a university-based PETEd's research interests do not align with the research topics which meet institutional publication and funding expectations. (Casey and Fletcher 2017).

1.3 The professional identity of university teachers and teacher educators

'Teacher' is used to describe educators from different settings in the Chinese context (e.g. primary school teacher, secondary school teacher and university teacher), which is also known by Swennen, Jones, and Volman (2010) as 'generic teacher'. In this context, university teachers mean university lecturers which is also used to describe university lecturers in teacher education in the study of Boyd and Harris (2010). Chinese university-based teacher educators without specifying the particular traits of the teacher educators' roles are part of the community of university teachers (Tang 2012b).

The work of teacher educators is especially complex because of the many varied tasks, for example, they are usually expected to teach PSTs, supervise PSTs in schools, collaborate with mentors, design parts of the curriculum for their institutions, supervise their students' thesis, and many of them have to also do research (Swennen, Shagrir, and Cooper 2009). Teacher educators are defined by the European Commission (2013 p. 8) as 'all those who actively facilitate the (formal) learning of student teachers and teachers', however, many teacher educators might not consider themselves to be teacher educators at all. This raises a question about how do those who were defined as teacher educators perceive their professional self and identity?

Professional identity was defined by Davey (2013) as the 'valued professional self', 'it may be continually (in)formed and (re)shaped by interacting with others and in response to

contexts which we act and work' (p. 162-163). The construction and reconstruction of a teacher educator identity is an ongoing process (Williams and Hayler 2015). The development of a professional identity is not only an answer to the question, 'Who am I now?', but also to the question, 'Who do I want to be in the future?' (Beijaard, Meijer, and Verloop 2004, p. 122). Swennen, Jones, and Volman (2010) identified four sub-identities that are available for teacher educators: school teacher, teacher in higher education (university teacher), teacher of teachers (or second order teacher) and researcher. They also found a view on teacher educators as teachers (from different settings) in a more generic way. Resulting from the professional experiences of being a school teacher before teacher educators enter teacher education in higher education, many studies focused on the transition of teacher educator's professional identity from a school teacher to teacher educator (Amott 2017; Boyd and Harris 2010; Murray and Male 2005; Swennen, Shagrir, and Cooper 2009). However, many Chinese university-based teacher educators started their career working with PSTs as university teachers without previous teaching experience and they did not experience a shift of identity from school teacher to teacher educators (Wang 2017). Chinese teacher educators prefer to use 'university teachers' to describe themselves rather than using the term teacher educator (Ma and Hu 2018). Teacher educators who did not begin their careers as teachers in schools were called 'non-traditional' teacher educators and they also play a significant role in preparing PSTs, although much less is known about the formation of their professional identity (Newberry 2014; Yuan 2020).

1.4 Research Aim and research questions

This research aims to explore what are the PLD activities that university-based Chinese university-based PETEds need and how they perceive their professional identity. To meet this research aim, chapter three, chapter four and chapter five answered the following specific research questions:

- (i) What are the PLD needs of Chinese university-based PETEds, the preferred ways to address such needs, and factors that influence PETEds' participation in PLD activities? (Chapter three).
- (ii) What research-related PLD activities do Chinese university-based PETEds prioritise and need, and what are the barriers for them to engage in such research-related PLD activities (Chapter four).
- (iii) How do Chinese university teachers who are involved in PETE programmes in universities understand their professional identity and which specific factors influence their professional identity as a teacher educator (Chapter five).

1.5 Thesis Methodology

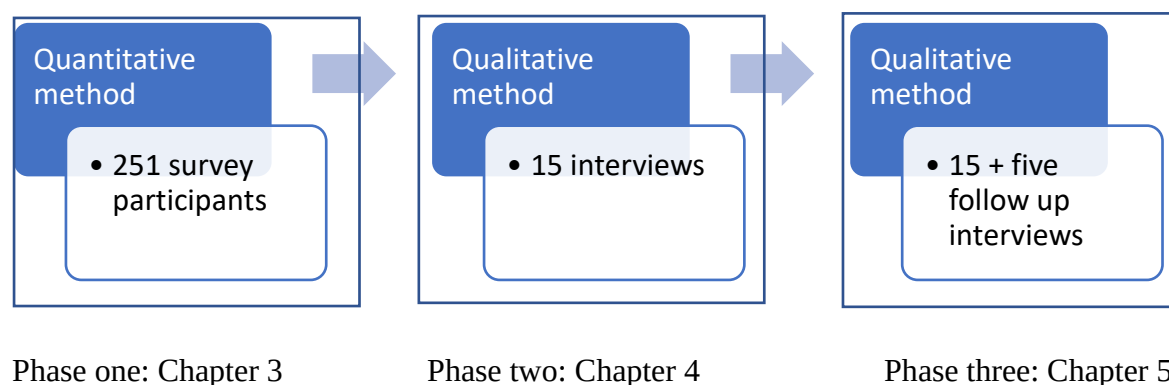
Previous research into teacher educators' PLD showed that few studies employed a mixed-methods approach (Karagiorgi and Nicolaidou 2013; Lunenberg, Dengerink, and Korthagen 2014). Quantitative studies into teacher educators' PLD are almost completely absent in the literature (Hadar and Brody 2017), apart from the large-scale study of Czerniawski, Guberman, and MacPhail (2017) which provided an international and comparative analysis of teacher educators' professional development needs through a survey of 1158 higher education-based teacher educators from six countries. This research is conducted a mixed-methods sequential explanatory design that combined qualitative and quantitative research methods to better answer the research questions (see figure 1.1). The strength of mixed-methods research designs takes advantage of the depth and contextual nature of quantitative and qualitative approaches respectfully (Greene and Caracelli 2003). The mixed-methods sequential explanatory design included distinct phases: quantitative followed by qualitative (Creswell et al. 2003).

The first phase of this research was to collect data through a survey. The validated European wide survey identified data in relation to teacher educators' PLD needs. Changes

were made to adapt the survey to the Chinese PETE context, to allow it to better fit the needs of a new population, the language, the location, and the combination of these (Harkness, Villar, and Edwards 2010). The results of the survey data provided evidence for three significant areas of professional PLD activities which organically inform the second phase of the research project. At the same time, one of the results in relation to how they ranked their roles in PETE raised my attention and interest in how Chinese university-based PETEds perceive their professional identities. Participants' responses to open-ended questions were short and concise, and qualitative follow-up studies gained an understanding of the individual contexts and created the opportunity for participants to share their perspectives. To explore a deeper understanding of Chinese university-based PETEds' PLD needs and professional identity, a sample of 15 Chinese university-based PETEds from eight provinces were selected to be interviewed from the 60 Chinese university-based PETEds who, in completing the survey, agreed to be contacted for follow-up interviews. The first round of interview protocol, related to Chinese university-based PETEds' professional identity, was designed and developed by Izadinia's (2014) framework of factors influencing teacher educators' professional identity development. The interview protocol related to Chinese university-based PETEds' research-related PLD needs was designed and developed by the International Forum for Teacher Educator Development (InFo-TED), similar to the interview protocols presented in the study of Guberman and Mcdossi (2019). The first-round interview data identified that there was a significant lack of understanding of being a teacher educator. As such, five follow up face-to-face interviews were conducted in the third phase of the research to extend our understanding of the complexity of identifying as a teacher educator in a Chinese PETE context. The second-round interview protocol, related to teacher educators' professional identity, was designed and developed by Davey's (2013) methodological framework for investigating teacher educators' professional identity. The interview protocol included

questions linked to the relationship between teacher educators' professional learning (needs) and professional identity. A grounded theory method (Strauss and Corbin 1998) was employed to analyse the data.

Figure 1.1 Mixed-methods design



1.6 Significance of the study

The findings of this thesis have significance for Chinese national and local PLD providers and policymakers to raise higher awareness and have a better understanding of this professional group of university-based PETEds' PLD needs. In this way, they can be provided with more effective and specific PLD opportunities and supports, based on the evidence provided in this research. On the other hand, this can benefit Chinese university-based PETEds' daily work and promote the quality of PETE. This research also contributed to research areas of teacher educators' professional identity which prompted teachers who are involved in Chinese PETE programmes to reflect their professional self within their complex working context. This research can hopefully strengthen the profession of university-based PETEds more visible in the development of (physical education) teacher education and further develop the research of teacher educators.

1.7 My positionality

In acknowledging the extent to which one's beliefs, value systems and moral stances are inseparable from the research process, I critically reflect on, and state my positionality, with respect to this study. I identify three spaces with respect to my changing positionality throughout the research process – that of a PhD student, a PhD researcher and a teacher educator.

1.7.1 PhD student

I positioned myself as a PhD student in the first two years as I was at the beginning of my PhD research. The signature on my email at that time was '*PhD student*'. As a PhD student enrolled on a structured PhD programme, I was required to complete core modules, submit assignments, and attend classes with other PhD students. I was exposed to lecturers who delivered the modules and oversaw the related assignments and was guided in my research study by my supervisory team.

Although I was working with my supervisors and Dr. Ainat Guberman who are experienced academics, at this early stage of my PhD I felt less confident to position myself as a researcher. I respect and admire them very much and do appreciate that they were willing to work with a PhD student who had just started a research career in Ireland. As I felt that I had so much to learn about research, I attended as many PLD opportunities (e.g. workshops, webinars, conferences, and informal coffee times) as possible to improve my skillset as a PhD student.

I read a lot of Chinese and English literature about (physical education) teacher educators, and from this reading I gained an insight into teacher educators as a professional group. It was not until I was undertaking my second year of study that I gained an appreciation of what being part of such a professional group entailed. From the definition of

Chinese PETEds in study one, I did not consider myself as a PETEd because I had not been involved in the work of educating physical education PSTs. I had only one-and-a half years' experience in China of teaching general university students and lacked the experience of teaching physical education PSTs in universities. I was not confident to position myself as a researcher or as a teacher educator the first time I was interviewing Chinese university-based PETEds, conscious that some had PhDs and years of teaching experiences as educators of physical education PSTs. I was more comfortable in perceiving myself as a PhD student who was very passionate about the research related to Chinese university-based teacher educators and PETEds and was looking forward to communicating with the participants in my studies.

1.7.2 PhD researcher

Doing research is the most significant part of my PhD life. Since the third year, with the improvement of my research skills and learning from PLD activities, I started to position, and recognise, myself more as a PhD researcher, especially after attending and presenting at conferences and submitting my papers to international journals. I investigated new areas of knowledge and created meaningful knowledge by using specific methodologies. Presenting and sharing my research outcomes confidently at national and international conferences, forums, as a member of professional learning community and a sport pedagogy group, developed a level of discourse in communicating with other researchers that increased my confidence as a researcher. In turn, the conversations between myself and researchers became more interesting. I was more comfortable to ask and be asked a question about my research or how other people's research was developing. I learnt so much and quickly began to grow more confident within the professional learning community that includes Prof. Ann MacPhail and her PhD students. My positionality slowly changed into a researcher through the learning activities. For example, one of the learning activities we undertook was to practice our

presentations in the professional learning community space and provide each other with feedback before progression reviews and conferences. Through such activity I became more curious about other researchers' topics, and I was more confident to talk about my research. I could also discuss my research more effectively and share my thoughts as an early career researcher with my supervisors. I was aware of a shift from positioning myself solely as a research student to working in collaboration with supervisors as part of a research team. I was more motivated to undertake the responsibilities to be involved in the process of research design (e.g. choosing appropriate research methods, designing interview protocols, and selecting suitable participants in my studies),

When interviewing participants in a second time, I communicated more as a PhD researcher, as I had developed and gained more research skills (e.g. analysing qualitative data and writing up a paper). When submitting my paper to a journal, I was proud that I had moved to being a researcher who contributed to research gaps and shared research outcomes to an international audience. I changed my signature from '*PhD student*' to '*PhD researcher*' on my email signature.

1.7.3 Teacher educator

Before I began my PhD, I planned to be a university physical education teacher in China after I graduated. In the process of exploring Chinese university-based PETEds' PLD needs and professional identity, and from researching existing literature, I became more knowledgeable about the reality of teacher educators in China and other countries. I experienced the differences between being a university-based PETEd in China and Ireland. I realised that the community of university-based PETEds was very small in China and Ireland, and that I would like to be part of this community in the future and make a contribution to the development of the community of PETEds. Research and teaching are the main work

responsibilities of teacher educators. During the time I was enhancing my research skills, I was also endeavouring to improve my teaching abilities. I was educated as a physical education PST by Chinese university-based teacher educators for seven years before I started my PhD in Ireland. I was very interested to see how the university-based PETEds educate physical education PSTs in Ireland compared to China. In my third and fourth year of my PhD I was involved in some pedagogical modules (e.g. Pedagogy of invasion games) as an observer. Later, I was involved in teaching on a module as a teaching assistant collaborating with another PETEd, reflecting on my teaching and learning as a teacher educator. It was a great experience for me to work and learn with the physical education PSTs and university-based PETEds in Ireland, with the intention of preparing myself as a pre-service teacher educator and becoming a teacher educator on completion of my PhD. When designing the second-round interview protocol, the questions were not only guided by the research framework but also my interests as a future teacher educator.

My interest in becoming a teacher educator grew stronger in the fourth year of my PhD resulting in heightened involvement in teacher educators' continuous PLD activities and the development of my PhD research. The conferences, forums, and webinars that I attended were specifically focused on teacher education. I found myself interested in the specific PLD activities for teacher educators and these PLD activities promoted my positionality as a teacher educator. For example, the Teacher Education and Teacher Educator National Forums in Ireland, which I attended on numerous occasions, significantly impacted my positionality as a teacher educator. The Forum provided the platform, networking space, and PLD opportunities for teacher educator colleagues from higher education and schools to work as a community to enhance the quality of teacher educators and teacher education. I had a stronger sense of belonging to the community of teacher educators after attending the Forum

each time, especially after having the opportunity to reflect on our roles as teacher educators in the third forum.

After conducting the three studies presented in this thesis, I would more clearly define myself as a teacher educator, acknowledging that the concept of university-based PETEds has been redefined based on the Chinese context. My research is mainly in the field of physical education teacher education and teacher educators and, by association, I am happy to be considered as a teacher educator.

1.8 Thesis Outline

This thesis explores the PLD needs of Chinese university-based PETEds and their views about effective ways to address them, as well as their professional identity. It includes three publications which are published in peer reviewed academic journals (chapter three, chapter four and chapter five). All three papers include a literature review and methodology section specific to the relative research questions that are addressed. A summary is contained at the end of each chapter. All the references appear at the end of the reference list. The outline of this thesis includes the following chapters.

Chapter two presents teacher education and PETE in higher education, as well as PETEds PLD in the Chinese context. It also explains how the Chinese teacher education context is important in informing the next three studies in relation to university-based PETEds' PLD needs and professional identity.

Chapter three is published in the European Journal of Teacher Education which explores Chinese university-based PETEds' preferred and valued PLD activities and what were the best ways to address such needs. This chapter also shows the similarities and differences between Chinese university-based PETEds' and European teacher educators'

PLD needs which contribute to a better understanding of commonalities in needs and differences resulting from context.

Chapter four is published in the Journal of Professional Development in Education. It seeks to understand what research activities that Chinese university-based PETEds prioritised and what their motivations were to be involved in research activities.

Chapter five is published in the European Journal of Teacher Education. This chapter provided a deeper understanding of how Chinese higher education teachers involved in PETE positioned and perceived themselves within their occupational context and the complexity of identifying themselves as a teacher educator.

Chapter six discusses the research as a whole and highlights the significant contribution of the research. This chapter also includes a conclusion, limitations of the research and suggested future research.

Chapter 2 - Chinese teacher education context

2.1 Introduction

Chinese teacher education is defined as training teachers in the stages of pre-service, induction and in-service (Chinese Ministry of Education 2002). Effective teachers are considered to be beneficial to Chinese society and promote the development of the entire country (Zhu and Zhao 2018). Teacher education is a significant part of the Chinese education system and improving the quality of teacher education is a vital task in implementing the strategy of rejuvenating the country through education (Chinese Ministry of Education 2002). With rapid societal development, Chinese teacher education went through three phases since the mid-1990s: system restructuring (from the mid-1990s to 2005), capacity building (from 2005 to 2016), and revitalisation (since 2017) (Rao 2020). Improving the quality of teacher education has become one of the core and most urgent tasks of China. However, there are still some outstanding issues for teacher education, including relatively outdated curriculum content and teacher educators' teaching methods, and what is considered to be a low quality of teacher education practices (Chinese Ministry of Education 2014).

Teacher educators are doing the work of teacher education to prepare future teachers. In increasingly globalised times, there is so much to learn from and in countries where the teacher educators' professional learning is strongly supported, and research-informed practice is encouraged (Czerniawski 2018). Alternatively, there is also so much to explore in countries where this professional group of teacher educators are poorly understood as well as their PLD. The changing and complexed teacher education context could influence teacher educators' PLD (Czerniawski 2018) as well as their professional identity (Allen, Park Rogers, and Borowski 2016; Swennen and Monique 2019). Therefore, it is important to understand the context of Chinese (physical education) teacher education that university-based (physical education) teacher educators are involved in when exploring what valuable PLD activities

they need and how they perceive their professional identities. This chapter provides an overview of Chinese teacher education and PETE including five sections (i) Chinese teacher education in universities which includes Chinese teacher education programmes, (ii) University-based teacher educators in the Chinese context, (iii) Chinese teacher educators' and teachers' professional learning and development, (iv) Chinese PETE which includes a historical review of PETE, PETE programmes in Chinese universities, and Chinese research on PETE, (v) Differences between Chinese physical education teachers and PETEds in universities which will contribute to our understanding of who are involved in PETE and what their work responsibilities are.

2.2 Chinese teacher education in universities

There are 187 'normal' universities and 363 'non-normal' universities where teacher education programmes reside (Wang 2019). China, in the early twentieth century, termed 'teacher-training universities' as normal universities referring to the type of higher education institutions that were primarily responsible for and had a strong emphasis on preparing future teachers. The name 'normal university' was preserved by institutions after they were merged and offered more than teacher education courses, for example, Beijing Women's College of Education and Fu Jen Catholic University merged into Beijing Normal University in 1931 and 1952 (see <https://english.bnu.edu.cn/about/bnuhistory/index.htm>). This is an international trend with colleges of education merging with universities (MacPhail and O'Sullivan 2019). From 1990 to July of 2005, a total of 115 higher normal colleges were merged with other higher education institutes or renamed as comprehensive colleges and universities, and the number of normal colleges and universities decreased from 290 to 153 (Yu 2010, p. 94-97). Specified graduates from non-normal universities are eligible to teach primary and secondary school students by the *Teachers Laws of the Peoples' Republic of China, issued in 1993* (see

http://www.moe.gov.cn/s78/A02/zfs__left/s5911/moe_619/tnull_1314.html). In recent years, teacher education in Chinese universities became more diverse. As a result, non-normal universities are now also an important provider of Chinese teacher education. They include other types of universities (for example, comprehensive universities) which grant academic degrees in a variety of disciplines and have less emphasis on teacher education. Comprehensive universities are the type of university which provide a huge variety of different courses (for example, Beijing University and Tsinghua University). Some ‘non-normal’ universities continue to be more focused on research than preparing schoolteachers (Tang 2012a). These initiatives have created incentives, as well as pressures, on Chinese higher education institutes to upgrade themselves in terms of research rankings as an overriding, if not the main, objective. This has caused competition among institutes at all levels and all types (normal or non-normal) to establish research centres (Yan and He 2015). In 2004, with a vision to conduct research on teacher education, provide policy advice, support continuous education for in-service teachers, and promote internal communication, the Beijing Normal University established a national teacher education research centre. The centre included twenty-one researchers and began recruiting Master’s level teacher education students in 2007 and PhD candidates in teacher education in 2010 (see: <http://cter.bnu.edu.cn/?about/tp/244.html>). It has been suggested that more Chinese universities should provide specific programmes for PhD candidates in teacher education (Zhu and Zhao 2018).

Most PSTs only teach one subject following graduation, a small amount of them need to teach multiple subjects especially in under-developed rural areas due to the shortage of teachers. Science 2007, to strengthen the development of the rural teaching force and promote educational equity, six normal universities (under the direct administration of the Chinese Ministry of Education) provided free education, free accommodation and living

allowance to PSTs who, when qualified were expected to teach in under-developed rural areas (Chinese State Council 2007). 52,000 PSTs graduated from these six normal universities from 2012 to 2016 and 96.5% of the graduates went to work in rural schools (Huang 2017). The relationship between demand and supply of school teachers has significantly impacted the reform and the quality of Chinese teacher education (Rao 2020). The issue of teacher oversupply appeared after 2005, for example, in 2008 there were 765,000 graduates including university graduates and college graduates from teacher education programmes and 171,000 graduates from non-teacher education programmes who received teacher certificates through the teacher certification examination, adding up to a total of 936,000 teacher candidates (Zhong 2010). However, only 250,000 new teachers were recruited in 2008 in China which means only 26.7% of the total graduates secured a job as a teacher (Zhong 2010). It has been very competitive for Chinese PSTs to secure a teaching job in schools. Given the increase in the number of universities offering teacher education programmes, together with the expansion of enrolment, the successful employment of PSTs has become a major challenge (Wang 2019).

2.2.1 Chinese teacher education programmes in universities

In China, school teachers can be educated in a four-year undergraduate programme or two or three years Master's of teacher education programmes. Teacher education programmes are situated in higher education institutions. In China, teacher educators generally work in departments/faculties specific to the subject they are qualified in (Ping et al. 2020), whereas in many Western countries it's more common for teacher educators to work in one teacher education faculty/school of education in higher education. This is resulting from the context that Chinese teacher education programmes are implemented in separate departments or faculties to prepare teachers with high specialized training in each subject (Ding 2016). For

instance, in Southwest University in China, primary and secondary school teacher education programmes are implemented in 15 separate faculties to prepare teachers in each subject (Ding 2016). It is common that Chinese university-based PETEds (except those who teach general modules, e.g. university English, basic computer module) involved in PETE are based in Departments of Physical Education and Sports to prepare future physical education teachers rather than working in the same faculty with English teacher educators or maths teacher educators.

Chinese teacher education programmes emphasised training specialised PSTs' key competence in teaching subject knowledge, pedagogical skills and research ability, as well as professional attitudes and ethics (Ding 2016). Aiming to speed up the reform of teacher education and improve the quality of teacher education programmes, the Chinese Ministry of Education issued the "*Curriculum Standards of Teacher education (Trial Implementation)*" in 2011 which reflected the country's basic requirements for teacher education institutions to set up teacher education pedagogical modules (except general modules and subject professional modules)(see http://old.moe.gov.cn/publicfiles/business/htmlfiles/moe/s6049/201110/xxgk_125722.html). This is an important foundation for formulating teacher education curriculum plans, developing teaching materials and curriculum resources in Chinese higher education (Chinese Ministry of Education 2011a). For example, the 4-year primary initial teacher education pedagogical curriculum standards are presented in Table 2.1.

In preparing teachers for the 21st century, Chinese teacher education programmes are on track towards achieving the essential knowledge and skills required for effective teaching, however, several areas of Chinese teacher education programmes need to improve including technological literacy, cross-cultural and global awareness skills (Kayange and Msiska 2016). Kayange and Msiska (2016) explained that the time of internship in Chinese teacher education programmes is short which hampers the teacher educators' teaching and PSTs'

learning. Also, it was noted that most teacher educators use outdated lecturing methods that do not allow PSTs to be involved in the learning process and the authors recommend that teacher educators use new collaborative, student-centred methods.

Table 2. 1 Primary Initial Teacher Education Curriculum standards in universities (Chinese Ministry of Education 2011a)

Learning Areas	Suggested Modules	Academic Credits
1. Child Learning and Development	Child Development; Pupils' Cognition and Learning etc.	Minimal Compulsory 24 Credits
2. Primary Basic Education	Philosophy of Education; Curriculum Design and Evaluation; Effective Teaching; Classroom Management; School Organisation and Management; School Educational Development; Education Policies and Regulations etc.	
3. Primary Subject Education and Activity Guidance	Curriculum Standards for Primary School Subjects and Research on Textbook; Teaching Designing in Primary Subjects; Interdisciplinary Education in Primary School; Primary Comprehensive Practical Activities etc.	
4. Pupils' Mental Health and Ethical Education	Pupils' Psychological Guidance; Primary Moral Development and Ethics Education etc.	
5. Teachers' Ethical and Professional Development	Teachers' Professional Ethics; Research Methods in Education; Teachers' Professional Development; Applications to Modern Educational Technology; Teachers' Language; Writing skills etc.	
6. Educational Practice	Teaching Observations; Internship	18 weeks
Explanation: (1) One credit is equivalent to students attending 18 class hours for one course under the guidance of teachers and passing the examination. (2) All these learning areas are compulsory for each learner; Modules are suggested for teacher education institutions or learners to select or combine which means modules can be compulsory or selective; The credits of each learning area or module are determined by the teacher education institutions independently.		

(see http://old.moe.gov.cn/publicfiles/business/htmlfiles/moe/s6049/201110/xxgk_125722.html).

In 2017, the Chinese Ministry of Education introduced a three-level monitoring and accreditation system for teacher education programmes in higher education, *Measures for the Implementation of Teacher Education Programs Accreditation in Higher Education Institutions (Interim)* (Chinese Ministry of Education 2017), which was based on the fundamental idea of “student-centeredness, output-orientation and continuous improvement” (see http://www.moe.gov.cn/srcsite/A10/s7011/201711/t20171106_318535.html). In accordance with its work arrangement, the Chinese Ministry of Education decided to start the accreditation of teacher education programmes in 2018.

2.3 University-based teacher educators in the Chinese context

2.3.1 Who are Chinese university-based teacher educators

There was very limited research on teacher educators in China (Cui 2018; Zheng 2015). To improve the quality of teacher educators, firstly it is important to be clear about “who are teacher educators” (Li 2008). The term ‘teacher educator’ was first translated into ‘教师教育者’ in a Chinese study by Zhu (2001). Reviewing English and Chinese literature on the definition of teacher educators, Qiu (2015) found Western and Chinese researchers had different definitions of teacher educators resulting from the different contexts in which they work. Chinese teacher educators are different from those in the western context (Ma and Hu 2018). Zhu and Zhao (2019) call for more in-depth clarity around the concept of a ‘teacher educator’ in the Chinese context, especially those who come to the field from diverse academic and professional trajectories. In the study carried out by Tang (2012b), one group of Chinese participants described that teacher educators included those who teach education theories, psychology, and pedagogical theory. Reviewing international definitions of teacher

educators and considering the Chinese context, Zheng (2015) described that in general, teacher educators are those professional teachers in teacher education who educate teachers in the pre-service, induction and in-service phases (p. 19). Li (2008) and Zheng (2015) viewed all teachers who taught in the traditional ‘normal’ universities as ‘teacher educators’, this is strengthened by the fact that Chinese traditional ‘normal’ universities were at one time the only institutions responsible for educating future teachers. However, since 1999, ‘non-normal’ universities have been encouraged to provide teacher education programmes (Chinese State Council 1999), which makes agreeing on a definition of teacher educators difficult in this context. It became difficult to find a normal university which only offers teacher education programmes for PSTs in the 21st century (Li 2008).

It is expected that teacher educators are familiar with subject knowledge, pedagogical knowledge, and teaching practice (Zhu and Zhao 2019). Li (2008) reported that Chinese subject specialists in teacher education did not regard the work of educating future teachers as their professional task, they were just doing the work in their subject areas. Therefore, those who teach pedagogical modules in teacher education by default are identified by others as teacher educators (Li 2012). From the definition of teacher educators, Zheng (2015) argued that these Chinese subject specialists who are in teacher education should identify as teacher educators, however, they did not pay as much attention to the connection between subject knowledge and teacher education, as a result, they did not see it as their professional responsibility to educate PSTs (p. 14).

2.3.2 Chinese teacher educators’ professional identity

Tang (2012b) pointed out that Chinese teacher educators’ uncertainty of who teacher educators are was due to the lack of clarity surrounding teacher educators’ professional identity. The majority of Chinese teacher educators in a study, conducted by Wang (2017),

viewed themselves as a particular type of (university-based) lecturer although not necessarily as teacher educators. This result is similar to another recent study of Ma and Hu (2018), when 12 Chinese university-based teacher educators were asked how they perceived their identity in the current work, almost all of them firstly prioritised their identity as a university lecturer, and very few Chinese teacher educators in their study used the term ‘teacher educator’ to call or describe themselves. They could accept the identity of teacher educator, however, they felt more comfortable with “I am a university teacher” no matter if they are from normal universities, research intensive universities, or teaching intensive universities (Ma and Hu 2018, p. 97). This may not be unique to China and may be common for many other countries, as the European Commission (2013) reported, “many of those who teach teachers might not consider themselves to be teacher educators at all” (p. 8).

The Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform (2018) stated that it is essential to establish a group (community) of teacher educators in higher education to promote their sense of belonging. Significantly, Chinese teacher educators need a community to construct and develop their identity, however, they are at the stage of being isolated in regard to professional development opportunities (for example, reading a book and self-reflection) and did not have the sense to build a community or professional learning community (Ma and Hu 2018, 94). In this context, Ma and Hu (2018) argued that it was hard for Chinese teacher educators to develop their professional identity. Zhu and Zhao (2018) acknowledged that establishing a Chinese teacher educators’ community is a component of strengthening teacher education programmes in universities and it has proved difficult to organise such a community given that teacher educators who teach pedagogical knowledge, subject knowledge, and general education curriculums do not appear to interact with each other.

2.3.3 Chinese university-based teacher educators in universities and schools

Research highlights that the Chinese teacher educators' context is very different from many other countries, in particular, the majority of university-based teacher educators in China did not have previous teaching experience in schools (Kastner et al. 2019; Qiu 2015; Tang 2012b; Wang 2017). The most significant motivations to be involved in teacher education are social status and a stable position (Qiu 2015). Many Chinese teacher educators started their career working with PSTs as 'college/university teachers' and did not experience a shift of identity from school teacher to teacher educators (Wang 2017), and there was no evidence found to prove that school teaching experiences could influence the construction of Chinese teacher educators' professional identity (Ma and Hu 2018).

Chinese university-based teacher educators focused more on research than college-based teacher educators and school-based teacher educators (Qiu 2015). It has been suggested that Chinese teacher educators should pay more attention to the reform and changes happening in general primary and secondary school education (Liu 2016). A consequence of teacher educators not being informed of such reform and associated changes to teaching practice (Zhu 2010) results in PSTs not being adequately prepared to engage with and drive the reform in ways that would benefit their future students (Jiang 2006). However, there has been a tradition with Chinese universities and schools undertaking different roles and responsibilities in teacher education, resulting in a lack of communication between the two (Liu and Fu 2014). The Chinese Ministry of Education has suggested a cooperative system to encourage universities, local government, and schools to work together to participate in educating PSTs (Chinese Ministry of Education 2014). To improve the quality of teacher education in China, higher education-based teacher educators were encouraged to work in schools and outstanding school teachers were encouraged to teach in the higher education institutions (Chinese Ministry of Education 2018b; Chinese Ministry of Education, National

Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform. 2018).

2.4 Chinese teacher educators' and teachers' professional learning and development

Research by Qiu (2015) evidenced that the professional development needs of Chinese university-based teacher educators and school-based teacher educators in Shanghai were different. Chinese university-based teacher educators preferred self-led and research-oriented approaches to professional development (Qiu 2015). Tang (2012b) stated that in a Chinese context there lacked opportunities for potential teacher educators to engage in meaningful professional development. To improve the quality of teachers and set up a life-long learning system, in-service teachers in schools are required to attend 360 hours of continued education every five years (Chinese Ministry of Education 2011b). In-service teachers' professional learning activities are divided into five levels: national, provincial, city, village, and local school level. Some universities undertake the responsibility to provide continuous learning activities for in-service teachers, however, there are no requirements for university-based teacher educators to attend opportunities to extend their learning. The suggestion of the *Implementation of the Excellent Teacher Cultivation Plan* supports the establishment of a community of teacher educators, improving the quality of teacher educators through specific training, and encouraging teacher educators to visit international universities (Chinese Ministry of Education 2014). However, there were no specialised national policies and insufficient support for teacher educators in China to support their professional development (Qiu 2015). Teacher educators were referred to as university teachers or teachers of teacher education rather than teacher educators in Chinese documents and policies, such as, Chinese documents in relation to teachers' (from different settings) professional development

(Chinese state Council 2012, 2018), documents in relation to university teachers' professional development (Chinese Ministry of Education 1999) and pre-service and in-service teachers' education and professional development (Chinese Ministry of Education 2014, 2018b; Chinese Ministry of Education, Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform. 2018).

2.5 Chinese physical education teacher education

2.5.1 The historical review of PETE

Wang and Tang (2019) reported that the evolution of the Chinese initial PETE system went through various stages, from imitating and learning from other countries to independent innovation. They divided the Chinese national initial PETE system into six stages (based on the main aims and characteristics of historical stages) as shown in Table 2.2 (Wang and Tang 2019): (i) Chinese PETE system preliminarily formed under the guidance of national military education at the end of Qing Dynasty (1903 - 1911), (ii) Chinese PETE system imitated and copied from other countries in the period of the Republic of China (1912 - 1949), (iii) Chinese PETE system transformed based on Soviet Union's system of labour and health after the founding of the People's Republic of China (1949 - 1966), (iv) Chinese development of PETE system stagnated during the cultural revolution (1966 - 1976), (v) Chinese PETE system continued to develop after the economic reform (1978 - 2001), and (vi) Chinese PETE system reformed and explored the teachers' professionalisation after the reform of basic education (2001 - now) (Wang and Tang 2019).

The formal preparation of future physical education teachers started in 1917 when Beijing Normal University established a physical education course (Wang and Tang 2019). Before the establishment of the People's Republic of China in 1949, the mission of

departments of physical education was to train students to become physical education teachers and mostly labelled “sport department” or “specialised sports training” (Wang et al. 2017). Following the founding of the People’s Republic of China in 1949, many colleges and universities introduced physical education for undergraduate students which promoted the development of initial PETE in higher education in China. PETE programmes were offered in more colleges/universities in China than other sports-related courses, such as coaching, social sports guidance, sports medicine due to the long-term shortage of physical education teachers especially the years after the Beijing Olympic Games in 2008 (Wang et al. 2017). It is also interesting to note that graduate students majoring in sports training, social sports, traditional sports and human movement science could apply for jobs as physical education teachers in schools as long as they achieve the teachers’ professional qualification certificate after getting a Bachelor’ or Masters’ degree, without attending an additional PETE programme at Master’s level. This makes it more competitive for PSTs to secure a school physical education teacher position.

Table 2. 2 The evolution of initial PETE system

Year	1904-1911	1912-1949	1949-1965	1966-1976	1977-2001	2002-2019
Stages	Preliminarily formed	Imitation and reference	Dependence and transform	Turbulence and stagnancy	Orderly development	Reform and exploration
Guiding principle of physical education	Military education	Chinese Wushu thoughts	Basic knowledge and skills education	Military education	Lifelong physical activity, all- round development, liberal education etc.	Health first
Aim of preparing physical education teachers	To be gymnastics coach	To have comprehensive qualities	Priority of sports skills	None	Specialised in one sport and with multiple competencies	Teacher professionalisation
Main events	PETE system preliminary establishment	The course of physical education was supported by policy	Socialism higher education PETE system formed	Serious damage and disorder development	PETE moves forwards specialisation	Content of PETE was mentioned for the first time; Teacher education moves forwards specialisation

Note. The table has been reproduced from Wang and Tang (2019).

With changes in school physical education and updated requirements for the adaptability of physical education teachers, the goal of the PETE expands continuously mainly driven by social needs, for example, the period after 1949, the goal of physical education teacher education was to train physical education teachers for secondary schools which focus on the enhancement of fitness among students through teaching movement skills (Wang et al. 2017). In 2018, according to the *National Standards for Teaching Quality of PETE in Higher Education*, the aims of PETE are to educate PSTs to master the theory and methods of modern education; the theory and methods of delivering school physical education curriculum and teaching, physical activities outside of physical education classes, coaching, sports management and organisation; and possess a certain level of motor skills and have a strong competence to teach physical education and undertake the work in schools (Chinese Ministry of Education 2018c). Also, recently published *Measures for the Implementation of Teacher Education Programs Accreditation in Higher Education Institutions (Interim)* (Chinese Ministry of Education 2017) brought important opportunities to the reform of Chinese PETE and PETE programmes (for example, develop PETE programme content and structure) (Wang and Zhao 2020). There have been positive aspects to PETE accreditation processes, however, these have received little mention in global literature (O’Sullivan 2021).

2.5.2 PETE programmes in universities

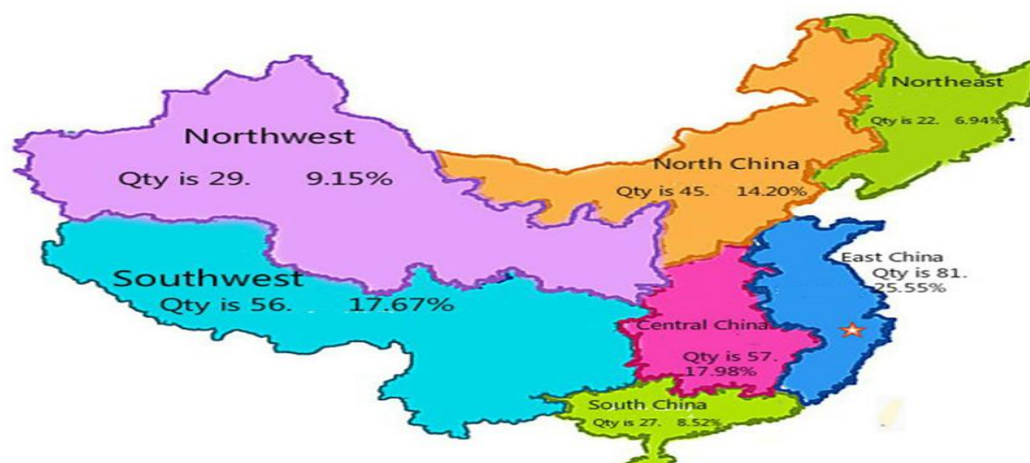
In 1949, only nine universities offered PETE programmes, such as Nanjing Normal University and Beijing Normal University (Wang et al. 2017). Until 1999, normal universities and sports universities were the main institutes preparing physical education PSTs and since then, the number of universities offering PETE programmes has increased sharply due to the development of Chinese higher education (Yin, Wang, and Ji 2015), as is

shown in Table 2.3 (Huang et al. 2016). By 2015, in line with the development and promotion of higher education, there were 317 universities in mainland China providing four-year PETE programmes, located in the east of China (81), middle of China (57) and south-west of China (56) (Huang et al. 2016). The regional distribution of the universities is illustrated in Figure 2.1 Regarding the types of universities, Huang et al. (2016) found that PETE programmes were mainly offered by comprehensive universities (145, 46%) and normal universities (117, 37%) (Huang et al. 2016), in addition, there were 16 sports universities (5.05%). Among the 117 normal universities, six universities (under the direct administration of the Chinese Ministry of Education) offer tuition-free PETE programmes. In return, graduating students are required to teach in primary and secondary schools for a minimum of six years (The General Office of the State Council 2018). While the majority have the opportunity to teach physical education, the individual school determines the subjects they teach. For example, especially in Chinese rural primary schools, once graduating students enter a school as a physical education teacher, some can be requested by schools to also teach other school subjects like maths, English and/or Chinese due to a shortage of teachers.

Table 2. 3 The distribution of PETE programmes in higher education

Year	2005	2006	2007	2009	2013	2015	%Increase
Numbers of PETE programmes	250	260	274	287	313	317	26.8%

Figure 2.1 The regional distribution of universities that provide PETE programmes (Huang et al. 2016).



As a result of national reform and development of teacher education, PETE undergraduate curriculum programmes have been developed by national PETE curriculum plans in higher education issued by the State Education Commission and Chinese Ministry of Education in 1980, 1986, 1991, 1997, 2003, 2018 (Chinese Ministry of Education 1980, 2003, 2018c; State Education Commission 1986, 1991, 1997). These national undergraduate PETE curriculum plans provided suggestions for the training goals of physical education majors, objectives, curriculum areas, the suggested range of class hours and credits, suggested types of modules (for example, sports modules, core subject modules), and teaching practices (see http://www.moe.gov.cn/srcsite/A17/moe_938/s3273/200306/t20030619_80793.html). Higher education institutions with PETE programmes could refer to the national curriculum programmes and modify their ones according to the local context. The national PETE programme is required to accumulate between 2600 and 2800 class hours for four-year undergraduate PSTs, including approximately 720 class hours for general modules (e.g. Marxism-Leninism, university English, basic computer module) and approximately 1900 to 2100 class hours for educational modules, sports skill modules and subject modules allowing a 10% variance to the required class hours (Chinese Ministry of Education 2003). In total, the credits ranged from 140 to 170 (Chinese Ministry of Education 2018c). PETE programmes

are expected to instil competency in pedagogy, sports skills and sport science knowledge in PSTs (Wang and Dai 2016). The Chinese PETE curriculum is usually divided into general modules (e.g. policy, university English, computing), sport skills modules (e.g. volleyball, tennis, soccer), theoretical modules (e.g. sports biomechanics, sport psychology, school physical education), research modules (e.g. research methods) and teaching practice (e.g. observation, school placement). One school placement of between 10 and 12 weeks (Chinese Ministry of Education 2003) was required to increase to 1-2 weeks observation and 12-20 weeks school placement (Chinese Ministry of Education 2018c). The table noted in appendix 1 notes the credits in each semester of a four-year PETE programme in Zhengzhou University across the module categories of general modules, theoretical modules, sport skill modules, teaching practice, research modules.

In exploring the experiences of beginning physical education teachers, Lian, Wang, and Li (2014) found that the time allocated for school placement was not sufficient, and the lack of school placement in initial PETE was the most significant factor that influenced the beginning teachers' teaching ability in a school. School placement tends to take place only in the fourth year of the PETE programmes, resulting in PSTs not gaining sufficient experience to adapt to the teaching practices and teaching load of a school once qualified as a teacher (Lian, Wang, and Li 2014; Zhang and Sun 2018; Zhang and Zhang 2016).

There is evidence that PETE programmes in universities focus more on delivering sport skills at the expense and not focusing on how to teach (Andriamampianina and Moussa 2005; Li and Wang 2016; Wang 2019; Zhang and Sun 2018; Zhang 2017), resulting in a gap between what PSTs learn in PETE programmes and what they need to teach in schools (Wang and Wu 2017). This is currently one of the biggest challenges in preparing effective PSTs in Chinese initial PETE. College (Dazhuan in Chinese) is a lower-level institution than a university in China. Normally primary and secondary schools in the majority of big cities

require teachers graduating from universities with a Bachelor's or Master's degree. Kindergartens and primary schools from rural areas or villages generally have lower requirements of a teachers' degree. Some colleges also offer PETE programmes in China which mainly aim to prepare kindergarten or primary school teachers.

2.5.3 Chinese research on PETE

Chinese research on initial PETE is still at an early stage compared to PETE research in western countries. Li, Si , and Yin (2015) have suggested that Chinese PETE researchers build international networks and cooperation with international colleagues which could lead to enhanced research opportunities and publication of papers in the field of PETE in high impact international journals. The amount of collaborative research in the field of Chinese PETE is small and more collaboration with national colleagues, as well as building international networks and enhancing communication, are suggested (Huang 2019; Li, Si , and Yin 2015). In a recent review of literature mapping Chinese PETE research from 2002 – 2018 (Huang 2019), it was reported that just over 50% of the papers were sole-authored, almost 30% co-authored with one other person and 15% written by three authors. Chinese university-based PETEds' main dissemination of research is through Chinese.

2.6 Chinese physical education teachers and physical education teacher educators in universities

Different from many other countries, all Chinese university first and second-year students are required to attend physical education classes, therefore there are physical education teachers in all Chinese universities. There are 65,613 full-time physical education lecturers/teachers across Chinese higher education institutions (Chinese Ministry of Education 2018a), a sub-sample of whom are included PETEds, those who are involved in PETE programmes and/or

support in-service physical education teachers' continuous professional development. Regarding work responsibilities, the work of physical education teachers in Chinese universities is mainly divided to the following areas: (i) Teach first and second-year general university students public physical education, (ii) Coach university sports teams depending on their specialty and organise sports competitions in their respective universities, (iii) Teach students with sport-related majors (such as, physical education, sports training, social sports) if there is a need from Department of Physical Education and Sports, (iv) Undertake research depending on the requirements of their respective departments/faculty, (v) Those with a certain level of research ability and Master/PhD degree have the responsibility of guiding postgraduate students if there is a Master's programme in their respective departments, (vi) Provide professional development activities to in-service school physical education teachers especially in the university with a teacher training centre, (vii) Involvement in administration. Chinese Physical education teachers are involved in some parts of the above areas depending on their speciality as well as the requirements of their respective departments/universities. To classify PETEds from physical education teachers in universities, we highlight that PETEds are those university-based physical education teachers who have the responsibility to educate students majoring in physical education PSTs, and/or provide continuous professional development activities to in-service school physical education teachers. However, PETEds may also have other workloads as a physical education teacher which are described above. In the Chinese context, the group of PETEds raised little attention as teacher educators in Chinese literature (Zhong and Huang 2020).

There is much more research focusing on university-based physical education teachers than university-based PETEds. In the research area of physical education and PETE in China, the term 'teacher educators' was rarely mentioned (Zhong and Huang 2020). Zhong and Huang's (2020) study encouraged more research on teacher educators in a specific

subject because teacher educators are preparing PSTs in different subject areas, and there were differences between teacher educators from different subject backgrounds. We also found that there is no research topic specifically focusing on PETEds in conferences related to PETE or physical education (for example, The 10th Chinese PETE in Higher Education Conference in 2019, see <http://pe.pku.edu.cn/info/1028/8519.htm>). We appreciate that the term ‘university (physical education) teachers/lecturers’ appears to be more commonly used in Chinese government documentation, conferences and university recruitment relating to the work of physical education and PETE in higher education and in the recruitment of university.

In the Chinese Departments of Physical Education and Sports in higher education, there are consistently more male than female PETEds (Tan and Long 2012; Zhao 2013). Entering PETE in higher education from being a school teacher is not a common path in the Chinese context. Rather, it is common that PETEds follow the path of completing an undergraduate degree, going directly to a Master’s degree and then some of them continue to undertake a PhD before becoming a PETEd. Without teaching experience in schools and little guidance to PSTs’ teaching during their school placement, what Chinese university-based PETEds teach in higher education has a gap between what PSTs need to teach in schools. For example, almost 40% of Chinese university-based PETEds in Shandong province were reported as being not familiar with the most recent physical education and health curriculum in primary and secondary schools (Gu 2015). The State General Sports Administration and universities organise in-service training programmes to support university-based physical education teachers to update their sports skills, coaching methods, subject knowledge, teaching skills and refereeing skills. While these opportunities are available for all physical education teachers, and there are few learning opportunities specific to PETEds. PETEds undertook a significant responsibility to prepare and cultivate physical education PSTs and

in-service teachers, however, this group of teacher educators did not arise sufficient attention, and little is known about Chinese university-based PETEds (Li 2019; Zhong and Huang 2020). To improve the quality of PETE, Li (2019) suggested establishing a team (community) of PETEds in higher education and support their professional development.

2.7 Chapter Summary

This chapter provided an overview of the different types of universities that offer (physical education) teacher education programmes in universities which extend the understanding of the working background of Chinese (physical education) teacher educators. The chapter also presented examples of Chinese (physical education) teacher education programmes to introduce suggested modules for (physical education) teacher educators to teach. Chinese teacher education programmes are implemented in separate departments for preparing teachers in each subject (Ding 2016). Chinese university-based PETEds and teacher educators are playing a significant role in PETE and teacher education, this chapter explained the differences between teacher educators and university teachers. Sharing the challenges and opportunities faced by PETEds globally, O’Sullivan (2021) shed light on the “hidden profession” of PETEds. However, PETEds have been given very little attention and there was relatively much less research on PETEds than teacher educators (Zhong and Huang 2020). This may be because Chinese university-based PETEds were not well recognised or classified by researchers and colleagues in the local and national context. It seems that Chinese university-based PETEds were ignored in the larger community of physical education teachers/lecturers in universities. We appreciate that the term ‘university teachers’ appears to be more commonly used in government documents, conferences and university recruitment. To clarify the difference between university-based physical education teachers and university-based PETEds, this chapter also indicated the different work responsibilities between them which contributed to the classification of university-based PETEds from university-based physical education teachers.

Researchers from different countries frequently argued that the profession of teacher educators is not well defined which seems to affect teacher educators’ identity (Lunenberg and Hamilton 2008; Tryggvason 2012). This chapter provided some examples of how some

Chinese researchers defined teacher educators in the Chinese teacher education context, however, there is still no agreement on a definition that clarified who Chinese teacher educators are (Wu 2019) and what they do. As Wang (2017) and Ma and Hu (2018) reported the majority of Chinese teacher educators primarily viewed themselves as university-based teachers rather than teacher educators. Ma and Hu (2018) regarded the identity of ‘university teacher’ as teacher educators’ sub-professional identity, even though Chinese teacher educators position themselves more as university lecturers. If they don’t primarily view themselves as a teacher educator, what factors influenced their professional identity as a teacher educator? Are Chinese teacher educators (un)aware of the teacher educator terminology and the aligned the meaning/possible identity as a teacher educator? We intended to answer these questions in study three (chapter five). Researchers studied the concept of teacher educators and believed that this population should be referred to as ‘teacher educators’ and ‘PETEds’, however, it is imperative to hear their voice. Therefore, there is a significant need for this study to provide a deeper understanding of how Chinese university-based PETEds position themselves and perceive their professional identity. It will also contribute to the research area of teacher educators’ professional identity.

Preparing future teachers, “Teacher Educators must themselves be open to constant evolution in their own professional body of knowledge, skills and attitudes, and must be able to adapt rapidly to changing needs” (European Commission 2013, p. 34). This chapter also indicates Chinese support for PLD opportunities and support for teacher educators and teachers in universities. The Chinese government has recognised the significance of teacher education and intends to support teacher educators’ professional development which will contribute to improving the quality of teacher education (Chinese Ministry of Education, Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for

Public Sector Reform. 2018). Teacher educators usually learn through practice, counting on their own individual endeavour, and their professional learning is rarely organised systematically (Lunenberg, Dengerink, and Korthagen 2014), which is also similar in China. Furthermore, there were no specialised national policies and insufficient support specific for teacher educators in China to support their professional development (Qiu 2015). While Chinese physical education and PETE literature reflects a relative absence of research on PETEds' professional learning, this is also true for international literature (Coulter 2019). There are many more professional learning opportunities provided for (physical education) teachers from all settings rather than specific for university-based (physical education) teacher educators in the Chinese context. Researching Chinese teacher educators' professional development, Qiu (2015) suggested future studies to investigate the expressed professional development needs of teacher educators. We would also argue that researching Chinese teacher educators from one specific subject area could provide a deeper understanding of their diverse and different PLD needs, as Chinese teacher educators are separated into different departments depending on their subject area rather than working together as a whole community. This study aims to explore what Chinese university-based PETEds' PLD needs are and how best to address such needs.

Chapter 3 - Professional learning and development needs of Chinese university-based physical education teacher educators

This chapter has been published in the ‘European Journal of Teacher Education’

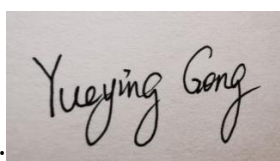
Gong, Y., MacPhail, A., and Guberman, A. 2021. “Professional Learning and Development Needs of Chinese University-based Physical Education Teacher Educators.” *European Journal of Teacher Education*. DOI: 10.1080/02619768.2021.1892638

3.1 Preface

The first phase of this research uses quantitative methods of data collection. Aligning with the research question (i), this chapter aims to gain an understanding of what PLD activities Chinese university-based PETEds most valued and needed, and the best ways to address their needs. Also, this chapter explores what factors influenced Chinese university-based PETEds' participation in PLD activities. A survey in European-wide research that analysed professional development needs of higher education-based teacher educators from six countries (Czerniawski, Guberman and MacPhail 2017) was adapted, translated, and distributed in China. The findings also present similarities and differences between Chinese university-based PETEds' and European teacher educators' PLD needs.

I, Yueying Gong, hereby declare that the work contained within this chapter is my own. I was the primary researcher and author of this paper which is published in European Journal of Teacher Education. My contribution includes research design, data collection, data analysis, translation, writing of the manuscript and final approval of the version to be published. The publication was completed with the helpful guidance of Prof. Ann MacPhail and Dr. Ainat Guberman who contributed where appropriate. Prof. Ann MacPhail contributed to the research design, qualitative data analysis, academic writing revision and final approval of the version to be published. Dr. Ainat Guberman contributed to the quantitative data analysis, critical revision of the paper and final approval of the version to be published.

Signature:

A rectangular box containing a handwritten signature in black ink. The signature is written in a cursive style and reads "Yueying Gong".

3.2 Abstract

This study examines the professional learning and development (PLD) needs of Chinese university-based PETEds and their views about effective ways to address them. This is significant given the limited research exploring this group. A European-wide survey was translated and distributed in China, receiving 251 responses of PETEds from 28 provinces. We found that the majority of PETEds had a strong desire to undertake further PLD in three areas: subject knowledge and didactics with particular emphasis on professional training in specific types of sports, research related academic activities and institutional activities. They preferred formal learning programmes as well as international learning activities to address these needs. The cost of the activities was the most significant factor influencing their engagement. We recommend paying closer attention to the PLD needs of specific subject area groups of teacher educators.

Keywords: Physical education; teacher educators; professional learning; professional development; needs

3.3 Introduction

Teacher educators play a crucial role in the education system and significantly impact the quality of teacher education (Lunenberg et al. 2017; Smith 2003; Vanassche and Kelchtermans 2016). To best understand and support teacher educators' professional learning and development (PLD), it is important to learn what skills and knowledge they need and how they effectively acquire such skills and knowledge throughout their career (MacPhail et al. 2018). The area of teacher educators' PLD needs is gaining more interest, but is still under-researched (Czerniawski et al. 2018; MacPhail et al. 2018; White 2019). The literature on the PLD of PETEds is particularly scant (Coulter 2019).

Recently, the Chinese Ministry of Education (2018b) and the Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform (2018) have published two documents offering more opportunities and support for teacher educators' PLD. These include, for example, international and domestic visits and teaching observations. However, as Qiu (2015) suggested, Chinese institutions and policy makers should learn about teacher educators' professional development needs before any action is taken. This study explores Chinese university-based PETEds' perceptions concerning their PLD needs, and how they can be addressed effectively. By using a survey that is part of the ongoing work of The InFo-TED (Czerniawski, Guberman, and MacPhail 2017), this paper presents similarities and differences between Chinese university-based PETEds' and European teacher educators' PLD needs, thus illuminating the significance of context.

3.4 Teacher educators' professional learning and professional development

In many instances, the terms 'professional learning' and 'professional development' are used

interchangeably, whereas in others each term is used deliberately (MacPhail et al. 2018). Professional learning refers to informal learning opportunities that are embedded in the workplace and arise on a daily basis (Berry, Clemans, and Kostogriz 2007). These include, for example, informal conversation with colleagues and personal reading. Professional development refers to more structured upskilling opportunities such as formal courses (MacPhail et al. 2014). Acknowledging the distinction, in this paper we use the term ‘professional learning and development’ (PLD) to refer to both types of learning.

International studies that explored teacher educators’ PLD preferences found that research and teaching are two highly valued areas (Czerniawski, Guberman, and MacPhail 2017; Griffiths, Thompson, and Hryniewicz 2014; Guberman et al. 2020; Van Der Klink et al. 2017). Although most teacher educators are motivated to improve their professional skills, actual engagement is influenced by numerous contextual factors such as their professional identities, career stage, past experiences and aspirations for the future (Lunenbergh et al. 2017; Smith 2017). Lack of time and work overload are significant obstacles (Czerniawski, Guberman, and MacPhail 2017; MacPhail et al. 2018). Across wide national and institutional contexts, teacher educators’ participation in PLD activities is conceptualised as an individual endeavour (Guberman et al. 2020). There are very few examples of infrastructural support and encouragement (Van Der Klink et al. 2017), such as the voluntary registration processes offered by VELON, the teacher educators association in the Netherlands (Koster and Dengerink 2008).

3.5 Chinese physical education teacher educators

The current study deals with Chinese university-based PETEds. These professionals are involved in educating physical education pre-service teachers (PSTs) and/or facilitating the professional development of in-service physical education teachers. The interest in

researching PETEds has steadily increased over the past two decades, with the majority of such research having been small-scale (McEvoy, MacPhail, and Heikinaro-Johansson 2015). Currently, little is known about PETEds in the western world (Lawson 1991; McEvoy, MacPhail, and Heikinaro-Johansson 2015) as well as in China (Zhong and Huang 2020).

In mainland China there are 1,423 colleges and 1,265 universities totalling 2,688 higher education institutions (Chinese Ministry of Education 2019), and 317 of these universities offer PETE programmes to prepare future physical education teachers (Huang et al. 2016). Six universities offer tuition-free PETE programmes. In return, graduating students are required to teach in primary and secondary schools for a minimum of six years (see <http://www.gov.cn>). While the majority have the opportunity to teach physical education, the individual school determines the subjects they are to teach.

There are 65,613 full-time physical education lecturers/teachers across Chinese public higher education institutions (Chinese Ministry of Education 2018a), a subsample of whom are classified as PETEds. Physical education lecturers teach first and second year general university students, students in sport related majors, and/or coach university teams. Some of them also prepare future physical education teachers, and are therefore considered PETEds. Their areas of expertise could be professional sports skills, professional theory or sport pedagogy (Zhao 2013). In Chinese university Departments of Physical Education, there are consistently more male than female PETEds (Tan and Long 2012; Zhao 2013). Unlike Anglophone countries, the majority of Chinese university-based teacher educators do not have experience of teaching in schools (Zheng, Hu, and Zhang 2012). Rather, it is common that they follow the path of completing an undergraduate degree, going directly to a Master's degree and then some of them continue to undertake a PhD before becoming a PETEd. In Shandong province, almost 40% of Chinese university-based PETEds were reported as being unfamiliar with the most recent physical education and health curriculum in primary and

secondary schools (Gu 2015). The Chinese PETE curriculum is usually divided into general modules (e.g. policy, English, computing), sport skills modules (e.g. volleyball, tennis, soccer), theoretical modules (e.g. sports biomechanics, sport psychology, school physical education), research modules (e.g. research methods) and teaching practice (e.g. observation, school placement). The State General Sports Administration and universities organise in-service training programmes to support university physical education lecturers to update their sport skills, coaching methods, subject knowledge, teaching skills and refereeing skills. While these opportunities are available for all physical education lecturers, there remains a lack of learning activities specific to PETEds (Zhong and Huang 2020).

3.6 PETEds' research related academic interest

Research is important for teaching. As a PETEd in a PETE programme, MacPhail (2011) noted how her professional learning was guided by evidence-based teaching that is informed by what she researched and experienced about teaching in schools, and in turn affects PSTs' professional learning.

Undertaking research is also one of the requirements necessary for every university-based teacher educator. A study that was conducted in Canada reported that PETEds were expected, at an institutional and national level, to engage in research, with 41% of PETEds perceiving that research was the most important role promoted by their institutions (Melnychuk et al. 2011). Exploring the research lives of an international group of PETEds, McEvoy, MacPhail, and Heikinaro-Johansson (2018) stated that PETEds were struggling and stressed to do research as part of their job requirements and career promotion. Time constraints and research skill gaps were perceived as challenges to research endeavours. Those PETEds who did not have English as their first language needed to expend significant effort to overcome language barriers to read and publish papers in international journals.

Chinese universities tend not to have such a strong expectation for PETEds to produce peer-reviewed publications (Yan 2015), and supporting the research abilities of Chinese university-based PETEds needs to be improved (Meizi 2008). In instances where PETEds have a higher degree (e.g. Doctoral degree), they are encouraged to be research active (Zhao 2013), with an acknowledgement that PETEds who have had limited formal learning experiences of how to conduct research have difficulties engaging in research. This is especially true for those who spend the majority of their time teaching sport skills modules. In one instance, in Jiangxin province, it has been noted that 43% of PETEds in seven universities did not have any publications in core academic journals over a five-year period (Tan and Long 2012). The main motivations for Chinese university-based PETEds to engage in research are to gain a higher academic title (and in turn an increase in salary) and fulfil the research requirement of being an academic in a university (Meizi 2008).

3.7 PETEds' subject knowledge and didactics

While documenting their own respective journeys as beginning PETEds, Casey and Fletcher (2012) struggled with the transition in pedagogical practices from being physical education teachers to PETEds. It is therefore important to acknowledge the possibility that teacher educators may lack the knowledge of how to be effective 'teachers of teachers' (Murray and Male 2005). This is disturbing, given the evidence that PSTs' pedagogical knowledge and beliefs are primarily influenced by the practices of PETEds (Graber 1995; Graber and Schempp 2000).

Chinese university-based PETEds tend to use similar teaching methods to educate PSTs as those used by university-based physical education lecturers or coaches (Meizi 2008; Yan 2015; Zhao 2013). Both position physical activities as the core content of the school and PETE curriculum, thus representing a 'sport-based' attitude in their respective curriculum

(Andriamampianina and Moussa 2005). While Chinese university-based PETEds are confident in their sport skills and subject knowledge, they lack pedagogical knowledge (Zhao 2013), which in turn can have a negative influence on PSTs learning to teach.

In summary, Chinese university-based PETEds appear to lack school experience, pedagogical knowledge and research skills (Gu 2015; Zhao 2013). However, little is known about Chinese university-based PETEds' perceptions of their own PLD needs. Such information is theoretically significant given the paucity of knowledge about this professional group. It can also have practical implications for future planning.

The current study explores the specific PLD needs of Chinese university-based PETEds, the preferred ways in which these can be addressed, and factors that influence PETEds' participation in upskilling activities. By comparing findings to those observed in other countries, better understanding can be achieved of commonalities in needs and differences resulting from context.

3.8 Method

3.8.1 Survey: A survey from an international study of teacher educators' PLD needs (Czerniawski, Guberman, and MacPhail 2017) was translated by the first author into Chinese. We introduced changes to adapt the survey to the Chinese PETE context to better fit the needs of a new population, the location, the language, and the combination of these (Harkness, Villar, and Edwards 2010). For example, we changed the work contexts from 'University' and 'College' to 'Sport University', 'Comprehensive University' and 'Normal University', as well as changing the terminology of 'teacher educator' to 'physical education teacher educator'. A professor at a Chinese university helped us adapt the survey translation to Chinese PETE context. Then, in order to check for consistency with the English version of the survey, before the survey was disseminated through Chinese professional networks, a native Chinese speaker from Translators Association of China who was unfamiliar with the

original questionnaire performed back-translation. The questionnaire included four sections: PLD preference (26 items); variables influencing engagement with PLD activities (8 items); research dispositions and experience (4 multi-item questions that are beyond the scope of this paper); and background information and role description (21 items). For each of the four sections, participants used an ordinal response scale to note their responses, ranging from 1 (not at all) to 6 (very much). Two open-ended questions asked participants to record their most important PLD needs, and the PLD opportunities that would address their needs most effectively.

3.8.2 Data collecting: While Survey Monkey was the software used to design the original survey, it proved slow for a few participants to open when attempting to access the survey in China. To alleviate this issue, Wenjuan Xing, a Chinese research tool to design, share, and collect survey data, was used to create another survey link. Given that the most popular social media in China is WeChat, two academic colleagues from two Chinese universities contributed to the dissemination of the survey link through their WeChat professional networks. In addition, the lead author contacted over 400 participants through individual email accounts and disseminated paper copies of the survey at a Chinese conference attended by the first author and Chinese university-based PETEds.

3.8.3 Participants: Two hundred and fifty one Chinese university-based PETEds (137 male and 57 female; 14 participants chose not to state their sex and 43 participants did not answer this question) from 28 provinces responded through Survey Monkey (196), Wenjuan Xing (37) and paper copies (18). As is common in collecting survey data, not all questions received a full complement of responses. The highest academic degree of 32% of the participants was PhD, 58% had a Master's degree and 10% a Bachelor of Arts/ Bachelor of Science degree. The median age group was 35–44 years old and the number of years' experience as PETEds ranged from 1 to 39, with a mean of 15.13 years ($SD = 9.57$). Just over 71% of participants

noted that they had not worked as teachers before becoming PETEds. Near to 79% of participants worked full time as PETEds.

3.8.4 Data analysis: To reduce the amount of data and converge into a representative set of factors, we used a mix of exploratory and confirmatory analytical models (EFA and CFA respectively). Firstly, we explored the complete data, following the procedure suggested by Hefetz and Liberman (2017) to create stable content dimensions. In this modelling stage, we used the Principal Axis Factoring extraction (PAF) technique, with the PROMAX rotation method, which allowed for non-orthogonal extracted factors (SPSS V.25). Questionnaire items, which did not load sufficiently (loading<.45) on the relevant factor were excluded from the analysis, such that the final structure received the best results. For the exploratory test we used a random sample of 136 respondents among those who answered all items, whereas the CFA was applied to the rest of the sample, such that the first is a training set for the later (Costello and Osborne 2005). Next, we provided two types of validation to the extracted factors: a confirmatory analysis (CFA), or a measurement model, by which we ensured high factor loadings and acceptable goodness-of-fit (Muthén and Muthén 2017); and a parallel analysis test (O'Connor 2000) with 1,000 simulations of samples of size $n = 150$, similar to the random training set selected for the exploratory analysis.

Our EFA modelling resulted in three distinct factors: Research Related Academic Interest; Subject Knowledge and Didactics; and Institutional activities. In these factors, all loadings exceeded the value of .45 (see Table 3.1). The two measures of fit quality were above acceptance level: KMO measure of adequacy: .881; and Bartlett's Test of Sphericity: $\chi^2_{(253)} = 1615.61$, $p < .001$. The total percent variance explained was 53.7%. Internal consistencies were assessed for each factor, resulting in above .80 Cronbach's alpha, which is considered good (Devellis 2012). The left column in Table 3.1 presents loadings as estimated by the CFA model, also termed as measurement model. Goodness of fit of the measurement

model: $\chi^2_{(222)} = 310.50$, $p < .001$, RMSEA = .060, 95% CI [.043,.075]; CFI = .933, TLI = .923; SRMR = .071. These fit indices met the required level (Hu and Bentler 1999; Wang and Wang 2019). As for the parallel analysis results, the decision to retain the three factors received support from this analysis: all three eigenvalues of the first three factors were higher than the 95% confidence interval of the mean eigenvalue ($8.73 > 1.00$; $2.05 > .84$; and $1.58 > .73$), while the fourth was lower ($.57 < .64$).

Two of the factors are closely related to those reported from the same survey conducted in Europe (Czerniawski, Guberman, and MacPhail 2017). The first factor, ‘Research Related Academic Interest’ comprises activities characteristic of research universities (e.g. research skills, academic writing and conference presentations). This factor is similar to Czerniawski, Guberman, and MacPhail (2017) ‘Academic Interest’ factor. The second factor, ‘Subject Knowledge and Didactics’ comprises activities and content areas related to teaching and teacher education (e.g. curriculum development, assessment). This factor is similar to Czerniawski, Guberman, and MacPhail (2017) ‘Educational Interest’ factor. The third factor ‘Institutional Activities/Activities with Colleagues’ is unique to the Chinese sample and consists of predominantly institutional group, rather than individual, activities performed within participants’ respective institutes (e.g. peer coaching, training activities within their institution). Each of the factors has good internal validity (alpha Cronbach ranges from .85 to .89). Bivariate correlations between the three factors range from .52 to .60, far lower than scale reliabilities, indicating good discriminant validity, i.e. that the three factors represent different types of PLD interests. Mean scores were calculated for each factor and compared using GLM – Repeated Measures analysis. Repeated contrasts were used to assess differences among preferences within each factor.

Another set of mixed EFA and CFA analyses was conducted on the variables expected to affect engagement in PLD. A seven-item exploratory analysis (excluding the

location of the activity which was weakly loaded on both original dimensions) resulted in two factors superior to alternative decompositions (see Table 3.2). These factors were found to explain 49% of the variance and the two measures of fit quality were above acceptance level: KMO measure of adequacy: .790; and Bartlett's Test of Sphericity: $\chi^2_{(21)} = 187.74$, $p < .001$. The parallel analysis procedure supported the two-factor structure ($F_1: 2.35 > .30$; $F_2: .36 > .18$; $F_3: .05 < .09$). The first factor relates to inherent characteristics of the learning activities (such as knowing who the providers are), and had reasonable internal consistency (Cronbach's $\alpha = .71$). The second factor represents external outcomes of learning activities (such as networking and salary rise), and had moderate internal consistency (Cronbach's $\alpha = .64$). The follow-up measurement model confirmed the two-factor structure.

ANOVA (repeated measures) analysis with post-hoc contrasts was used in order to compare between different professional learning activities in terms of the values the participants attributed to them, and in order to examine the relative effects of different variables such as the cost and the location of the activities on participants' preferences.

Table 3. 1 Interests in professional learning and development factor loadings

	Research Related Academic Interest	Subject Knowledge and Didactics	Institutional Activities / Activities with Colleagues	CFA Loadings
Reviewing journal articles, conference abstracts etc.	.86	.03	-.08	.76***
Research skills	.79	.21	-.12	.82***
Academic writing	.76	-.15	.06	.54***
Participation at conferences	.72	.19	-.10	.79***
International exchanges/visits	.62	.14	-.04	.59***
Personal reading (e.g. books, journals etc.)	.61	-.07	.25	.66***
Conference presentations	.52	.02	.21	.62***
Secondment/Sabbatical	.47	.06	.01	.47***
Curriculum development	-.03	.85	.01	.83***
Assessment	-.02	.76	.02	.75***
Current developments in teacher education	.14	.72	-.06	.79***
Integrating technology into your teaching and learning strategies	-.04	.71	.13	.79***
Subject knowledge enhancement	.17	.70	-.09	.81***
Researching my own practice	.26	.53	.08	.67***
Coaching and mentoring student teachers	.01	.47	.10	.54***
Peer coaching	-.01	-.16	.88	.75***
Observation by/of colleagues	-.33	.34	.69	.66***
Training activities within your institution (not award bearing)	.11	-.05	.67	.67***
On-line learning	.35	-.27	.65	.71***
Informal learning conversations with other colleagues	.06	.07	.65	.70***
Action research/practitioner-based research	.04	.13	.57	.61***
Visits to other schools/teacher education institutions	.22	.13	.57	.68***
Award bearing courses (e.g. related to Masters; Fellowships; Postgraduate certification etc.)	-.20	.24	.53	.53***
Eigenvalue	8.73	2.05	1.58	
Percentage of total variation	37.9	8.9	6.9	
Scale reliability (Cronbach's alpha)	.86	.89	.86	
Means	5.09	5.17	4.89	
Standard Deviation	.59	.58	.64	

EFA results: KMO measure of adequacy: .881; Bartlett's Test of Sphericity: $\chi^2_{(253)}=1615.61$, $p<.001$; Percent variance explained by three factors: 53.7 percent. Correlations: factor 1 with factor 2 $r=.573$; factor 1 with factor 3 $r=.426$; and factor 2 with factor 3 $r=.512$

For the EFA $n=136$, and for the CFA $n=210$.

Confirmatory analysis results: $\chi^2_{(222)}=310.50$, $p<.001$, RMSEA=.060, 95% CI[.043,.075]; CFI=.933, TLI=.923; SRMR=.071.

Table 3. 2 Interests in professional learning and development factor loadings

	Inherent Characteristics	External Outcomes	CFA Loadings
Activity addresses teaching and learning	.78	.01	.76***
Knowledge of who the providers are	.76	-.07	.82***
Activity addresses research and writing skills	.58	.08	.54***
The availability of staff to cover your teaching/learning/normal work in your absence	.43	.26	.79***
Salary rise as an outcome from the learning	-.13	.87	.59***
Activity addresses networking potential	.16	.67	.66***
The cost of the activity	.06	.66	.62***
Eigenvalue	3.13	1.25	
Percentage of total variation	37.9	11.3	
Scale reliability (Cronbach's alpha)	.71	.64	
Means	4.58	4.65	
Standard Deviation	.76	.81	

EFA results: KMO measure of adequacy: .790; Bartlett's Test of Sphericity: $\chi^2_{(21)}=187.74$, $p<.001$; Correlations: factor 1 with factor 2 $r=.52$; For the EFA $n=136$, and for the CFA $n=110$. Confirmatory analysis results: $\chi^2_{(13)}=12.42$, $p=.49$, RMSEA=.00, 95% CI[.00,.096]; CFI=1.00, TLI=1.00; SRMR=.041.

With respect to the two open-ended questions, the first author segmented the respondents' answers into quotes, each containing a single idea (for example, 'improve research writing skills'). In total, there were 301 quotes provided by 184 participants. The first author translated the Chinese quotes to English to allow the second author to code them independently. A deliberate decision was made not to use previously reported categories by Czerniawski, Guberman, and MacPhail (2017), in view of the significantly different geographical contexts (Rivas 2012). After the initial coding, the first two authors considered generalisations across the responses, and arrived at five major categories, and two sub-categories for two of the major categories. The categories are research related academic interest (with the sub-categories of learning about research and academic activities); updating

subject knowledge and didactics (with the sub-categories of teaching and teacher education and subject knowledge); professional training in specific types of sports; English and international relations; and management. We calculated the percent agreement between coders (82.39%, 248 items out of the total 301) and Kappa=.804, $p<.001$. Both indices are indicating high inter-judge reliability. Before calculating categories' frequencies, we resolved cases of disagreement and deleted 37 repetitions of the same categories that originated from different quotes of the same participants. For example, one of the participants mentioned both badminton and aerobics, but they were only counted once as 'sports skills training'.

3.9 Results

3.9.1 Professional learning and development activities valued by Chinese university-based PETEds

Chinese university-based PETEds expressed medium to high levels of interest in PLD activities, ranging from 4.15 to 5.29 on a 6-level-scale. The specific activities the participants rated are listed in Table 3.3. In the research-related academic interest domain, international exchanges/visits were more highly valued than other activities ($F_{(1,204)}=6.92$, $p<.05$, $\eta^2=.03$), whereas conference presentations were less appealing ($F_{(1,204)}=5.16$, $p<.05$, $\eta^2=.03$). In the area of subject knowledge and didactics, subject knowledge enhancement was the most highly valued ($F_{(1,186)}=7.12$, $p<.01$, $\eta^2=.04$), whereas coaching and mentoring drew less interest ($F_{(1,186)}=10.70$, $p<.01$, $\eta^2=.05$). With respect to institutional activities, training activities within the institution were the least preferred activities ($F_{(1,206)}=16.56$, $p<.001$, $\eta^2=.07$).

Table 3. 3 Interests in professional learning and development activities (expressed as mean value 1–6).

	M	SD	N
Research-Related Academic Interest			
International exchanges/visits	5.29	.71	209
Research skills	5.16	.82	208
Personal reading	5.16	.80	209
Participation at conferences	5.11	.84	208
Secondment/Sabbatical	5.09	.99	209
Reviewing papers	5.02	.84	210
Academic writing	5.01	.81	207
Conference presentations	4.89	.83	209
Academic interest (Overall)	5.09	.59	210
Subject knowledge and didactics			
Subject knowledge enhancement	5.39	.67	208
Current developments in teacher education	5.30	.69	207
Curriculum development	5.22	.72	202
Researching my own practice	5.18	.73	206
Integrating technology into teaching and learning	5.14	.74	207
Assessment	5.09	.81	208
Coaching and mentoring student teachers	4.85	.77	200
Subject knowledge and didactics (Overall)	5.17	.58	210
Institutional Activities			
Action research/practitioner-based research	5.17	.78	209
Visits to other schools/teacher education institutions	5.08	.83	210
Award bearing courses	4.99	.92	209
On-line learning	4.92	.83	209
Observation by/of colleagues	4.88	.85	208
Peer coaching	4.87	.81	208
Informal learning conversations with other colleagues	4.79	.86	209
Training activities within your institution	4.52	1.05	209
Institutional activities (overall)	4.89	.64	210
Other			
Participation in professional organisations	4.94	.87	208
Other forms of empirical research	4.85	.89	209
Specialisation in academic administration	4.15	1.17	207

ANOVA (repeated measures) analysis ($F_{(2,208)}=25.77$, $p<.001$, $\eta^2=.11$) with post-hoc contrasts revealed that participants were most interested in the area of subject knowledge and

didactics than in research related academic activities ($F_{(1,208)}=5.11$, $p<.05$, $\eta^2=.03$). Research related academic activities were more interesting than institutional activities ($F_{(1,208)}=23.18$, $p<.001$, $\eta^2=.10$).

3.9.2 Factors influencing the engagement in professional learning and development

Table 3.4 lists the variables influencing Chinese university-based PETEds' willingness to participate in PLD activities. The cost of the activities was clearly the most influential variable ($F_{(1,204)}=12.98$, $p<.001$, $\eta^2=.06$). The second most influential variable was the reputation, authority and experience of the providers ($F_{(1,204)}=14.72$, $p<.001$, $\eta^2=.07$). The location of the activities has least influence on PETEds' willingness to participate in PLD activities ($F_{(1,204)}=10.44$, $p<.01$, $\eta^2=.05$). The variables were divided into two factors: inherent characteristics and external outcomes, and they were of equal strength.

Table 3. 4 Variables influencing the engagement in professional learning and development activities (expressed as mean value 1–6).

Factors	M	SD	N
Inherent Characteristics			
Knowledge of who the providers are (e.g. reputation, authority, experience etc.)	4.84	1.02	208
The extent to which the activity addresses teaching and learning	4.59	1.01	207
The extent to which the activity addresses research and writing skills (including publication)	4.57	1.02	209
The availability of staff to cover your teaching/learning/normal work in your absence	4.30	1.09	209
External Outcomes			
The cost of the activity	5.10	.91	209
The extent to which a salary rise might be one outcome from the learning activity	4.47	1.23	208
The extent to which the activity addresses networking potential	4.39	1.03	209
The location of the activity	4.00	1.27	209

3.9.3 Qualitative data: most important professional learning and development needs and how to address them

Similarities as well as differences were noted between the quantitative and the qualitative survey data. Four categories emerged as significant in participants' responses (see Table 3.5). These were research related academic interest (35.61%) which include learning about research (24.24%) and academic activities (11.36%); updating subject knowledge and didactics (31.44%) which include teaching and teacher education (18.56%) and subject knowledge (12.88%); professional training in specific types of sports (17.80%); and English and international relations (11.36%). The categories of 'research related academic activities' and 'updating subject knowledge and didactics' were similar as quantitative survey data. The need for 'professional training in specific types of sports' was unique and only appear in the qualitative data.

Table 3. 5 Identified themes and categories with frequencies arising from PETEds' most important professional learning and development needs.

Code	Frequencies	%
Research related academic interest		
Learning about research	64	24.24%
Academic activity	30	11.36%
Total	94	35.61%
Updating subject knowledge and didactics		
Teaching and teacher education	49	18.56%
Subject knowledge	34	12.88%
Total	83	31.44%
Professional training in specific types of sports	47	17.80%
English and international relations	30	11.36%
Management	7	2.65%
Other	3	1.14%
Total	264	100.00%

3.9.3.1 Research related academic activities

Research was the most frequently mentioned category of PLD needs and includes learning about research and academic activities. The participants provided specific research areas in which they wished to improve their methodological knowledge (for example, ‘research methods of anti-fatigue and sport’, or ‘research methods of sociology and statistics’). In addition, they wished to understand national and international research trends. Some participants wanted to undertake PhD studies. As for academic activities, participants clearly expressed they needed to publish more papers and submit high quality grant applications, although they did not mention in which specific research areas.

The most frequently mentioned ways to address research-related needs were: (1) attending professional training, (2) learning from experts in academic conferences, lectures and workshops, (3) studying or being a visiting scholar abroad and (4) undertaking a PhD. Surprisingly, only one participant mentioned the need of ‘enough time’ as a means to address research related needs.

3.9.3.2 Updating subject knowledge and didactics

The second most frequent PLD need was updating subject knowledge and didactics. Some participants explicitly mentioned needs related to teaching a specific type of sport (such as teaching yoga or swimming), and others conveyed the need to improve students’ teaching skills. Many of the responses were similar to the quantitative data. Participants were interested in online teaching, implementing ICT and social media, curriculum development, educational reforms and current developments in teacher education. Other responses were more focused on physical education disciplinary content (e.g. ‘human movement science’ or ‘exercise rehabilitation’).

Referring to the most effective ways in which these needs could be addressed, participants mentioned the same three ways as above: professional training, learning from experts in academic conferences, lectures and workshops and studying or being a visiting scholar abroad. In addition, participants asked for opportunities to observe colleagues in their own and other universities, in order to learn from each other as well as from exceptional examples. Few participants suggested studying on their own.

3.9.3.3 Professional training in specific types of sport

Some of the participants (47) mentioned the need for professional training in specific types of sport (e.g. high level training of Qigong, basketball training). Since many participants have the responsibility for organising and overseeing university sport competitions, there is a clear associated need to secure referee certification (such as ‘basketball referee’ and ‘volleyball referee’). Attending ‘in-service training’ was the most effective way to address this need. Such training generally ranges from a few days to one month and requires that universities or government cover training fees, transportation and accommodation.

3.9.3.4 English and international relations

English and international relations were noted as the fourth most frequent PLD need. Participants admitted that they needed to improve their English language skills to read more literature published in English and learn about international research in their areas. It was evident that participants were encouraged by their respective universities to publish in English in journals cited by international indices. Some participants wished to study or be a visiting scholar to learn in an international environment, improve their English language skills and enhance their international communication and networking.

3.10 Discussion

Chinese university-based PETEds conveyed a passion to undertake PLD activities in the areas of research related academic activities, subject knowledge and didactics with specific emphasis on professional training in specific types of sports. They thought the best ways to address those needs were to participate in formal learning programmes and in international communities. We discuss these three themes in turn.

3.10.1 Research related academic activities

Similar to teacher educators in other countries (Czerniawski et al. 2018; Czerniawski, Guberman, and MacPhail 2017; MacPhail et al. 2018; Van der Klink et al. 2017), Chinese university-based PETEds wish to engage in academic activities, improve their research methods and skills, and publish in English in international journals. This finding is consistent with Ping et al. (2021) and Qiu (2015) who reported that Chinese university-based teacher educators' PLD preferences and practices focus on academic activities. Doctoral studies were mentioned as a significant means to improve PETEds' research abilities (Stylianou, Enright, and Hogan 2017). Interestingly, none of the PETEds in our study mentioned undertaking a PhD specifically in the PETE area. Another indicator attesting to the importance of research to Chinese university-based PETEds is that finding sufficient time was not considered as a significant barrier to participation in research activities. This is somewhat surprising given that Chinese university-based PETEds do not have specific time scheduled in their job remit to undertake research and have to use their own time for research activities. The high priority assigned to research can be understood in light of findings that research abilities of Chinese university-based PETEds need to be improved (Meizi 2008; Tan and Long 2012; Yan 2015; Zhao 2013).

3.10.2 Subject knowledge and didactics

Similar to other teacher educators, Chinese university-based PETEds were highly interested in improving their teaching and teacher education practices (Czerniawski, Guberman, and MacPhail 2017; Guberman et al. 2020; Van der Klink et al. 2017). However, their strong interest in subject knowledge enhancement is markedly different from the rather low level of interest expressed by a heterogeneous sample of European teacher educators (Czerniawski, Guberman, and MacPhail 2017). It is possible that this difference results from the multiple identities of Chinese university-based PETEds who are positioned as sportspeople, team coaches and sport teachers to first and second year university students (Zhao, 2013). This positioning may also explain Chinese university-based PETEds' high level of interest in professional training in specific types of sports.

3.10.3 A preference of formal learning programmes and international frameworks

Chinese university-based PETEds preferred more formal learning programmes (such as attending professional training) and international communities of activities to address their PLD needs. This finding is dissimilar to studies that report teacher educators value informal activities, such as conversations with colleagues, to support their professional learning (MacPhail et al. 2018; Van der Klink et al. 2017).

International learning activities were perceived as effective ways to address Chinese university-based PETEds' research related skills as well as teaching practices. This tendency is similar to Smith (2017) who claimed that teacher educators need international professional relations, and stated that, in Norway, international exchange is highly recommended and supported at all levels of higher education. Qiu (2015) found that Chinese teacher educators valued international visits and exchange as a useful professional activity for their professional

development. However, the cost of international visits could be a barrier preventing PETEds' travel. In contrast with European teacher educators (Czerniawski, Guberman, and MacPhail 2017), Chinese university-based PETEds viewed the cost of PLD activities as the most important variable that can influence their decision to participate. The Chinese 'Revitalisation Plan of Teacher Education (2018-2022)' (Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform 2018) as well as the Chinese Scholarship Council provide yearly funded programmes for lecturers, researchers and postdoctoral scholars to study abroad. However, these opportunities are unable to match the high demand for each. In addition to international exchange, Chinese university-based PETEds expressed their wish to study from each other and from exceptional examples within their institutes. Here too, the opportunities are far from sufficient.

3.11 Concluding thoughts

The majority of Chinese university-based PETEds had a strong desire to undertake further PLD activities in the areas of subject knowledge and didactics, with particular emphasis on professional training in specific types of sports, research related academic activities and institutional activities. The preferred ways to address these needs were formal learning programmes, observation of exemplary practices and international learning activities. The cost of the activities was the most significant factor influencing their engagement. In contrast to the European data (Czerniawski, Guberman, and MacPhail 2017; Van der Klink et al. 2017), lack of time did not appear to be a significant barrier to engagement in PLD opportunities. This attests to the high value Chinese university-based PETEds attach to PLD. However, the motivations leading to such a high level of commitment remain unexplored and deserve further research.

Policy-makers and leaders of Chinese PETE institutes need to take PETEds' preferences into consideration while planning PLD opportunities tailored to Chinese university-based PETEds' needs (Gu 2015). This study is not only to prompt PETEds to have a better understanding of their PLD needs but also policy-makers, institution leaders and activity providers who need to understand PETEds' needs and provide effective professional support.

The main limitations of this study are its exploratory nature, relatively small scale and lack of in-depth interviews. In later studies we need to examine whether the three factors we found are robust, and why there is such a strong distinction between individual and group activities in the Chinese sample but not in Czerniawski, Guberman, and MacPhail's (2017) European sample. This difference may be related to local context or different subject areas. Further research across different countries would allow exploration of the extent to which teacher educators of the same and different subject areas convey similar or different PLD needs, and the extent to which these are influenced by national and institutional context.

3.12 Chapter Summary

This research aims to explore Chinese university-based PETEds' perceptions concerning their PLD needs, and how they can be addressed effectively. The findings from this chapter suggested that the majority of PETEds had a strong desire to undertake further PLD in three areas: subject knowledge and didactics with particular emphasis on professional training in specific types of sports, research related academic activities, and institutional activities. They preferred formal learning programmes as well as international learning activities to address these needs. The similarities and differences between Chinese university-based PETEds' and European teacher educators illuminated the significance of context. This study contributed to the research area of teacher educators' PLD needs as well as a larger scale research on PETEds.

This research is the first step in the mixed method design strategy. One of the main limitations of this study is the lack of in-depth interviews which were conducted in the next chapter. The survey results also noted how Chinese university-based PETEds rank their roles which raised awareness of how Chinese university-based PETEds perceive their professional self. This question was explored in chapter five.

Chapter 4 - Chinese higher education-based physical education teacher educators' professional learning needs for involvement in research activities

This chapter has been published in the 'Professional Development in Education'

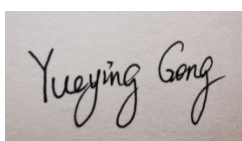
Gong, Y., MacPhail, A. and Young, A.Y. 2021. "Chinese higher education-based physical education teacher educators' professional learning needs for involvement in research activities." *Professional Development in Education*. DOI: 10.1080/19415257.2021.1895286

4.1 Preface

Along with the previous chapter, this chapter addresses the research question (ii): what research-related PLD activities do Chinese university-based PETEds prioritise and need, and what are the barriers for them to engage in such research-related PLD activities. Exploring Chinese university-based PETEds' most significant PLD needs through qualitative methods, this chapter presents the richest findings of their PLD needs related to research activities. While the previous chapter proved Chinese university-based PETEds' high level of desire to attend PLD activities, the motivations leading to such commitment were suggested for further exploration. This chapter sheds light on how intrinsic and extrinsic motivations influence Chinese university-based PETEds to be involved in research. Griffiths et al. (2010) suggested that the teacher educators' professional development of research and pedagogy deserve equal attention and priority. The findings of this chapter indicated the difficulties in balancing research and teaching.

I, Yueying Gong, hereby declare that the work contained within this chapter is my own. I was the primary researcher and author of this paper which is published in Professional Development in Education. My main contribution includes research design, interview protocol design, data collection, data analysis, translation, writing of the manuscript and final approval of this paper to be published. This publication was completed with the helpful guidance of my supervisors Prof. Ann MacPhail and Dr. Ann-Marie Young. Prof. Ann MacPhail contributed to the research design, qualitative data analysis, academic writing revision, critical revision of the paper, and final approval of the version to be published. Dr. Ann-Mary Young contributed to the qualitative data analysis and critical revision of the paper.

Signature:

A rectangular box containing a handwritten signature in black ink. The signature is written in a cursive style and reads "Yueying Gong".

4.2 Abstract

Research activity is one of the key professional learning needs noted by teacher educators working in higher education. The purpose of this study is to explore what research activities Chinese higher education-based PETEds prioritised and, in turn, expressed their aligned research-related professional learning needs. A sample of 15 Chinese higher education-based PETEds was interviewed. The results conveyed that Chinese university-based PETEds had a strong desire to avail of research-related professional learning activities, with the majority prioritising peer-review publication. The motives for PETEds to be involved in research tend to be extrinsic to the individual and include pressures aligned to the evaluation of their academic position and institute requirements. PETEds who entered teacher education with a PhD were expected and supported to do research, while PETEds without a PhD requested opportunities to undertake a PhD abroad. While it was easier for PETEds to undertake collaborative research with a research group within their faculty/department, there was a lack of collaborative research external to the faculty/department as well as a lack of international collaboration.

Key words: Teacher educators; physical education; professional learning; research activities; teacher education

4.3 Introduction

Teacher educators are at the core of good teacher education (Vloet and Van Swet 2010), and key to the educational system as a whole (Smith 2003, 2017, Vanassche and Kelchtermans 2016). It is acknowledged that teacher educators' work is complex and they require high-quality learning opportunities for continuing professional development (Kelchtermans Smith and Vanderlinde 2018). In a recent study, Ping, Schellings and Beijaard (2018) reported on a systematic review of teacher educators' professional learning and found many current studies on teacher educators' professional learning to undertake research. Teacher educators being research active continues to gain increasing support from higher education institutions in many countries (Lunenberg, Dengerink, and Korthagen. 2014). For instance, teacher educators from the UK in Roberts and Weston's (2014) study were supported to attend research activities (i.e. workshops on how to write a research plan or abstract and a seminar series to offer peer support). There have been various calls to better identify and address teacher educators' ongoing professional learning needs (Berry 2016, Czerniawski, Guberman et al. 2017; Czerniawski et al. 2018; MacPhail et al. 2019). Interestingly, professional learning activities related to research were one of the top professional learning needs identified by teacher educators from many different countries (Czerniawski, Guberman and MacPhail. 2017; Czerniawski et al. 2018; MacPhail et al. 2019). Research has become a main path for teacher educators' career development (Guberman and Mcdossi 2019). In many countries, the involvement in research activities was perceived as an important tool in teacher educators' professional development (Van Der Klink et al. 2017), as well as a way to address their professional development needs (Maaranen et al. 2020). Indeed, teacher educators' professional learning is under-researched (Czerniawski, Guberman and MacPhail 2017), and few professional learning activities are available specifically for teacher educators (Gallagher et al. 2011, MacPhail et al. 2019, MacPhail and O'Sullivan 2019).

Lawson (1991) reported benefits of research activities for PETEds and called for an agenda to establish a better understanding of teacher educators in the subject area of physical education. Chinese university-based PETEds' professional learning needs related to research activities have been under-exposed in both English and Chinese literature. In this study, PETEds are those professionals working in universities who are responsible for teaching physical education pre-service teachers (PSTs) and providing support to in-service physical education teachers' continuing education. The purpose of this study is to provide an understanding of (i) What research activities do Chinese higher education-based PETEds prioritise? (ii) What are the research-related professional learning needs of Chinese university-based PETEds? and (iii) What are the barriers on Chinese university-based PETEds to engaging in research activities?

4.4 Chinese teacher education context

Chinese teacher education is defined as training teachers in the stages of pre-service, induction and in-service (Chinese Ministry of Education 2002). Effective teachers are considered to be beneficial to Chinese society and promote the development of the entire country (Zhu and Zhao 2018). Teacher education is a significant part of the Chinese educational system, and improving the quality of teacher education is a vital task in implementing the strategy of rejuvenating the country through education (Chinese Ministry of Education 2002). However, there are still some outstanding problems for teacher education, including relatively outdated curriculum content and teaching methods, and what is considered to be a low quality of teacher education practices. Consequently, improving the quality of teacher education has become one of the core, and most urgent, tasks of China (Chinese Ministry of Education 2014). The same document supports the establishment of a community of teacher educators and improving the quality of teacher educators through

specific training, and encouraging teacher educators to visit international universities.

In China, university Bachelor's teacher education programmes are four years in duration. There are 187 'normal' universities and 363 'non-normal' universities where teacher education programmes reside (Wang 2019). While 'normal' universities were traditionally primarily responsible for educating PSTs, since 1999 'non-normal' universities have been encouraged to offer teacher education programmes (Chinese State Council 1999). To support teacher education, six normal universities (under the direct administration of the Chinese Ministry of Education) provide free education, free accommodation and living allowance to PSTs (Chinese State Council 2007). Some 'non-normal' universities continue to be more focused on research than preparing schoolteachers (Tang 2012a). These initiatives have created incentives, as well as pressures, on Chinese higher education institutes to upgrade in terms of research rankings as an overriding, if not main, objective. This has caused competition among institutes at all levels and all types (normal and non-normal) to establish research centres (Yan and He 2015). In 2004, with a vision to conduct research on teacher education, provide policy advice, support continuous education for in-service teachers and promote internal communication, the Beijing Normal University established a national teacher education research centre. The centre included twenty-one researchers and began recruiting Master's level teacher education students in 2007 and PhD candidates in teacher education in 2010 (see: <http://cter.bnu.edu.cn/?about/tp/244.html>). It has been suggested that more Chinese universities should provide specific programmes for PhD candidates in teacher education (Zhu and Zhao 2018). Given the increase in number of universities offering teacher education programmes, together with the expansion of enrolment, the successful employment of graduate teachers has become a major challenge (Wang 2019).

The amount of collaborative research in the field of Chinese PETE is small and more collaboration with national colleagues, as well as building international networks and

enhancing communication, are suggested (Li, Si and Yin. 2015; Huang 2019). In a recent review of literature mapping Chinese PETE research from 2002 to 2018 (Huang 2019), it was reported that just over 50% of the papers were sole authored, almost 30% co-authored with one other person and 15% written by three authors. Chinese university-based PETEds' main dissemination of research is through Chinese.

4.5 Teacher educators' professional learning

The concepts of 'professional learning' and 'professional development' are often conflated in meaning, even though many writers define them differently (Czerniawski 2018). The distinction between the two terms is not always explicit across the literature and, in many instances, both terms are used interchangeably. In other instances, either phrase is used deliberately (MacPhail et al. 2019). Professional learning tends to refer to informal learning opportunities that arise on a daily basis for the individual, with a focus on the individual's needs and experiences (Berry, Clemans, and Kostogriz 2007). Professional development tends to refer to more formal group opportunities for teachers to attend organised, structured upskilling, with a focus on the nature of the upskilling content. Such formal group opportunities have been criticised for minimal or no follow-up support (MacPhail et al. 2014). In this paper, while our preference when talking about the study is to use professional learning, we use the preferred term of the specific authors we refer to in providing a context to the study.

According to a systematic review conducted by Ping, Schellings, and Beijaard (2018), four main categories of teacher educators' professional learning activities were identified: (i) learning through academic engagement, (ii) learning through collaborative activities with colleagues, student teachers, teachers at school or a group of teacher educators, (iii) attending research-related and educational professional development programmes, and (iv) learning

through reflective activity. Following this study, a survey study by Ping, Schellings, and Beijaard (2021) explored how Chinese and Dutch teacher educators perceive their professional learning in practice and reported that the teacher educators had a strong desire to learn.

4.6 Teacher educators' motives for involvement in research activities

External and internal motivations are reasons for teacher educators to engage in research (Guberman and McDossi 2019). Providing insight into reasons for teacher educators' engagement in professional learning could better address their professional development needs (Ping, Schellings, and Beijaard 2018), noting that little is known about PETEds' motives to do research (Lawson 1990). Our understanding about what motivated PETEds engagement in research is largely due to the work of Mitchell (1992a; 1992b; 1997). No research explicitly focused on the research practices of PETEds in general (McEvoy, MacPhail, and Heikinaro-Johansson 2015) until the work of McEvoy, MacPhail, and Heikinaro-Johansson (2018).

4.6.1 Extrinsic motives

External motivations for teacher educators' professional learning includes changes in teacher education policy and programmes. Such changes encourage institutes of higher education to assess research productivity (e.g. the number and quality of research publications) against other institutes which, in turn, urges teacher educators to deepen their knowledge, skills and abilities in conducting research (Ping, Schellings, and Beijaard 2018). Higher education institutes expect teacher educators to regularly publish in peer-reviewed journals (Roberts and Weston 2014), in a bid to establish themselves in specific research fields and make their research known to others (Åkerlind 2008). It is not uncommon that such practices are a key

focus of higher education strategic plans (MacPhail and O’Sullivan 2019). A similar context exists in China, where publication is a key evaluation criteria for Chinese teacher educators’ academic promotion (Zhu 2010). Chinese teacher educators have conveyed their interest to undertake a PhD to achieve the title of ‘Professor’ which, in turn, serves as an indicator of esteem and track record when applying for research funding (Yang 2011). There is also a strong belief in the Chinese context that professional titles (such as ‘Professor’) are associated with heightened recognition from colleagues and institutes (Wang 2017). Within the expectation for promotion and career development, for most teacher educators in higher institutes, not only is a strong research profile necessary for promotion and career development (MacPhail and O’Sullivan 2019), such a profile is required to be competitive when compared with other university academics (Solbrekke and Sugrue 2014). Teacher educators are expected to seek and secure research funding and increase publication output, at times feeling frustrated and under pressure (Casey and Fletcher 2017; MacPhail and O’Sullivan 2019).

4.6.2 Intrinsic motives

Intrinsic motivation, such as the desire and responsibility to learn new professional knowledge and skills, has been reported as a reason for teacher educators’ undertaking professional learning activities (Ping, Schellings, and Beijaard 2018). However, some teacher educators maintain that not all teacher educators should be forced to be involved in research, but rather that involvement in research be based on teacher educators’ interests and the implications for practice and ability (Chetty and Lubben 2010). In this instance, the purpose of publication becomes more intrinsic and is viewed primarily as a way of improving the academics’ understanding and research (Åkerlind 2008). In exploring the research lives of an international group of mid- and late-career PETEds, McEvoy, MacPhail, Heikinaro-

Johansson (2018) reported that motives for PETEds' engagement in research tended to have a predominantly intrinsic focus, such as enjoyment and passion. However, there is an awareness that focusing solely on intrinsic motivations to undertake research activities (at the expense of being strategic in identifying funded research activities may limit the career path of teacher educators (Casey and Fletcher 2017).

4.7 Teacher educators' research and teaching

In exploring Chinese teacher educators' teaching capability, it has been suggested that researching the teacher education process could better advantage teacher educators to teach about teaching (Liu 2016). Conceptualising the demands and expectations of teacher educators' work, Loughran (2006) viewed teaching and researching teaching about teaching as part of a holistic understanding of scholarship in teacher education practices rather than as independent, separate and distinct tasks. Focusing on a teacher educator's own practice, self-study of teacher education practice has gained momentum as a methodology and venue to support teacher educators' professional development and effective learning (Vanassche and Kelchtermans 2015; Ping, Schellings, and Beijaard 2018). With a focus on learning to be a more effective teacher educator, Bullock (2009) conducted a self-study on his developing pedagogy of teacher education. He created personal understandings of knowledge of teaching and productive learning as a result of an inquiry into the nature of his first three years' practice. While teacher educators view research activities as a support for, and part of development of, their teaching practice (Cochran-Smith 2005, Chetty and Lubben 2010), teacher educators can become stressed when asked to consider combining their teacher education practices and research activities (Gleeson et al. 2013). In respect to teacher educators' professional development of research and pedagogy, Griffiths Thompson, and Hryniewicz (2010) argued that these two aspects deserve equal attention and priority. While

higher institutes expect teacher educators to be research active, they do not necessarily provide sufficient support and time for such activity. This increases the level of teacher educators' frustration in attempting to balance teaching and research activities (Griffiths et al. 2014; Czerniawski, Guberman and MacPhail 2017; MacPhail et al. 2019; MacPhail and O'Sullivan 2019). Moreover, as a result of pressure to research, it has become difficult for many teacher educators to focus solely on teaching (MacPhail and O'Sullivan 2019), with a need to provide assistance to teacher educators to balance research and teaching expectations (Vanassche and Kelchtermans 2016). In suggesting that there remains a challenge to combine theory and practice in teacher education, MacPhail et al. (2019) claim teacher educators need to form links between previous research, theory, experience and PSTs' future teaching. That is, support both research-informed teacher education practices and teacher-informed research (MacPhail and O'Sullivan 2019).

4.8 Methodology

4.8.1 Participant selection

A sample of 15 participants was selected to be interviewed. Participants were sourced from 60 Chinese university-based PETEds who, in completing a survey in a previous study researching professional learning needs of Chinese higher education-based PETEds (Gong, MacPhail, and Guberman 2021), agreed to be contacted for follow-up interviews. Convenience sampling identified participants who were willing to participate and were more geographically accessible to the researcher (Teddle and Yu 2007). Purposive sampling was used to select certain cases based on a specific purpose rather than random selection (Tashakkori and Teddlie 2003, p. 713). Purposive sampling was aided by the previous survey data (Gong, MacPhail, and Guberman 2021) that listed the background of participants, their

geographical location and different teaching experiences. The two inclusion criteria for determining the complement of participants were (i) Working in universities across different provinces in China, and (ii) A variety of work experience in teaching physical education PSTs in Chinese universities.

4.8.2 Participants

To protect the anonymity of the participants, each were given a number from one to 15. Among the 15 participants (12 male and three female), six had a PhD degree, and nine held a Master's degree. Of the nine who held a Master's degree, this was through completion of a taught Master's programme rather than a Master's by research. The universities they worked in were located across eight provinces in China. All participants taught physical education PSTs. The range of years working as a PETEd in university ranged from one to 17. Four participants had previous teaching experience in schools, and 11 did not. Each participant's age, level of degree, level of professional learning needs for involvement in research activities, teaching experience in school and years of work experience in universities as PETEds are noted in Table 4.1.

4.8.3 Interviews

Ethical approval was granted from the research ethics committee of the authors' institute. The interview protocol was initially constructed in English and then translated to Chinese for ease of data collection. The interview protocol included four sections: (i) Participants' path into teacher education, (ii) Opportunities for professional learning, (iii) Most prioritised professional learning needs for involvement in research activities, and (iv) Barriers of engagement in research activities. The 15 individual semi-structured interviews were conducted in China in Chinese. Nine of the interviews were carried out face to face at a

location convenient to the participant (i.e., in their university office). Interviews for the remaining six participants took place via a phone call. The interviews lasted between 30 and 70 minutes and were recorded with each participant's permission.

Table 4. 1 Demographics for the sample of PETEds across eight provinces.

Participants	Gender	Degree	Teaching experience in schools	Working years in higher education	Level of needs for research activities
1	Male	PhD	No	2	High
2	Male	Master	4 months	17	High
3	Male	Master	No	13	Low
4	Male	Master	No	2	High
5	Male	PhD	1 year	12	High
6	Female	Master	No	4	High
7	Male	PhD	No	2	Medium
8	Male	PhD	10 years	12	High
9	Male	PhD	1 year	8	High
10	Female	Master	No	1	High
11	Male	Master	No	3	Low
12	Male	Master	No	8	Low
13	Male	Master	No	15	Low
14	Male	PhD	No	4	High
15	Female	Master	No	15	High

4.8.4 Data analysis

The interviews were transcribed in Chinese and translated into English. A grounded theory method (Strauss and Corbin 1998) was employed to analyse the data. In the process of analysis, three phases of coding were utilised to interpret the interviews. An example of the process of analysis is provided in Table 4. 2 Phase one, open coding, involved revisiting the interview transcripts to build concepts from the textual data source and develop them into categories. Phase two, axial coding, consisted of reconstructing data by making connections between a category and its subcategories (Strauss 1990, p. 97). During axial coding, the codes

were combined into broader themes including ‘Motives’, ‘Research topics’, ‘Mentorship’ and ‘Collaboration’. Phase three was selective coding where the core categories resulted in five coded themes that related to PETEds’ significant professional learning needs for involvement in research activities. These were ‘Motives’, ‘Deliberate positioning within research fields’, ‘Infrastructure that supports research or teaching’, ‘Mentorship’ and ‘Collaborative research’.

Table 4. 2 Data analysis example.

Phase one	Phase two	Phase three
· Higher degree · Institute requirement · Cooperation with colleagues · International cooperation · Publications · Salary · Time · Hot topics · Large projects · Funding · Professional title · English language · Teaching · Supervisor · Postgraduate students · University context	Motives · Professional title · Publications · Institute requirement · Salary · Recognition · Interests · PhD · University context Research topics · Teacher education · Hot topics · Large projects · Funding · Research and teaching Mentorship · Supervisor · Postgraduate students	Motives · Academic promotion · Institute expectation · Intrinsic motives Deliberate positioning within research fields · Hot topics · Large project · Research on teacher education Infrastructure that supports research or teaching · Research and teaching practice · Research-intensive university · Teaching-intensive university Mentorship · Supervisor · Postgraduate students

Collaboration

- With colleagues within faculty
- With colleagues outside of faculty
- With international researchers
- Language

Collaborative research

- Strengths of collaborative research
 - Lack of collaboration
 - Barriers to collaboration
-

4.8.5 Trustworthiness of the data

Procedures for trustworthiness included a member checking process to confirm credibility of the information (Creswell and Miller 2000). Participants received a copy of his/her transcript and were encouraged to clarify and verify the accuracy of their interview transcript. They were prompted to delete words and phrases from narratives if they did not want the content to be considered. In a further attempt to increase the trustworthiness, all researchers were involved in the discussion of the coding and subsequent codes.

4.9 Results and discussion

There was a genuine interest from PETEds from a variety of professional backgrounds to be involved in research. Five main areas arose and include (i) motives for doing research, (ii) deliberate positioning within research fields, (iii) infrastructure that supports research or teaching, (iv) the expectations of, and from, mentorship, and (v) the strengths and weaknesses of collaborative research. We visit results related to each in turn.

4.9.1 The motives for doing research

4.9.1.1 Academic promotion

Chinese university-based PETEds indicated a strong desire to avail of research-related learning activities. Chinese university-based PETEds' motivations for research were predominantly extrinsic due to the pressures of professional title evaluation and institute requirements to be research active. Achieving the position of 'Professor' was identified by the majority of PETEds as a key extrinsic motivation for involvement in research activities. PETEds experienced various research activities, including writing for publication, writing books, presenting at conferences and undertaking data analysis. Publishing papers was recognised by the majority of PETEds as the priority research activity, *'Of course publication is most valued'* (14), and *'Basically publishing [a] paper is mainly for professional-title evaluation. This is a popular thought'* (3). Research ability was believed to be the primary consideration in achieving promotion and, in turn, an elevated professional title, motivating PETEds to participate in research activities. PETEds' strong desire to achieve an elevated professional title was significantly related to the desire to increase their salary which is low in comparison to other academic colleagues;

A teacher [educator] is a career with low salary. Physical education teachers are poorer (financially). We are always busy, and we work hard. However, the salary is so low, the lowest salary compared to other teachers [educators] in this university . . . I think it's so unfair (15).

Unlike the teacher educators in England, Ireland and Scotland who did not consider a rise in salary as an influential factor in professional learning engagement (Czerniawski et al. 2018), attending research activities which ensured being able to earn a higher salary was noted as an incentive for Chinese university-based PETEds, especially for those who had family

commitments and responsibilities;

I think nobody really likes to do research very much . . . Why do I do research? Of course, I need to survive. The more research, the higher professional title and the higher salary. As a human, firstly I need to survive, right? (14).

4.9.1.2 Institute expectation

Livingston et al. (2009) noted that through the international interest in ranking higher education institutes, there has been a growing demand for teacher educators to become research active in many countries, with an increasing number of publications highly stressing teacher educators' task of engaging in research activities (Tack and Vanderlinde 2014). Some Chinese university-based PETEds believed they had an obligation to do research, that it was influenced by the working circumstance in higher education, and *'Doing research has become a task for every lecturer in higher education. This is the institutional requirement'* (9). It was apparent that the higher the degree qualification (e.g. PhD) of PETEds, the higher expectation and support there was for PETEds to participate in research. It was particularly evident for beginning Chinese university-based PETEds who entered teacher education with a PhD that it was unacceptable not to be involved in research. Subsequently, while they were provided with more research opportunities and support, this brought with it the pressure to publish papers, *'A lot of rewards are provided by the university, especially if you have a PhD, you are encouraged to publish papers'* (5). Due to collaboration between Chinese and South Korean universities, three PETEds were in the process of applying to undertake a PhD in South Korea. Interestingly, a PETEd who admitted to not being interested in research, was aware of the need to undertake a PhD as a requirement of the university, *'I don't like any types of research activity. I need to get a higher degree and I am learning Korean language which is required to apply for the PhD in Korea'* (11). Chinese universities conveyed their

support in this area by providing time and financial support for PETEds without a PhD to travel abroad;

There will be more learning resources abroad and my second language will be improved. During these two years, faculty gave me great support, I have been provided a salary during my study. In this way, the faculty encouraged teachers to go outside [of China] to undertake a PhD. This is a great change during these years (14).

4.9.1.3 Intrinsic motives

Intrinsic motives include recognition of the importance of research, an interest in the research project as well as the wish for professional development (Guberman and Mcdossi 2019). While PETEds admitted to undertaking research as a means to achieving career promotion, a few shared alternative motives to undertake research for the greater good, ‘Why couldn’t we do some research which can promote the society? It’s finally useless if you are doing research for the purpose of a professional title’ (4). In some instances, PETEds’ motives to do research shifted from extrinsic to intrinsic, ‘At the beginning, I do research because it is a metric of professional title evaluation and I have to do research. Later, I felt it is interesting. I gradually have interests in research’ (2). Other PETEds implied that professional recognition drove their interest in doing research;

It became more and more difficult to publish papers in the field of physical education.

If the paper I wrote could be published, to some extent I was recognised and had a sense of accomplishment. This is a great motivation (1).

4.9.2 Deliberate positioning within research fields

4.9.2.1 Hot topics

Casey and Fletcher (2017) described the frustration between external and intrinsic

motivations when PETEds' research interests do not align with institute requirements and funding expectations. In terms of PETEds' research topics, McEvoy, MacPhail and Heikinaro-Johansson (2018) demonstrated that an international group of mid- and late-career PETEds' interests in specific research topics generally tended to arise through a desire to improve personal learning and practice and that they enjoyed the research process. However, we found there was an admittance from many Chinese university-based PETEds that, in order to secure academic promotion, they would choose research fields that, '*were mainly based on hot [current] topics*' (1). As a result, they were likely to gain more exposure of their research, make it easier to publish papers in Chinese journals, and heighten the probability of receiving funding.

4.9.2.2 Large projects

There was a preference for Chinese university-based PETEds to attach themselves to large provincial or national projects that carried significant weighting in terms of research achievement when being considered for an elevated professional title. Consequently, research with small groups of participants or within small, localised regions was less valued by institutes. This made it more difficult to secure funding and gain recognition, '*I wanted to apply to city level projects researching some issues of the local place, but my university would not reward and recognise it. Also, my faculty supported us to apply for bigger projects*' (5). Chinese university-based PETEds were eager to record significant research achievements in a short period of time. This resulted in positioning themselves so they were aligned to research interests and activities that tended to gain traction easier or faster. For instance, one PETEd admitted to placing minimal value on attending international conferences noting that, while such attendance could expand his horizons, it would cost a significant amount of money with no immediate valued research outcome.

4.9.2.3 Teacher education

Differing from Finnish teacher educators whose research focus was on their own field of specialisation (Maaranen et al. 2020), Chinese university-based PETEds generally chose to operate in a broad research field, *'I think I may not refuse to participate in a study which can have research achievements'* (6). Lunenberg, Dengerink, and Korthagen (2014) argued that not all studies suggest that teacher educators should be generally research active, but rather that they are research active within teacher education. A study by Smith (2005) conveyed that involvement in research is not necessarily a feature of an effective teacher educator, while there may be an expectation that teacher educators engage more with research on teacher education to inform their work (MacPhail and O'Sullivan 2019). This concern was shared by a Chinese PETEd, *'The focus of my research is not so related to my teaching . . . Though some of my research could be applied in teaching if your research is so related to teacher education, you will transfer more in teaching practice'* (1). However, research in teacher education was not a priority, or an interest, for the majority of Chinese university-based PETEds, supporting the findings of Yin et al. (2016). While there was no evidence in talking with Chinese university-based PETEds of any established research group focused on physical education teacher educator/teacher education, there was an appreciation that teacher education research was significant for teacher educators;

I think doing research on teacher education is a foundation as a teacher educator.

There are many teachers who teach physical education students, but they don't do research on teacher education. I think this is a big deficiency (14).

4.9.3 Infrastructures that support research or teaching

4.9.3.1 Research and teaching practice

Tack and Vanderlinde (2014) noted that for teacher educators to gain a deep understanding of teaching practice they have to engage in research activities. There was an appreciation from Chinese university-based PETEds that research ability, to some extent, can be considered as an important aspect of evaluating a PETEd's teaching ability, *'If your research ability is low, I think you will not be a qualified and outstanding educator. Research itself has been merged into teaching practice'* (4). Some Chinese university-based PETEds prioritised research activities that, through upskilling their teaching practices and research ability, would allow them to more effectively supervise their postgraduate students' research. The majority of Chinese university-based PETEds mentioned the link between research and teaching, believing that combining research and teaching is mutually beneficial. Chinese university-based PETEds not only prioritised research activities that could promote their career professional development but also guide their teaching practice, *'I sometimes read other people's publications, but I won't read an article full of theory. I would like to read the articles related to teaching and training. Then I sometimes use the methods in my teaching'* (13). The majority of Chinese university-based PETEds noted that they had shared their own research and other published research concerned with teaching practice to improve the education and research ability of PSTs, *'I can use research outcomes in my teaching. I mentioned some research to update students' new knowledge and improve my postgraduates' experiment design ability . . . and to undertake a PhD'* (15).

Griffiths, Thompson, and Hryniewicz (2014) reported that some teacher educators teaching in higher education experienced considerable difficulties in balancing research and teaching, recommending the necessity for institutes to recognise the specific needs of teacher

educators in order to provide sufficient and relevant institutional support. It was evident that it was proving difficult for Chinese university-based PETEds to strike a balance between teaching and participating in research activities, *‘I am under huge pressure of teaching, because I have so many classes. In addition, I need to coach aerobics. That’s why I didn’t have so much time to attend conferences, even though there are many opportunities’* (10).

4.9.3.2 Research-intensive and teaching-intensive universities

Chinese university-based PETEds’ research activity professional learning needs were influenced by the level of research support and research expectations from their respective universities. Some PETEds who were in research-intensive universities demonstrated that they were provided more time, opportunities and financial support/rewards for research activities. While both research-intensive and teaching-intensive teacher education institutes are responsible for educating PSTs, research-intensive teacher education institutes received more research funding than teaching-intensive teacher education institutions (Chetty and Lubben 2010; European Commission 2013; Tack and Vanderlinde 2019), and this was mirrored in the Chinese context. Interestingly, the research activity professional learning needs were more related to institute context in terms of research-intensive universities and teaching-intensive universities rather than ‘normal’ universities or ‘non-normal’ universities. Research-intensive universities prioritised research and provided more grants to encourage lecturers to pursue research;

Firstly, my university provides rewards to us if papers are published. Secondly, the university invited many experts to give lectures which helped us to design our research. When the time comes to apply for projects, we are encouraged to actively participate in the application and sometimes some experts came to have a look. Those are the supports (9).

In teaching-intensive universities, Chinese university-based PETEds focused on teaching and believed that research was less valued and supported than in research-intensive universities. In such instances, the lack of research infrastructure influenced PETEds' professional learning needs for involvement in research activities, *'I think I am not suitable to be a researcher, because the main work of lecturers in my university is teaching'* (7). PETEds in teaching-intensive universities felt less supported, and had less passion to engage, in research;

Our university does not emphasise research, which results in other colleagues not being so interested in doing research. After I did a study, there was not so much reward and value. So doing research became a task for most of us. We are not actively pursuing further research (6).

4.9.4 *The expectations of, and from, mentorship*

PETEds who are quality supervisors play a key role in graduate students' professional learning in becoming researchers (Stylianou, Enright, and Hogan 2017). There has, however, been limited exploration on how supervisors influence graduate students' professional learning and development in research after graduation. Strong mentorship was evident when Chinese university-based PETEds were involved in research. It was common for postgraduate students and PhD candidates to be aligned with their supervisors' projects by becoming a member of the research team. This resulted in receiving high levels of support and positively influencing team members to move forward as a group. Such a supportive mentorship tended to continue when the postgraduate students completed their studies and became higher education-based PETEds. With respect to the need to engage in research activities, research supervisors strove to maintain a role-model function in promoting PETEds' active participation in research, *'I think my supervisor plays a significant role. His attitude [to do*

research] *is rigorous and he leads and promotes me to do some research*' (2). A few Chinese university-based PETEds felt isolated in their current working context and wished they were still in contact with their previous research group that included the supervisor and postgraduate students, *'There is no research group here. I do research on my own. So, I stayed in touch with my group in the university where I graduated. They helped me to deal with data analysis'* (11).

Chinese university-based PETEds who had the responsibility to supervise postgraduate students conveyed a heightened need to upskill in research skills to allow them to effectively guide their postgraduate students' research and, in turn, improve their own research profile;

I have done a lot of work to cultivate postgraduate students. Now I have seven postgraduates. So, I should have higher research capabilities. I have the need to do research. Doing research is a big part of my work in university (15).

4.9.5 The strengths and weaknesses of collaborative research

4.9.5.1 Strengths of collaborative research

Working with graduate students, other research team members and national and international networks can result in addressing PETEds' skill gaps, sharing the research workload and reducing time pressures (McEvoy, Heikinaro-Johansson, and MacPhail 2019). Without colleagues with whom to conduct collaborative research, PETEds can feel isolated (Tannehill 2016). Rather than developing research knowledge and skills in an isolated context (Tanner and Davies 2009), collaborative learning from colleagues as well as collaborative projects receive support as a means of developing teacher educators' confidence in research and, in turn, their research capacity (Tanner and Davies 2009; Griffiths, Thompson, and Hryniewicz

2014). Some Chinese university-based PETEds acknowledged the extent to which collaborative research, and the associated communication, addressed professional learning needs related to applying for projects and writing books, *'I like to apply [to be part of] a project. When doing a research project, I am doing it with a group of people, not like writing a paper by yourself'* (10), and *'Working with more outstanding people to improve myself'* (15).

4.9.5.2 Lack of collaboration

Huang (2019) noted a lack of collaborative research in Chinese PETE. In the study reported here, Chinese university-based PETEds' research collaboration was more reliant on already established research groups. It was noticeable that there was a lack of collaborative research opportunities outside of internal research groups and faculty, reflected by two Chinese university-based PETEds, *'Currently between universities, we are doing our own research, few collaborations'* (5), and *'I was thinking of collaborating with people from outside my university. But so far I haven't collaborated with people outside my faculty yet'* (10).

Aligned with the focus of internationalisation across most international higher institutes, publishing papers in English in international journals had become a recent requirement and trend across Chinese universities, proving a challenge for Chinese university-based PETEds. It has been noted before that PETEds whose first language was not English required extra effort and time to meet English-speaking publication standards (McEvoy, MacPhail, and Heikinaro-Johansson 2018). Three Chinese university-based PETEds wished to improve their English in order to cooperate with international researchers, with one commenting;

I want to publish an English paper, but I think currently my English is not good enough. I have to cooperate with international researchers who are good at the

English language. It would be perfect if she/he knows Chinese as well (8).

4.9.5.3 Barriers to collaboration

Some Chinese university-based PETEds preferred to do research, and publish papers, by themselves, *'I prefer to do some experiments about exercise promoting brain cognition which I can do by myself'* (5). The initial challenge to collaborative research was in seeking a suitable colleague to work with, *'In reality, there are very few people who are really doing research. That's why I rejected to work with others'* (1). MacPhail et al. (2014) described a successful example of how two PETE researchers, working in different institutes, overcame roadblocks (e.g. physical distance and time difference) and successfully pursued collaborative research. Different roadblocks arose in the study we report here. Professional standing was a barrier to Chinese university-based PETEds actively seeking to collaborate on research. Chinese university-based PETEds consistently shared that publications as a co-author had significantly less weighting than that of lead author or sole author. This was heightened by the usual practice of only the first author of a paper being given the opportunity to secure funding to attend conferences and deliver presentations. This resulted in Chinese university-based PETEds carefully considering who would be the first author.

It was clear that the significant reason for Chinese university-based PETEds not collaborating with colleagues (either inside or outside their university) was down to their assessment of the professional effect such involvement would have. Chinese university-based PETEds were interested in research publications which they believed would be more valuable (i.e., first author of a publication, principal investigator of a research project) as professional development. They appeared to invest less interest in supporting colleagues' research as co-authors;

I prefer to be the person who is the leader of the research project. Why? Because in China, cooperative research achievements are less valued. I may contribute a lot to

research as a co-author, but this is not so much use if I am not the first author. So, if the first author is allocated to me, I will be more interested, no matter what kind of activities they are (14).

This appeared to effect the extent to which experienced and beginning Chinese university-based PETEds worked together. Generally, after securing a ‘Professor’ title, Chinese university-based PETEds’ research activity professional learning needs reduced, resulting in beginning Chinese university-based PETEds finding opportunities to collaborate difficult;

Because I am a new teacher [PETEd], generally experienced teachers would guide me to do research. But currently some experienced teachers didn’t pay so much attention to research after they became professors. Therefore, it is hard for me to participate in research with limited research ability (10).

4.10 Conclusion

This study conveys that the majority of Chinese university-based PETEds have strong professional learning needs for involvement in research activities. Creating opportunities for teacher educators’ academic promotion is championed by the Chinese Ministry of Education (2014), and is one way to support Chinese teacher educators’ professional development individually and as part of a professional group. Given the reality of university rankings comparing universities nationally and internationally, PETEds’ academic promotion is primarily focused on research outputs. A strong connection was evident between Chinese university-based PETEds’ research activity professional learning needs and elevated position/title. Within the context of Chinese university-based PETEds’ low-income living conditions, it is evident that esteem attached to position/title and financial implications served as strong motives for Chinese university-based PETEds to prioritise specific research-related professional learning activities. While this might be true for (physical education) teacher

educators in many other countries (Livingston, McCall, and Morgado. 2009; Casey and Fletcher 2017; Guberman and McDossi 2019; MacPhail and O’Sullivan 2019), it appeared to be an especially strong consideration in this study. One could consider that such extrinsic motives for Chinese university-based PETEds to involve themselves in research activities would later transfer to intrinsic motives (e.g. personal interests and enjoyment). However, there was no evidence shared that Chinese university-based PETEds intrinsically enjoyed the process of conducting research. Some Chinese university-based PETEds were more interested in research activities that allowed research outcomes to enhance and develop their teaching practice. Interestingly, no one recognised the value of researching their own teaching practice through self-study to effectively link research with teaching and develop personal understanding and knowledge of teacher education practice (Fletcher and Casey 2014; Casey and Fletcher 2017). However, it was evident that the promotion structures ignored the importance of transformative research, i.e., research that could influence teaching practice and would, in turn, influence PSTs’ learning. We therefore recommend the need to investigate and interrogate promotional criteria which acknowledges, and rewards, a strong relationship between research outputs and effective teaching practices.

Chinese university-based PETEds faced a challenge in seeking colleagues interested in embarking on assessment of academic promotion as a joint entity. It was evident that the majority of Chinese university-based PETEds’ collaborative research is reliant on previously established research groups which provide a strong sense of community. Research groups generally involved supervisors and their postgraduate students and PhD candidates rather than a group of PETEds. It was consistently clear that Chinese university-based PETEds’ research collaboration with colleagues was determined by promotional opportunities and therefore tended to act as a barrier to their collaborative professional learning and research development. Chinese university-based PETEds were competing to be the principal

investigator of research projects given this role was rewarded in terms of promotion by their institutes. There is a need for research that explores how best to encourage and support PETEds' collaboration outside of previously established research groups.

Most studies on teacher educators' professional development emphasise that teacher educators' engagement in research is a key component in their professional development (Lunenberg, Dengerink, and Korthagen 2014). There is an expectation that teacher educators engage more with research on teacher education to inform their daily work (Cochran-Smith 2005; Loughran 2014; MacPhail and O'Sullivan 2019). However, research on teacher education was not the focus of the majority of Chinese university-based PETEds' research activity. They were more interested in 'hot' and 'big' research topics that they believed would result in a return of more support and funding opportunities. Some Chinese university-based PETEds were anxious to achieve quick research success and deliberately applied for research projects that they believed were relatively easy to achieve research outcomes from. This conveys PETEds' lack of intrinsic motivation related to enjoyment to be involved in research-related professional learning and development activities. We are concerned and worried about the value of research that PETEds conducted. While acknowledging that considerable financial support is provided by higher institutes for research activity, and that PETEds commit significant time and effort to research activities, it is evident that little is known about the impact of PETEds' research on their work practices (Lawson 1990). It is therefore imperative that future research examine who is likely to benefit most from PETEds' research outcomes (e.g. policy makers, PETEds, PSTs, school teachers) and in what way.

Some Chinese university-based PETEds were provided more professional development opportunities in recent years with sufficient funding, support and time by their respective departments to undertake a PhD abroad. Similarly, in Norway, the NAFOL national graduate school provides professional learning and development activities for PhD

candidates in teacher education, with the opportunity to attend research activities abroad in a bid to develop research expertise and improve their knowledge base in teacher education (European Commission 2013). Chinese university-based PETEds with a PhD are expected to engage in research-related professional learning and development. Sufficient time was recognised as one of the Chinese university-based PETEds' significant needs, reporting that they were under pressure to publish high quality papers and balance their teaching workload and research, an international trend noted for (physical education) teacher educators (MacPhail et al. 2019; McEvoy, Heikinaro-Johansson, and MacPhail 2019). It is therefore imperative that further exploration is undertaken to consider how best to advise institutes on ensuring (physical education) teacher educators have sufficient time for research-related PLD.

4.11 Chapter Summary

The findings in this chapter contribute to the knowledge of teacher educators' research-related PLD needs in the Chinese context, which supports and develops previous quantitative study in chapter three. Results illuminated the reasons why Chinese university-based PETEds' had a strong desire and need to be involved in research activities, and identified the challenges and barriers for them to engage in research-related PLD activities. It was evident that within the low-income living conditions, Chinese university-based PETEds' research-related professional learning needs were strongly driven by extrinsic motives of academic promotion and institute requirements. They were more interested in research topics and activities which could embark their academic promotion assessment. The principal investigator of research projects was more valued and rewarded which result in completion and act as a barrier in collaborative research when considering promotional opportunities. Research outcomes could be used in their teaching practice, however, researching their own teaching practice through self-study was not identified as an effective way to research-related PLD. Time was recognised as a factor influencing the engagement in research-related PLD.

Chapter 5 - The complexity of professional identity: Chinese university teachers teaching in physical education teacher education (PETE) programmes

This Chapter has been published in the European Journal of Teacher Education

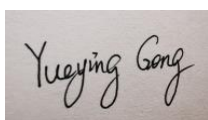
Gong, Y., Young, A.Y., and MacPhail A. 2021. “The complexity of professional identity: Chinese university teachers teaching in physical education teacher education (PETE) programmes.” *European Journal of Teacher Education*. DOI: 10.1080/02619768.2021.1972967

5.1 Preface

Exploring Chinese university-based PETEds' PLD needs, study one (chapter three) posted a question about how Chinese university-based PETEds perceive their roles via a survey which raised my interest to explore and have a deeper understanding of how they position their professional self in the Chinese teacher education context through interviews. In the previous two chapters, we used 'PETEds' referring to those university teachers who are involved in PETE programmes. This chapter explored how Chinese university teachers who were teaching in PETE programmes in universities perceive their professional identity and which specific factors influenced their professional identity as teacher educators. After the analysis of the two rounds of interviews data, we thought carefully about using "university teachers teaching in PETE programme" to describe participants rather than "PETEds". This chapter demonstrated their understanding of the term 'teacher educator' and their working context which contributed to the knowledge of teacher educators' work and professional identity. This chapter also analysed the relationship between university-based teacher educators and university teachers which was different from the study of Swennen, Jones and Volman (2010).

I, Yueying Gong, hereby declare that the work contained within the current chapter is my own. I was the primary researcher and author of this paper. My contribution includes research design, interview protocol design, data collection, data translation, data analysis, and writing of the manuscript. This research is completed with the guidance of my supervisors Dr. Ann-Marie Young and Prof. Ann MacPhail. Dr. Ann-Marie Young contributed to the interview data analysis, revision of academic writing, critical revision of the article, and final approval of the version to be published. Prof. Ann MacPhail contributed to the research design, revision of interview protocol design, and critical revision of the article.

Signature:

A rectangular box containing a handwritten signature in black ink. The signature appears to read 'Yueying Gong' in a cursive, flowing script.

5.2 Abstract

In this study, we explore how Chinese teachers, who are teaching in PETE programmes in universities, understand their professional identity and what specific factors influence their professional identity as teacher educators. Initially, a sample of 15 Chinese university teachers involved in PETE were interviewed and five follow up interviews were conducted. The results expressed that Chinese university teachers lacked an understanding of the term ‘teacher educator’. Noting the diverse responsibilities and teaching to different groups of students, the majority of the participants perceived their professional identity more as university teachers than as teacher educators. One of the most significant factors positively impacting participants’ professional identity as teacher educators was their level of interaction with pre-service teachers. There is a need for future research on the diverse work of university teachers involved in teacher education and how their multifaceted roles and responsibilities may influence professional identity as teacher educators.

Keyword: Teacher educators; university teachers; teacher education; complexity; professional identity

5.3 Introduction

Professional identity forms a key part of teacher educators' ways of understanding the world of teacher education as well as the ways in which they enact their beliefs, values, and principles through work (Czerniawski 2018, p. 9-10).

Teacher educators are crucial in supporting and facilitating the initial education of new teachers and continuing professional development of experienced teachers (European Commission 2013). Teacher educators undertake various roles and responsibilities in relation to the different types of work they engage in, for example, teaching, school placement supervision and research (Yuan and Yang 2020). Yuan (2020) suggested that identity struggle and conflicts are part of their' professional experiences when they enter teacher education in higher education, and they need to constantly experience, explain and navigate identity conflicts through reflections and practice. Research in a Chinese context found that teacher educators encounter difficulties in identifying as a teacher educator (Cui 2018; Qiu 2015; Zheng 2015). This trend is common in a number of countries, as those who teach teachers might not identify as teacher educators (European Commission 2013, p. 8). Similarly, Furlong and O'Brien (2019) found that teacher educators often described themselves as teachers, educators, researchers and facilitators. It is therefore prudent to explore how university teachers involved in teacher education understand their professional identity and what factors influence their professional identity as teacher educators, given that teacher educators need to have a strong sense of his/her own professional identity in order to enable pre-service teachers (PSTs) to have a strong understanding of self as professional (Furlong and O'Brien 2019, p. 58).

Significantly, Høydalsvik (2019) suggests that more international research on teacher educators' self-understanding of their identities is needed, acknowledging that the majority of

research on teacher educators' professional identities has originated mostly from North America, Europe and Australia (Izadinia 2014). Understanding of higher education-based teacher educators' professional identities in a Chinese context has been less studied (Yuan (2016) with related research being completed more recently. For example, research has been carried out on the roles of mathematics teacher educators (Wu, Hwang, and Cai 2017) and identities of English language teacher educators (Yuan 2019). Undertaking multiple professional teaching tasks, Chinese teacher educators are facing the challenge of distinguishing the roles of subject teachers and teacher educators. For example, mathematics teacher educators' work includes teaching pedagogical courses, teaching college mathematics courses, teaching courses on mathematical problem-solving, and supervising student teaching (Wu, Hwang, and Cai 2017). This aligns with PETEds, who undertake various responsibilities of teaching sport skills modules in PETE programmes (e.g. basketball, soccer, volleyball or archery), along with administrative and/or coaching assignments (Metzler and Freedman 1985; Woods, Philips, and Carlisle 1997). Despite a growing body of research on PETEds in the last two decades (McEvoy, MacPhail, and Heikinaro-Johansson 2015), as well as teacher educators' professional identities (Czerniawski 2018; Izadinia 2014; Murray and Male 2005; Swennen, Jones, and Volman 2010), limited attention has been given to Chinese university-based PETEds (Zhong and Huang 2020) and the complexity that surrounds Chinese university teachers teaching PSTs identifying (or not) as teacher educators. This paper explores that complexity specifically within the Chinese PETE context.

In this study, we focus on a group of teachers who are involved in PETE in universities. The purpose of this study is to explore how they understand their professional identity and what specific factors influence their professional identity as teacher educators. The research questions are: (i) how do Chinese university teachers involved in PETE position and perceive themselves within their occupational context? and (ii) what specific factors

influence Chinese university teachers' (teaching in PETE) professional identities as teacher educators?

5.4 Being a teacher educator

With increasing attention and research on teacher educators, there are many descriptions of who teacher educators are. Murray and Male (2005) interviewed 28 new teacher educators and reported the poor level of understanding of this occupational group in higher education. The European Commission (2013) defined teacher educators as 'all those who actively facilitate the (formal) learning of student teachers and teachers' (p. 8). Teacher educators are commonly defined as those who teach pre- and in-service teachers in higher education settings and those who act as mentors of teachers in schools (both pre- and in-service) and professional development providers working in government or private organisations (Berry 2016; Czerniawski 2018). White (2019) argued that the definition of the 'teacher educator' depends on which country and work context you are located in, the position and perspective you take in educating teachers, and on individuals who choose whether to identify or not as a teacher educator.

There is very limited formal preparation and guidance for teacher educators before they enter teacher education in higher education, with an acknowledgement that before entering teacher education in higher education, teacher educators may gain experience as school teachers, subject specialists or researchers (European Commission 2013). After investigating the journey of becoming a teacher educator, Mayer et al. (2011) described it as an 'accidental career' for teacher educators to undertake the work of educating teachers. That is, many teachers who ended up as teacher educators had not deliberately set out to become teacher educators. Research has reported the struggle in transforming the professional identity of teachers to that of teacher educators (Murray and Male 2005). Those teacher educators

who do not begin their careers as teachers in schools also play a significant role in preparing PSTs, although much less is known about the formation of their professional identity (Newberry 2014; Yuan 2020).

5.5 Being a Chinese teacher educator

The Chinese teacher educator context is very different from many countries, particularly considering that the majority of teacher educators in China do not have previous teaching experience (Kastner et al. 2019; Qiu 2015; Tang 2012b; Wang 2017). Many Chinese teacher educators started their career working with PSTs as ‘college teachers’ and did not experience a shift of identity from school teacher to teacher educator (Wang 2017). To improve the quality of teacher education in China, higher education-based teacher educators were encouraged to work in schools and outstanding school teachers were encouraged to teach in the higher education institutions (Chinese Ministry of Education 2018b).

To improve the quality of teacher educators, firstly we must be clear about “who are teacher educators” (Li 2008). The term ‘teacher educator’ was first time translated into ‘教师教育者’ in a Chinese study (Zhu 2001). It is acknowledged that there is a significant lack of research on Chinese teacher educators in higher education (Cui 2018; Tang 2012b; Zheng 2015). As a result, it is difficult to identify who and what teacher educators are in a Chinese context (Zheng 2015). Reviewing English and Chinese literature on the definition of teacher educators, Qiu (2015) found that Western and Chinese researchers define teacher educators differently due to the different contexts in which they work. Ma and Hu (2018) also found that Chinese teacher educators are different from those in the western context. Tang (2012b) defined university-based teacher educators as all university teachers who are involved in educating PSTs. Li (2008) argued that teacher educators are those who dedicate all their effort to teacher education by researching and teaching, and regard developing the quality of

teacher education as their only professional task. Tang (2012b) goes on to suggest that Chinese teacher educators demonstrated uncertainty of who teacher educators are due to the lack of clarity surrounding teacher educators' professional identity in the Chinese context. Reviewing international definitions of teacher educators, and considering the Chinese context, it has been proposed that teacher educators are those professional teachers in teacher education who educate teachers in the pre-service, induction and in-service phases (Zheng 2015, p. 19). Chinese traditional 'normal' universities¹ and colleges used to be the only institutions responsible for educating future teachers. From an institutional perspective, Li (2008) suggested that teachers who taught PSTs in the traditional 'normal' universities could be called 'teacher educators'. It is interesting to note that, since 1999, 'non-normal' universities have also been encouraged to provide teacher education programmes (Chinese State Council 1999). In the study we present here, we focus on teacher educators within the subject area of physical education working in 'normal' and 'non-normal' universities.

The Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform (2018) stated that it is essential to establish a group (community) of teacher educators in higher education to promote their sense of belonging. Significantly, Chinese teacher educators need a community to construct and develop their identity, however, they are at the stage of 'fighting alone' (for example, reading a book and reflection) and did not have a sense to build a community or professional learning community (Ma and Hu 2018, p. 94). In this context, Ma and Hu (2018) argued that it was difficult for Chinese teacher educators to develop their professional identity. Zhu and Zhao

¹ In China, normal universities mean 'teacher-training universities' which referred to the type of higher education institutions that were primarily responsible for and had a strong emphasis on preparing future teachers in the early twentieth century. The name 'normal university' was preserved by institutions after they were integrated and offered non-teacher education courses, for example, Beijing Normal University. Non-normal universities are higher education institutions which refer to other types of universities which grant academic degrees in a variety of disciplines and have a less emphasis on teacher education.

(2018) acknowledged that establishing a Chinese teacher educators' community is a component of strengthening teacher education programmes in universities and it has proved difficult to organise such a community given that teacher educators who teach pedagogical knowledge, subject knowledge and general education curriculums do not appear to interact. It has been reported that Chinese subject specialists in teacher education did not regard the work of educating future teachers as their professional task, believing they were solely delivering the content of their respective subject areas (Li 2008). Zheng (2015) argued that while Chinese subject specialists who are involved in teacher education should identify as teacher educators, minimal attention is paid to the connection between subject knowledge and teacher education. Consequently, such individuals do not regard preparing future teachers as their responsibility.

5.6 Being a Chinese physical education teacher educator

In China, teacher educators generally work in departments/faculties specific to the subject they are qualified in (Ping et al. 2021), whereas in many Western countries it's more common for teacher educators to work in one teacher education faculty in higher education. The reason for this is that Chinese teacher education programmes are structured in separate departments for preparing teachers in each subject area (Ding 2016). For example, Chinese university-based PETEds (except those who teach general modules) involved in PETE, are based in Departments of Physical Education and Sports to prepare future physical education teachers rather than working in the same faculty with English teacher educators or maths teacher educators.

The Chinese PETE curriculum is usually divided into general modules (e.g. outline of Chinese modern history, university English, basic computing), sport skills modules (e.g. volleyball, tennis, soccer), theoretical modules (e.g. sports biomechanics, sport psychology,

school physical education), research modules (e.g. research methods) and teaching practice (e.g. observation, school placement). Chinese university teachers who enter PETE and teach these modules are not required to have previous teaching experience in schools or have a physical education or PETE background. For example, students who majored in sport training could enter PETE to teach sport skills modules or theoretical modules. Currently, more universities expect candidates to have a doctoral degree before they are employed.

It is important to acknowledge the difference between identifying as a university physical education teacher and PETEd in Chinese universities. Physical education is a compulsory course in Chinese universities. Different from many other countries, all Chinese university first and second-year students are required to attend physical education classes, therefore, there are university physical education teachers in all Chinese universities. In mainland China there are 1265 universities (Chinese Ministry of Education 2019), and 317 of them offer PETE programmes (Huang et al. 2016). There are 65,613 full-time physical education lecturers/teachers across Chinese higher education institutions (Chinese Ministry of Education 2018a), a sub-sample of whom included PETEds, those who are involved in PETE programmes and/or support in-service physical education teachers' continuous professional development. Physical education teachers in Chinese universities can be involved in the following areas: (i) teach physical education to first and second-year general university students, (ii) coach university sports teams depending on their specialty and organise sports competition in their respective universities, (iii) teach students with sport related majors (such as, physical education, sports training, social sports), (iv) engage in research depending on the requirements of their respective departments/faculty, (v) those with a Masters/PhD degree supervise postgraduate students, (vi) provide professional development activities to in-service school physical education teachers, (vii) involvement in administration. Chinese university physical education teachers can be involved in aspects of the areas listed above depending on

their specialty as well as the requirements of their respective departments/universities. To distinguish PETEds from university physical education teachers, we highlight that university PETEds are those who have responsibility for educating students majoring in physical education and/or provide continuous professional development activities for in-service school physical education teachers. However, PETEds may also have other workloads as a university physical education teacher, which are described above. There is more research focusing on university physical education teachers than PETEds and in the research area of physical education and PETE in China, the term ‘teacher educators’ was rarely mentioned (Zhong and Huang 2020).

5.7 Teacher educators’ professional identity

It takes time and effort for teacher educators to develop their professional identity (Murray and Male 2005). Professional identity was defined by Davey (2013) as the ‘valued professional self’, it may be continually (in)formed and (re)shaped by interacting with others and in response to contexts which we act and work (p. 162-163). Dinkelman (2011) described that teacher educators’ professional identity is multiple, fluid, complex and intricate. Teacher educators’ professional identities can shape and reshape their actual teaching practice and social interactions, as well as influence PSTs’ and teachers’ professional learning and identity construction (Yuan 2019). Through a deep insight of teacher educators’ diverse experience across different social and pedagogical cultures, Williams and Hayler (2016) describes becoming a teacher educator as ‘an on-going process of constructing and re-constructing a new professional identity’ (p. 199).

Swennen, Jones, and Volman (2010) report four sub-identities of teacher educators: ‘school teacher’, ‘teacher in higher education’ (university teacher), ‘teacher of teachers’ and ‘researchers’. Their study also found support for a more generic view of teacher educators as

‘teachers’ given the sense of belonging to the larger community of teachers (regardless of subject or level). Teacher educators from different national contexts have diverse perspectives on their professional identities. For example, Høydalsvik (2019) investigates Norwegian university-based teacher educators’ self-understanding of their professional identity and found that before becoming teacher educators, many of them still held an identity rooted in the subject discipline they were primarily educated for. Exploring Chinese teacher educators’ professional identity, Wang (2017) reports that the majority of Chinese teacher educators viewed themselves as a specific type of (college) teacher and not necessarily as a teacher educator. This result is similar to a recent study carried out by Ma and Hu (2018), who found that when 12 Chinese university-based teacher educators were asked how they perceived their identity in the current work, almost all of them prioritised their most basic/fundamental identity as a university teacher and very few Chinese teacher educators in their study used the term ‘teacher educator’. The participants favoured university lecturers rather than teacher educators, irrespective if they are from normal universities, research intensive universities, or teaching intensive universities (Ma and Hu 2018, p. 97). While this is maybe common for other countries, as the European Commission (2013) reported, ‘many of those who teach teachers might not consider themselves to be teacher educators at all’ (p. 8).

5.8 Methodology

5.8.1 Participant selection

A sample of 15 participants were sourced from 60 Chinese university teachers involved in PETE who completed a survey researching the professional learning and development needs of Chinese university-based PETEds (Gong, MacPhail and Guberman 2021). We refer to the participants as university teachers who are the educators/lecturers in Chinese universities.

Convenience sampling, i.e., participants who are easily accessible and willing to participate (Teddle and Yu 2007), was used in the process of selection. Each of the 15 participants had previously noted their interest in being interviewed for the study and had included their contact information in the previously administered related survey.

Purposive sampling was also used in the selection of participants and involved selecting certain cases “based on a specific purpose rather than randomly selecting” (Tashakkori and Teddle 2003, p. 713). Purposive sampling was informed by the demographic data previously captured through the related survey (Gong, MacPhail and Guberman, 2021). As the intention of this study is to explore the factors influencing professional identity of teachers who are involved in PETE in higher education, there was a wish to ensure a geographical spread of participants from a variety of contexts to investigate unknown factors. Gender was not considered as one of the criteria. When selecting the five participants for follow up interviews the authors purposively choose the participants who met the following criteria: (i) Those who conveyed a genuine interest in teacher educators’ professional identity research, (ii) Those who demonstrated an understanding of being a teacher educator, and (iii) Those who more closely aligned with their professional identity as a teacher educator.

5.8.2 Participants

Ethics committee approval for this study was granted by the Research Ethics Committee. To protect the anonymity of the participants, all identifiable information was removed, and a pseudonym was provided for each participant. To clearly distinguish the data between first and second interview, the number ‘1’ or ‘2’ were added after abbreviations (e.g. Wei-1 or Wei-2). Among the 15 participants (12 male, three female), six had a PhD degree, and nine held a Master’s degree. The universities they worked in were located across eight provinces

in China and all were involved in teaching physical education PSTs. The range of experience working in a university ranged from one to 17 years and four of the 15 participants had previous teaching experience in schools. The participants engaged with a wide variety of student cohorts including PSTs, general university students (GUS), sport training students (STS), social sport students (SSS) and in-service teachers (IST). GUS, STS, SSS were not trained/educated to become physical education teachers. For example, GUS are from different departments (e.g. history department, school of medicine) and they engage in general physical education classes in first and second year. The participants' demographics are presented in table 5.1.

Table 5. 1 Demographics for the sample of teachers involved in PETE across eight provinces.

Pseudonym	Gender	Degree	Teaching experience in schools	Experience working in higher education	Students and IST
Wei	Male	PhD	No	2	PSTs, STS
Zhe	Male	Master	4 months	17	PSTs, GUS, STS
Tao	Male	Master	No	13	PSTs, GUS
Xin	Male	Master	No	2	PSTs, GUS
Peng	Male	PhD	1 year	12	PSTs, GUS
Yan	Female	Master	No	4	PSTs, GUS, SSS
Feng	Male	PhD	No	2	PSTs, IST
Ming	Male	PhD	10 years	12	PSTs, GUS, STS, IST
Chao	Male	PhD	1 year	8	PSTs, GUS, SSS
Na	Female	Master	No	1	PSTs, GUS
Rong	Male	Master	No	3	PSTs, GUS
Bo	Male	Master	No	8	PSTs, GUS, STS, SSS
Xin	Male	Master	No	15	PSTs, SSS
Rui	Male	PhD	No	4	PSTs, SSS, IST
Xuan	Female	Master	No	15	PSTs, GUS, SSS, IST

5.8.3 Interviews

The first interview protocol was initially constructed in English and then translated into Chinese for ease of data collection. The protocol included four sections: i) Participants' path into teacher education, ii) Participants' identification of their role, iii) What individual activities influence participants' professional identity, and iv) What community-support activities (e.g. engaging in learning communities, communal activities) influence participants' professional identity. The 15 individual semi-structured interviews were conducted in Chinese in China. Nine of the interviews were carried out face to face at a location convenient to the participant (in offices located in their universities). For the remaining six participants, interviews took place via a phone call. The interviews lasted between 30 and 70 minutes and were recorded with each participant's permission.

The first round of interviews identified that there was a significant lack of understanding of the term 'teacher educator'. As such, five follow up interviews were conducted to extend our understanding of the complexity of identifying as a teacher educator in a Chinese context. All interviews were carried out face to face, lasted between 37 and 86 minutes and were recorded with each participant's permission.

5.8.4 Data analysis

The interviews were transcribed in Chinese and translated into English. A grounded theory method (Strauss and Corbin 1998) was employed to analyse the data to explore potential factors. In the process of analysis, three phases of coding were utilised to interpret the interviews (Strauss and Rubin, 1998). The first phase, open coding, which is the analytic process through concepts, involved coding the data line by line. In doing so the data was broken down into discrete parts, for example: 'teaching tasks', 'carrying out research', 'supervising Master's thesis', 'coaching sport teams', 'service', 'teaching general university

students', 'teaching sport related major students'. The next phase, axial coding, consisted of reconstructing data "by making connections between a category and its subcategories" (Strauss and Corbin 1990, p. 97). During axial coding, the codes were combined into broader categories, for example: 'diverse working tasks and student population'. The final phase was selective coding whereby the core categories were condensed into three themes that capture the main factors influencing participants' professional identity: 'understanding of teacher educators' professional identity', 'working context', and 'interaction with PSTs'. Each phase involved the three authors clarifying and agreeing categories at regular meetings throughout the analysis phase. An example of the three phases of data analysis is represented in Table 5.2.

Table 5. 2. Data analysis example

Open codes	Axial codes	Selective code
Expectation to be involved in PETE Department decision	Involvement in PETE	Working context
Teaching tasks Carrying out research Supervising Master's thesis Service Coaching sports teams Teaching general university students Teaching PSTs Teaching sport related major students Professional identity as a university teacher	Diverse working tasks and student population	
Teacher educators' responsibilities Teaching pedagogical modules Teaching sport skill modules Preparing teachers Revise PETE programmes Teacher education professional accreditation Providing continuing education to in-service teachers	Work related to pre-service and in-service teacher education	

5.8.5 Trustworthiness of the data

Researchers must ensure research findings reflect participants' voice (Lincoln and Guba 1985), conscious that information the participants provide, and the explanations of the data should not be created by the researchers (Polit and Beck 2012). One of the procedures for enhancing trustworthiness is to include member checking, a process to confirm credibility of the information (Creswell and Miller 2000). Participants in this study received a copy of his/her transcription and they were encouraged to clarify and verify the accuracy of their interview transcript with an opportunity to delete any wording they did not wish the authors to use in reporting study findings. All the authors were available for debriefing and attended face to face and online meetings to be involved in the discussion of emerging codes.

5.9 Results

Results from the 20 interviews (15 first interviews and five follow-up interviews) conveyed a number of main factors influencing professional identity. The three most compelling factors are presented below: i) Understanding of teacher educators' professional identity, ii) Working context, and iii) Interaction with PSTs. Participants often use 'teacher' in the conversation which is due to the fact that educators from different settings (e.g. kindergarten, school and university) are all known as "teacher" in China. It is not referred to as 'teacher' in English which is generally used to describe educators in a school setting. In this paper, 'teacher' in the quotes below refers to 'university teacher'.

5.9.1 Understanding of teacher educators' professional identity

Participants stated that they became involved in PETE to teach physical education PSTs, although many found it difficult to identify as a teacher educator since they did not have a

clear understanding of the term teacher educator and who are teacher educators. This, in turn, appears to impede their ability to establish their professional identity as a teacher educator. It is evident that the term teacher educator remains relatively new for two participants, as Feng explained:

Currently, there is very limited research on physical education teacher educators in China and the research on them has not gained so much attention (...). So many people are unclear of the concept of teacher educator identity. I just knew it because of the last interview by reading some literature and communicating with you [the interviewer] (Feng-2).

With limited understanding of the term teacher educator, nine out of 15 participants questioned what it meant to be a teacher educator or what the concept of a teacher educator was: *'Firstly what's the concept of teacher educator? Are those the teachers of student teachers? The concept of teacher educator is relatively new in China...Do the teachers who provide national training to in-service teachers belong to teacher educators?'* (Feng-1), and *'Are they the teachers who are involved in teachers' training?'* (Xuan-1). During the interviews, two out of the nine participants confused university teachers' professional identity with teacher educators' professional identity, admitting *'I didn't understand the difference between teacher and teacher educator'* (Zhe-1). Six participants, who had a clearer understanding of who teacher educators are, found it easier to identify and recognise themselves as teacher educators, *'Yeah, I think I belong to teacher educators...In my opinion, teacher educators are teachers who educate teachers in the phases of pre-service, induction and in-service. Their work is very diverse'* (Rui-1).

5.9.2 Working Context

5.9.2.1 Involvement in PETE

When asked what factors prompted participants to enter PETE, it became apparent that becoming a teacher educator was not their priority. Participants were not employed from school settings. They did not purposefully look for a position which focused on teaching physical education PSTs before entering PETE in university. Their focus was on the perceived quality of the university as opposed to who they would be teaching. Once they were employed, it was at the respective department's discretion to determine what they were assigned to teach, with the participants having no control over which group of students or modules they were to be allocated. Therefore, participants' involvement in PETE was accidental. Subsequently, the focus of their expectations upon entering universities had a direct impact on the ability to define and identify as a teacher educator:

I did not have a purpose to teach students of specific majors after I graduated...I definitely expected to be a physical education teacher in higher education before induction, however, I did not have to be a physical education teacher educator (Ming-2).

5.9.2.2 Diverse working tasks and student population

The participants' day to day work was diverse and could include teaching, coaching, research and service. In terms of teaching, only one participant was solely teaching PSTs as physical education was the only major subject area in his department. The rest of the participants were undertaking various teaching commitments with a broad range of students. For example, apart from physical education PSTs, 11 participants also taught first and/or second year GUS (see table 5.1). Nine out of 15 also taught other sport related major students (e.g. social sports, sports training). Participants' work was made more complex given that students from

different sport related majors could be *'in the same class'* (Na-1). In addition, nine participants coached a university sports team (e.g. football team, badminton team), and 13 were involved in carrying out research and/or supervising Master's students. These activities were described as *'all the work belonging to teachers (in universities)'* (Rong-2). Resulting from the fact that responsibilities and work tasks related to PETE was only part of participants' formal work responsibilities, the role of teacher educator was described as *'a part of (university) teachers' diverse roles'* (Peng-2). In response to the complex context which participants work in, their professional identities seem shaped and reshaped by interacting with different types of students or in-service teachers. This is reinforced in the following comment, *'being a teacher educator is temporary when I have the work (belong to a teacher educator), but not for a long term... For the long term, I am a teacher'* (Xin-1). None of the participants had the opportunity to devote all their teaching time to PSTs and focus on their role as a teacher educator. It was noted, however, by Chao that he wanted his time to be involved in teaching PSTs, *'In the future, if possible, I wish I only focused on teaching two modules specific to PSTs'* (Chao-2). Opportunities to develop experience in PETE related courses was hindered by the fact that programme leaders did not recognise the participants as teacher educators in their respective departments and subsequently did not encourage them to concentrate on developing their teaching and daily work with PSTs.

The diverse work tasks negatively influenced participants' ability to identify as a teacher educator and made it difficult for participants to clearly identify who teacher educators are in their workplace which created a barrier to establishing a community of teacher educators at a local and national level. Rong, for example, did not have much interaction with PSTs and questioned whether he could identify as a teacher educator or not, *'Am I a teacher educator if I only teach one module to physical education PSTs once a week? Actually, I think I am a teacher...Very few factors influence the sense of my professional*

identity as a teacher educator' (Rong-1). Chao and Rui, who were teaching different cohort of students, explained a common situation in their respective faculties:

We did not distinguish clearly between teacher educators and teachers (in my department). For example, there is no-one who only teaches physical education PSTs. The majority of the teachers are the same as me, we teach general university students, social sport students, sport performance students. There are five [subject] majors in my department, so every teacher teaches students from different majors (Chao-2).

Most of the teachers in the three departments have varied teaching [responsibilities]. Physical education students, social sport students and sport training students can choose one module together and have class together. Therefore, these teachers' professional identity as teacher educators are unclear. Especially if they don't do research on teacher education, they are more unclear (Rui-1).

5.9.2.3 Work related to pre-service and in-service teacher education

In terms of PST education, it is noticeable that the participants who taught modules on the PETE programmes were influenced to consider their professional identity as teacher educators. Those participants who were teaching pedagogical modules undertook greater responsibilities in preparing future teachers, than those teaching sport skill modules, and could make greater connections to their professional identity as teacher educators. Pedagogical modules (e.g. school physical education, sport pedagogy) are more focused on the theory on how to teach as opposed to sport skill modules being more focused on skill development. For example, Xin taught a badminton module and he described that his responsibility was to *'Mainly deliver sport skills and tactics'* (Xin-1), and *'Regarding to pedagogy, it is mainly delivered by theoretical modules [sport pedagogy]'* (Feng-2). In relation to the pedagogical modules, it was clear that there was a focussed education element in their teaching rather than solely teaching sports skills in isolation, *'Because I'm teaching*

theory modules [sport pedagogy], I'm more about teaching them [PSTs] how to teach when faced with students in primary and secondary schools' (Yan-1).

To improve the quality and efficiency of pre-service PETE programmes and meet the standards of teacher education professional accreditation, three participants collaborated with colleagues in the same university in the revision of their respective PETE programmes. This process had a significant impact on their professional identity as teacher educators, *'Because the physical education major is to prepare physical education teachers, when we were working together to make the physical education teacher education training plan better, I understood my professional identity profoundly. It's obvious' (Ming-2).*

In relation to in-service teacher education, three participants were involved in providing professional learning and development activities for in-service physical education teachers which was another factor which positively influenced participants' professional identity as teacher educators. For example, Xuan who had taught in-service teachers considered herself a teacher of teachers, *'Every summer and winter, there are some courses for in-service teachers who take a part-time Master's programme. They are already teachers. During that time, I felt I am a teacher educator' (Xuan-1).*

5.9.3 Interaction with PSTs

Interacting with PSTs had the most impact on participants' professional identity as teacher educators. When asked what or who they believed influenced their sense of professional identity as a teacher educator, 14 participants noted the significant impact of interacting with PSTs. Four participants highlighted the interaction particularly when guiding PSTs' teaching on school placement. Five participants identified as a teacher educator during the process of teaching PSTs, and nine participants noted the impact of PSTs' future career when they

secured a job as a teacher in schools following graduation which prompted them to reflect on and recognise the role they played in teacher education, *'I am clear of my position (as a teacher educator)'* (Zhe-1). An example of the impact of PSTs' learning was detailed by Rui: *'Actually, some undergraduates who came here did not know anything in relation to teaching. I teach them and could see their knowledge, teaching ability and research ability improve. Therefore, I could more and more identify myself as a teacher educator'* (Rui-1).

It was apparent in talking with the participants that due to PSTs not undertaking school placement until their third or final year of the programme, many students do not appreciate the pedagogy aspect of the programme or find it difficult to envision themselves teaching physical education. The participants' role in guiding PSTs' school placement significantly influenced participants' professional identity, *'Of course it was the time when I guide PSTs' school placement that my identity [as a teacher educator] became more obvious'* (Ming-1). Subsequently, this had an impact on four participants and their lack of developing a teacher educator identity at early stage of educating PSTs, as Wei explained:

I think when the students maybe in grade two or three, they only had superficial understanding of teaching physical education especially before school placement. They don't have so many concepts... They may not understand or pay attention to it even though I taught them. However, after two or three years' study, until they finished their school placement...and successfully found a job as a teacher, I felt the feeling of teacher educator (Wei-1).

When reflecting on their professional identity as a teacher educator, six participants valued their relationships with PSTs and the ongoing interaction following graduation, *'The graduate students I taught are always keeping in touch...I felt great...I wish they can be a wise teacher who can have a good relationship with people around them in life'* (Yan-1). Participants were invested in their PSTs' future career, acknowledging that it is very

competitive to secure a teaching job following graduation in China. Chao shared that, in his department, only around 50-60% of PSTs became teachers in primary or secondary schools after graduation. Some participants stated that they found it difficult to see themselves as teacher educators to PSTs at the start of their involvement in PETE programmes since PSTs may not choose a career in teaching. A significant turning point in this positioning was when PSTs secured a teaching post, for example, one participant explained that, *'Firstly, when my students became teachers in schools and communicate with me, then I realised that the students I educated were going to be teachers. The feeling (of being a teacher educator) is more intuitive and direct'* (Chao-1). This is also reflected in the following comment:

The students I taught graduated and became physical education teachers. After they became teachers...During some festivals, they came back to visit me. They shared with me their teaching experience and told me the bits and pieces of what happened with their students. Someday I realized that my previous students became teachers, and I found I am a teacher educator (Xuan-1).

5.10 Discussion

The following sections discuss how Chinese university teachers, involved in PETE, understand their identity as teacher educators and what factors influence the complexity of identifying as a teacher educator.

5.10.1 Understanding the terms 'teacher educator' and 'university teacher'

In this study, not all Chinese university teachers involved in PETE identified as a teacher educator. Their personal understanding of the term 'teacher educator', and the difference between 'university teacher' and 'teacher educator', as well as the uncertainty of who is a teacher educator in their local working context, resulted in the difficulty of identifying as a teacher educator. The lack of understanding of the term teacher educator, as a key factor in

determining a strong professional identity, is reinforced by Senese (2016), who stated that it is hard to identify with the term teacher educator until you understand it, and Høydalsvik (2019) who reported that teacher educators' emerging professional identity appears to be influenced by personal perceptions. Similar to Ma and Hu's (2018) finding, even though Chinese teacher educators are involved in the work of teacher education, they rarely use the term 'teacher educator' to describe themselves and they perceive their most fundamental identity as a 'university teacher'. In a Chinese context, those working in PETE often referred to themselves as a 'university teacher' or 'generic teacher' (due to the fact that in China, educators from different settings are called teachers) rather than teacher educators. This aligns with the findings of Swennen, Jones, and Volman (2010) who reported that some teacher educators referred to themselves as teachers (in a generic sense) as they positioned themselves as members of a larger community of teachers.

Teacher educators' evolving beliefs and understanding about who 'counts' as a teacher educator are the fundamental aspects of teacher educators' professional identity (Davey 2013, p. 70). According to international literature, the broad definition of 'teacher educators' are those teachers who are involved in teacher education and facilitate the formal learning of PSTs (Berry 2016; European Commission 2013). However, the way in which teachers in the study positioned their own professional identity challenged such definitions. The findings are more in line with White (2019), who shared the definition of 'teacher educator' as being dependent on which country and work context you are located in, the position and perspective you take in educating teachers, and on individuals who choose whether to identify (or not) as a teacher educator. Instead of trying to convince the Chinese participants involved in this study to identify as already constructed definitions of teacher educator, it is important to know how they understand their own professional identity, or not, as teacher educators.

5.10.2 Diverse work responsibilities inside and outside of teacher education

The formation of professional identity is an answer to the question “Who am I at this moment” as well as “Who do I want to become?” (Beijaard, Meijer, and Verloop 2004). Interestingly, Chinese teachers on entry into PETE in higher education did not have strong intentions or expectations to be teacher educators. This is consistent with what has been found in a previous study which revealed that taking on the work of a teacher educator has been described as ‘an accidental career’ (Mayer et al. 2011) along with an element of ‘randomness’ (Høydalsvik 2019). Importantly, research states that it takes time to identify as a teacher educator when working with PSTs and the construction and reconstruction of a teacher educator identity is an on-going process (Williams and Hayler 2016). University teachers involved in PETE identified as a teacher educator when interacting with PSTs and identified as a university teacher in other working contexts.

It is important for teacher educators to develop an awareness of and analyse their various professional identities in relation to their work contexts (Yuan 2020). Given diverse responsibilities and the teaching of different groups of students, participants perceived teacher educators as a sub-identity of teachers in higher education (university teacher) which is opposite to the results reported by Swennen, Jones, and Volman (2010) that teachers in higher education is the sub-identity of teacher educators. This may be due to university teachers considering their common goal as educating students in general, not solely PSTs. Teacher educators can experience confusion regarding their professional identity due to the complex, diverse and essential work in their professional life (Mannes 2020). In the Chinese context, university teachers involved in PETE found it difficult to prioritise their work related to (physical education) teacher education as the majority were teaching a broader range of students (e.g. Physical education PSTs, general university students, sport science students). This impacted their ability and caused more confusion for them to identify as a teacher

educator. It can be argued that the diverse work undertaken outside of teacher education by Chinese university teachers involved in PETE courses led them to be uncertain about their professional identity as a teacher educator and added confusion about what constitutes a teacher educator in their working context. This finding supports a recent study by Guberman et al. (2020), where they reported that teacher educators' various teaching responsibilities across multiple and various areas (i.e., including subject pedagogy, general pedagogy, disciplinary, research) can lead to an 'identity crisis'. It was clear from the study reported here that Chinese PETE programme leaders and respective department heads made decisions as to who teaches what and when, with no prioritisation given to university teachers involved in teacher education to focus their teaching on PETE related modules and to form a community of teacher educator colleagues. This is considered a crucial factor influencing the construction of teacher educators' professional identity. Our findings support the study of Ma and Hu (2018), where Chinese teacher educators did not find a community for teacher educators. This situation made it difficult to construct and develop their professional identity. It is necessary for institutions and programme leaders to appreciate the profession of (physical education) teacher educators, create a community for teacher educators and support the development of their professional identities. As it is evident that programme leaders and instructors in institutions have built a discourse of 'Who are we? What are we in the process of becoming?' (Høydalsvik 2019). We strongly encourage institutions and programme leaders to understand and identify who are teacher educators within the department and allow provision for teacher educators to focus on their work related to teacher education.

Within PETE programmes, the findings clearly conveyed that teaching pedagogical modules to physical education PSTs was identified as a positive factor influencing participants' professional identity as teacher educators. Teachers who taught pedagogical modules took more responsibility (as teacher educators) to teach PSTs how to teach, while

sport skills teachers were more focused on delivering skill development and had less sense of their professional identity as teacher educators. This supports a study conducted by Li (2008) who reported that Chinese subject specialists in teacher education did not regard the work of educating future teachers as their professional task, preferring to be held responsible for delivering content in their specific subject areas. We argue that university teachers involved in PETE did not work as a collaborative professional group to share the responsibility to educate future teachers, evidenced by those who taught pedagogical modules and those who taught sport skill modules operating in two separate spaces.

5.10.3 The turning points during interaction with PSTs

Becoming a teacher educator does not just happen when one is employed to teach at a university, but is rather a career-long journey which is influenced by changing circumstances and new ways of thinking (Williams and Hayler 2016). Bullock and Ritter (2011) noted “turning points” to help us understand how teacher educators’ identities emerged and developed. PSTs had a significant influence on professional identity of university teachers involved in PETE. While there are dynamics associated with the interaction between PSTs and teacher educators that are significant to understand the factors influencing teacher educators’ professional identity, little is known about how a teacher educator’s professional identity is (re)shaped and informed due to the interaction with PSTs (Izadinia 2014). Significantly, Izadinia (2014) highlights the need for further research on PST-teacher educator relationships and its impact on identity formation.

This study found that in the process of teaching, two significant turning points related to PSTs were the most significant factors promoting participants’ professional identity as teacher educators. The first turning point is PSTs’ school placement in their final years of a PETE programme. The role that Chinese university teachers undertook in positioning and

guiding PSTs on school placement as future teachers, and the nature of their engagement with PSTs, strongly reinforced their evolving understanding of, and identity as a teacher educator who had contributed to the development of the PSTs. Czerniawski (2018) define teacher educators' professional identity not only as how teacher educators position themselves but also how they position others with whom they engage professionally, e.g. PSTs.

The second turning point occurred when PSTs secured a job as a physical education teacher following graduation. PSTs securing a job in a highly competitive market and maintaining regular contact resulted in the university teachers involved in PETE programmes being proud of the role they had played and, in turn, resulted in them identifying as a teacher educator. Such on-going interaction with PSTs significantly contributed to university teachers involved in PETE programmes reflecting on, and heightening their awareness of, the role they have in PETE.

5.11 Conclusion

In this study, we presented how Chinese university teachers involved in PETE programmes understood their professional identity and expressed the complexity of identifying as a teacher educator. Chinese university teachers who were involved in PETE programmes perceived their professional identity more as university teachers than teacher educators. There appears to be a lack of understanding and appreciation of the role of the teacher educator profession in the Chinese university context. Given the limited research conducted in this area in a Chinese context, this paper looked to contribute to the literature on teacher educators' professional identity.

Czerniawski (2018) raised a question: 'Why is teacher educator identity important?' (p. 9). He answered that professional identities shape a key part of teacher educators' ways of understanding the world of teacher education and the exploration of their identity is part of a

wider commitment to promoting the improvement and understanding of teacher education in general. We would also argue that those university teachers involved in teacher education in higher education, who have little understanding of being a teacher educator and low-level sense of their professional identity as a teacher educator, have less opportunity to commit to the preparation of future teachers and improving the quality of teacher education. This also impacted on the creation of teacher educator communities at local, national and international levels. In a Chinese context, there is still no agreed definition for ‘teacher educators’ and ‘PETEds’. We found that the term teacher educator is not fully understood or recognised in the Chinese context and, subsequently, many university teachers involved in PETE position themselves as a university teacher. Understanding the term ‘teacher educator’ may not be a factor influencing teacher educators’ professional identity in other countries, especially for those have more research in this field and have established teacher educator communities. The term ‘teacher educator’ is still new for Chinese university teachers involved in PETE and time, support, and more Chinese and international research will help them understand and identify as a teacher educator. As Yuan (2020) suggested, such an identity needs to be negotiated, in particular when teacher education is only part of their job description. There is a need for future research to define teacher educators and PETEds in a Chinese context, with a related interest to explore which university teachers involved in teacher education should be considered (or encouraged to consider for themselves) as teacher educators if they perceive themselves as a university teacher.

The research on teacher educators’ professional identity must address the issue of what teacher educators do (Davey 2013, p. 68). Our study also contributes to understanding the diverse responsibilities of Chinese university teachers involved in PETE programmes which may differ to those from other countries. We call for more research on the diverse work of

university teachers involved in PETE or teacher education and how such diverse responsibilities might influence professional identity as teacher educators.

Finally, Chinese university teachers involved in PETE did not identify as teacher educators when they began educating physical education PSTs. Their professional identity as teacher educators appears to have developed over time as they became committed to improving PSTs' teaching and learning. It may therefore be prudent to explore the types of relationships between PSTs and university teachers/teacher educators' impact on the professional identity of teacher educators.

5.12 Chapter Summary

This chapter presented how Chinese university teachers teaching in PETE programmes understood their professional identity and expressed the complexity of identifying as a teacher educator. The findings from this chapter shed light on the profession of teacher educators. The professional group of teacher educators was not easily recognisable in the complex local working context. It was evident that university teachers positioned themselves more as university teachers rather than teacher educators. Teacher educators were the sub-identity of university teachers due to the complex working context. It was an ongoing process to recognise the professional identity as teacher educators. PSTs were the key people who promote university teachers who were teaching in PETE programmes to reflect their professional identity as teacher educators, especially during PSTs' school placement and ongoing interaction with PSTs after they secured a teaching job in schools.

Chapter 6 - Discussion and Conclusion

6.1 Introduction

The aim of this research is to gain a deeper understanding of what PLD activities Chinese university-based PETEds need and how they perceive their professional identity. This final chapter provides key findings of the three studies in this research project, a discussion of the collective findings, conclusions and future research considerations.

6.2 Key Findings

The main findings of each study in this research project are summarised below.

Chapter three (published in the *European Journal of Teacher Education*) addressed ‘What are PLD needs of Chinese university-based PETEds, the preferred ways to address such needs, and factors that influence PETEds’ participation in PLD activities’. The key findings are:

- The majority of Chinese university-based PETEds had a strong desire to undertake further PLD in three areas: (i) subject knowledge and didactics with a particular emphasis on professional training in specific types of sports, (ii) research related academic activities, and (iii) institutional activities.
- The preferred ways to address these needs were (i) formal learning programmes, (ii) observation of exemplary practices, and (iii) international learning activities.
- The cost of the PLD activities was the most significant factor influencing Chinese university-based PETEds’ engagement in PLD followed by the level of reputation and knowledge of the specific providers.

The fourth chapter (published in *Professional Development in Education*) addressed ‘What research-related PLD activities do Chinese university-based PETEds prioritise and need, and

what are the barriers for them to engage in such research-related PLD activities?’. The main findings include:

- The majority of Chinese university-based PETEds had a strong desire to avail of research-related professional learning activities, with the majority prioritising a desire to contribute to peer-review publication.
- Chinese university-based PETEds who entered teacher education with a PhD were expected and supported to do research more than those without a PhD.
- The motives for Chinese university-based PETEds to be involved in research tended to be extrinsic to the individual and included pressures aligned to the evaluation of their academic position and institute requirements.
- Research on teacher education was not the focus of the majority of Chinese university-based PETEds’ research activity. They were more interested in ‘hot’ and ‘big’ research topics that they believed would result in a return of more support and funding opportunities.
- While it was easier for Chinese university-based PETEds to undertake collaborative research with a research group within their faculty/department, there was a lack of collaborative research external to the faculty/department as well as a lack of international collaboration. The difficulties that PETEds experienced in identifying colleagues who would support their academic trajectories (predominantly through promotional structures) led to such a lack of collaboration.

Chapter five of this dissertation (resubmitted to a peer-review journal) provided a deeper understanding of how Chinese university teachers who are involved in PETE programmes in higher education conceive their professional identity and which specific factors influence their professional identity as a teacher educator. The main results are:

- There remains a lack of certainty of the term ‘teacher educator’ as a reference to many Chinese university teachers who are involved in PETE programmes. This results in making it difficult to arrive at a consensus on who are legitimate (physical education) teacher educators in a Chinese context which, in turn, results in a challenge if one is interested in creating a community specifically for teacher educators at a local and national level.
- Noting the diverse responsibilities and teaching to different groups of students, participants perceived their professional identity more as ‘university teachers’ than as teacher educators, with ‘teacher educators’ being identified by some as a sub-identity of university teachers.
- University teachers who taught pedagogical modules took more responsibility (as teacher educators) to teach PSTs how to teach, while sport skills teachers were focused on delivering skill development and had less sense of their professional identity as teacher educators.
- Chinese university teachers who are involved in PETE programmes did not establish their professional identity as teacher educators from day one when educating physical education PSTs. Their professional identity as teacher educators appears linked to improving PSTs’ teaching abilities.

The overall discussion of these key findings is presented in the sub-themes of (i) Accessing learning and experiences through PLD, and (ii) The 'what' and 'how' of learning in PLD.

6.3 Accessing learning and experiences through PLD

6.3.1 *Teacher Educators matter*

Recognition of teacher educators' varied learning needs requires a deep understanding of the nature of the profession of teacher educators (Loughran, 2014). Chinese teacher educators have made significant contributions to the Chinese educational development and teacher education reform, and the survival of the teacher education profession and teacher educators' professional development needs deserve more attention (Hong 2016). We argue that 'teacher educators matter' in the development of education and teacher education and that the occupational group of Chinese university-based PETEds should not be 'hidden' or 'lost' in the group of university physical education teachers. Similarly, Olsen and Buchanan (2017) reported that being a teacher educator was not typically viewed as a distinct profession but as an educator, and teacher educators were described as 'hidden professionals' (Høydalsvik 2019; Livingston 2014; Tack et al. 2018). For those university teachers who are involved in teacher education, there is a need to heighten awareness of their professional self as a teacher educator and their identity as a teacher educator when considering their PLD needs. Teacher educators' understanding about who 'counts' as a teacher educator are the fundamental aspects of teacher educators' professional identity (Davey 2013, p. 70). The *Doing* lens of teacher educators' professional identity focuses on their daily 'work' of teacher education and their professional tasks involved (Davey 2013, p. 38-39). However, we found that many university teachers involved in PETE lack an awareness of their professional identity as a teacher educator due to their uncertainty about who is legitimately considered as a teacher educator and their complex work responsibilities inside and outside teacher education (chapter five). The *Becoming* lens of teacher educators' professional identity centres on the teacher educators' intention and aspirations regarding becoming teacher educators and

motivations and expectations for taking this step. The expectation to become a teacher educator was low before entering PETE programmes, with becoming a university-based PETEds in a Chinese context appearing to be an ‘accidental career’ (chapter five), as Mayer et al. (2011) described the journey of becoming a teacher educator. For PLD providers, there needs to be consideration of who is learning through the PLD activities and acknowledge the difference of context and needs between university-based teacher educators and university-based teachers/lecturers.

Those teacher educators recruited to teacher education directly from the university sector tend to view themselves as disciplinary content scholars and researchers, and not as teachers or teacher educators (Ping, Schellings, and Beijgaard 2018). Interestingly, we found that Chinese university-based PETEds did not experience many of the Western teacher educators’ challenges and stresses to transform their professional identity from school teachers to teacher educators (Amott 2017; Swennen, Volman, and Van Essen 2008; Williams, Ritter, and Bullock 2012). This was in part due to the fact that Chinese university-based PETEds were not recruited from having taught in school and that many of them did not have previous school teaching experience. They subsequently perceived themselves more as university teachers than teacher educators (chapter five), supporting the findings of Ma and Hu (2018), Qiu (2015) and Wang (2017).

The question about who is a teacher educator posed by many recent studies (Smith 2017; Livingston 2014; Izadinia 2014). It is difficult to determine, identify and define the occupational group of teacher educators in the complex and changing teacher education context (Cochran-Smith et al. 2020; Smith and Flores 2019; White 2019). This challenge was also evident in this research noting that reported many university teachers involved in PETE found it difficult to identify themselves as teacher educators and, in turn, belong to a community of teacher educators (chapter five). Most authors of the studies that Swennen,

Jones, and Volman (2010) analysed did not provide a definition for ‘teacher educator’, providing further evidence that teacher educators remain “an under-researched, poorly understood, and ill-defined occupational group” (Murray 2016, p. 35). Zhu and Zhao (2019) call for more in-depth clarity around the concept of being a teacher educator. The definition of ‘teacher educator’ was dependent on the country and work context that teacher educators were located, the position and perspective that teacher educators take, and on individuals who choose whether to identify (or not) as a teacher educator (White 2019). After three related studies in this research, we define of university-based PETEds in the Chinese context as ‘an educator whose main work responsibilities and/or research focus is on educating physical education PSTs and/or formally providing PLD for in-service physical education teachers’. This definition is not as broad or inclusive as that adopted by the European Commission (2013), which reads ‘*Teacher Educators are all those who actively facilitate the (formal) learning of student teachers and teachers*’ (p 8). The PETEds definition arising from this research and the more narrowed European concept of teacher educators may prompt those Chinese university teachers involved in PETE to distinguish their professional identities as university teachers and university-based teacher educators. The shortcoming of our definition is that it excludes those university teachers who are minimally involved in teacher education, and subsequently have little sense of, and exposure to, their professional identity as a teacher educator (chapter five).

6.3.2 *A family/community for teacher educators*

Internationally, the ‘family’ or community members of the Info-TED (<https://info-ted.eu/>), successfully work with, and for, teacher educators and their professional development, inspiring individual countries to create a specific space for teacher educators to learn from each other. The *belonging* lens of teacher educators’ professional identity focuses on the

specific communities of interest and practice that teacher educators perceive themselves being aligned (or not) to (Davey 2013, p. 39). The majority of Chinese university-based PETEds in this research did not indicate such a community that they belonged to. While they shared interests to learn in group or institutional activities, there was no specific community to support their PLD needs and develop their professional identity (chapter three and chapter five). Chinese teacher educators are isolated from other colleagues with respect to considering professional development opportunities (Ma and Hu 2018). It has been explained that Chinese teacher educators are scattered like loose sand and cannot garner a more powerful critical mass (Hong 2016), and subsequently, the suggestion is made to support a 'family' (e.g. association) for teacher educators. One's sense of self as a member of a purposeful occupational community is a necessary and significant component of one's professional identity (Davey 2013, p. 32). Chinese university-based PETEds are not part of an identifiable community where they belong, which negatively impacts their professional identity as a teacher educator and professional development opportunities. We argue that teacher educators involved in teacher education need to work and learn in a community to effectively prepare future teachers, rather than having those teachers who are teaching pedagogical modules for physical education PSTs working separately from those teaching sports skill modules (chapter five). Learning through collaborative activities with colleagues, student teachers, teachers at school or a group of teacher educators are identified as the more effective teacher educators' professional learning activities (Ping, Schellings and Beijaard's 2018). The 'family' can also create opportunities for collaborative research conducted by a group of teacher educators, rather than being reliant on doing solo research or having to reside within an existing research group that includes supervisors and postgraduate students (chapter four). There are advantages and disadvantages in the Chinese PETE supervision system. The advantages are that postgraduate students gain supportive supervision and

guidance from their supervisors which promotes a close relationship and provides postgraduate students with a career pathway to their next academic/research appointment. We found that Master's or Doctoral supervisors continued to play a role in promoting Chinese university-based PETEds to engage in research (chapter four). However, the tight control exercised through the supervision can result in postgraduate students losing autonomy, compromising their own choices and interests in research and reducing critical thinking in new research topics (Gao and Wu 2016).

Furthermore, teacher educators across different subject backgrounds can belong to this 'family' to learn together for more effective teacher education, acknowledging that this 'family' would have to consider different teacher educators' PLD needs across different subject backgrounds (chapter 3). This is highlighted in the next section.

6.4 The 'what' and 'how' of learning in PLD

Chinese university-based PETEds' PLD needs included up-skilling in three areas related to the kind of knowledge and skills they would like to update and how to best address their PLD needs (chapter one). The PLD needs of subject knowledge and didactics consisted of activities and content areas related to teaching and teacher education similar to 'Educational Interest' in the international study of Czerniawski, Guberman, and MacPhail (2017).

The Chinese university-based PETEds' PLD needs in the area of institutional activities/group activities are unique when compared to the group of teacher educators in the study of Czerniawski, Guberman, and MacPhail (2017). The absence of formalised, organised professional learning activities can be a viable opportunity for promoting teacher educators' professional learning (Berry 2021). Teacher educators usually learn through practice in ways that are often unstructured, solitary, and dependent on individual endeavour, and their professional learning is rarely organised systematically (Lunenberg, Dengerink, and

Korthagen 2014). However, we argue that it is crucial for isolated Chinese university-based PETEds to work and learn together. The evidence presented in this research clearly demonstrates that they prefer to learn through group and formal activities than individual and informal PLD activities (chapter three). This is different from many other international teacher educators who appeared to favour a more informal way of connecting with colleagues in PLD activities (MacPhail et al. 2019; Smith 2017; Tack et al. 2018; Van der Klink et al. 2017).

6.4.1 Research-related professional learning and development needs

The Chinese university-based PETEds' PLD needs of research related academic interest is closely related to Czerniawski, Guberman, and MacPhail's (2017) 'academic interest'. Internationally, university-based teacher educators have significant needs to develop their research skills and research portfolios (Czerniawski, Guberman, and MacPhail 2017; MacPhail and O'Sullivan 2019; Van der Klink et al. 2017), while at the same time feeling under pressure (due to limited time and university requirements) to conduct high-quality research (Maaranen et al. 2020; MacPhail et al. 2019; Qiu 2015; Tack and Vanderlinde 2019). With respect to the Chinese university-based PETEds research-related PLD needs, time was indicated to be a factor, more than in undertaking other PLD needs, which influenced their engagement in research-related activities (chapter four). A combination of external and internal motivations were the reasons for teacher educators to engage in research-related professional learning (Guberman and Mcdossi 2019). Given the strong external motivation of academic promotion and the associated financial implications, Chinese university-based PETEds were anxious to achieve quick research success and apply for research projects with easy to achieve research outcomes (chapter four). This contributed to their lack of intrinsic motivation related to personal interests and enjoyment in research-

related PLD activities (chapter four), which was a different result from a group of international PETEds in higher education who were motivated by their enjoyment and passion to engage in research (McEvoy, MacPhail, and Heikinaro-Johansson (2018).

While there is evidence that teacher educators conduct research individually or in small and close groups of people who know each other well (Swennen and White 2020, p. 175), a lack of collaborative research has been noted within Chinese PETE (Huang (2019). We found that Chinese university-based PETEds are reliant on already established internal research groups and preferred to work with an internal research group in their respective institutes rather than outside of their existing groups (chapter four), and not necessarily working with a group of PETEds. Learning through collaborative activities with a group of teacher educators (Ping, Schellings and Beijaard's 2018) was not a significant PLD need of Chinese university-based PETEds (chapter four). When only leaders of research projects and/or the first author of publications are valued in the evaluation of academic positions/promotion, it is not too difficult to understand the culture why some Chinese university-based PETEds do not wish to engage in collaborative research (chapter four). This lack of collaborative research is common to Chinese teacher educators, with Hong (2016) reporting that Chinese teacher educators from different subject backgrounds and academic positions rarely took the initiative to collaborate with colleagues in a similar research area. The extrinsic motivation for Chinese university-based PETEds to be involved in research activities is mainly from 'surviving' the competitive culture/environments in higher education and the low-income living context (chapter four). This is similar to the 'surviving' condition reported by Chinese university-based teacher educators from Hong Kong (Yuan 2020), who attempt to survive the process of securing a job, get promoted, and meet institutional requirements in higher education by focusing on research and publishing as many papers as possible. Such conditions have become a challenge for international university-based teacher

educators to remain research active with heavy teaching loads (Casey and Fletcher 2017; MacPhail and O’Sullivan 2019; Smith and Flores 2019), as well as for Chinese university-based PETEds.

6.4.2 Teacher education and research-related professional learning and development needs

It has been suggested that the assessment of Chinese university-based teacher educators’ performance should not only consider the quantity of research publications but also reflect the multiple characteristics of the work of teacher education (Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform. 2018). Teacher educators were encouraged to be research active within teacher education (Lunengerg, Dengerink, and Korthagen 2014) to guide their daily work. Zheng (2015) argued that if teacher educators’ research interests were not in the area of teacher education, it would limit their professional characteristics as teacher educators. Teacher educators in universities are expected to engage in research and it is imperative for them to contribute to the academic status of teacher education programmes and make teacher education more visible through teacher educators’ research (MacPhail 2020). However, teacher education research is not a focus of many Chinese university-based PETEds’ research related PLD needs (chapter four), supporting the finding that PETE as a research topic is only of interest to a very small number of Chinese university-based PETEds (Yin et al. 2016).

6.5 Conclusion

This research offers an evidence-based approach to exploring Chinese university-based PETEds’ PLD needs and professional identities. It extended our understanding of what areas

of PLD activities Chinese university-based PETEds need, how to best address such needs, and how they perceive their professional self. There are three main contributions of this research.

Firstly, while China has a significant number of teacher educators in higher education, the research on teacher educators' professional development and professional identities is weak (Cui 2018; Tang 2012b). The three studies of this research contribute to the international debates about teacher educators' PLD needs (Czerniawski et al. 2018; Czerniawski, Guberman, and MacPhail 2017; MacPhail et al. 2019) and professional identities of teacher educators (Høydalsvik 2019; Murray, Swennen, and Shagrir 2009; Swennen, Jones, and Volman 2010). A review of the literature reported that while North America, Europe, and Australia were the main contributors to the research on teacher educators' identity, not many studies were conducted in Asia (Izadinia 2014), this research made a significant contribution in the research agenda from a Chinese context.

Secondly, this research increases the visibility of Chinese university-based PETEds and encourages colleagues to continue raising the awareness of this specific group within the larger professional group of PETEds by researching with, and for, them.

Thirdly, this research can inform and inspire practitioners, policymakers, academics and other stakeholders to become involved in designing, developing and providing meaningful PLD activities for Chinese university-based PETEds, with the intention to promote their future experiences through more effective and relevant PLD activities.

6.6 Future research considerations

This research provides a significant start in exploring Chinese university-based PETEds' diverse PLD needs and professional identities. While some recommendations for future

research are included in chapters three, four and five, we present and highlight some summarised and broader themes that convey our suggestions for future research.

6.6.1 Identifying teacher educators

Murray et al. (2021) acknowledge the well-known ‘problem of definition’ (Ducharme 1993, p. 2) with respect to the term ‘teacher educator’. Research is needed from different national and international contexts to define the concept of teacher educators with the intent of capturing those who operate as, and identify as, teacher educators. Such clarity would allow teacher educators to position their professional identity and reduce the level of uncertainty surrounding their professional identity as teacher educators (chapter five). The more inclusive and broader the definition, the more likely we are to reach an internationally acceptable working definition, while not denying national and international nuances. The major challenge in this space is how best we approach those who to some extent align with the definition of a teacher educator through their practices yet do not identify with the teacher educator role.

6.6.2 The relationship between professional PLD needs and professional identity

The significance of the relationship between professional learning and identity was captured in Wenger (1998), and there is a growth in teacher educators’ interest to engage in meaningful professional development initiatives related to the professional identity of the teacher educator (Czerniawski, Guberman, and MacPhail 2017). There is also an appreciation that given the diversity of teacher educators’ roles and associated identities, their professional development needs will be varied (Murray et al. 2021). However, the nature of the ‘learning and its relationship between teacher educators’ professional identity is far from clear’ (Czerniawski 2018, p. 10). Similarly, more research is needed to explore the relationship

between teacher educators' PLD needs and their professional identities. We assumed that Chinese university-based PETEds' high level of interest in professional training in specific types of sports, and strong professional learning needs of subject knowledge enhancement is related to their multiple identities or subject background. Also, their research-related PLD needs are primarily connected with their professional identity as a university teacher rather than as a teacher educator. However, the data did not provide sufficient evidence of such relationships, and we, therefore, need more research evidence to establish the accuracy of such hypotheses, nationally and internationally.

6.6.3 Teacher educators' work responsibilities in teacher education

Due to the complex, diverse and essential work in teacher educators' professional life, confusion regarding their professional identity (Mannes 2020) and identity crisis (Guberman et al. 2020) is not uncommon. Olsen and Buchanan (2017) recommend streamlining the work of teacher educators so that they can spend more time on their professional commitment to working with PSTs. The diverse work responsibilities both inside and outside of teacher education and the low expectation to educate physical education PSTs before induction into a PETE programme negatively influenced the professional identity of some as teacher educators (chapter five). We suggest that, as is not uncommon in other international contexts, those working with pre-service teachers are supported to do so on a full-time basis and that it is acknowledged that this is a meaningful and worthwhile academic endeavour as a full-time teacher educator. Therefore, in addition to the need for future research on how diverse work responsibilities influence the professional identity of teacher educators, there is a need to explore how the focus and priorities of teacher education work responsibilities enhance the professional identity of university teachers involved in PETE programmes.

6.6.4 A community for university-based PETEds at a local institution

Having access to a community of teacher educators was identified and valued as an effective and preferred means of experiencing professional development (Czerniawski et al. 2018), and working in professional learning communities is one of the core design principles for teacher educators' PLD activities (Tack et al. 2021). However, the research reported here shared that there is no sense of community for PETEds in the Chinese university context (chapter five). Therefore, we suggest supporting a community for Chinese university-based PETEds at a local institution level (e.g. university, college, department unit), which can promote the communities for university-based PETEds and teacher educators at a national and international level in the future. It would be meaningful to explore what influences such a community, and its impact on the PLD and professional identity of the Chinese university teachers who are involved in PETE programmes.

6.6.5 Professional development and learning needs across the stages

With a reliance on studies exploring early career teacher educators' professional development needs, there is a lack of longitudinal studies across the career span, and of teacher educators' professional development needs in mid and late career (Murray et al. 2021). While it is clear that many Chinese university-based PETEds' research activity PLD needs reduced once they achieved the highest academic position (chapter four), there is insufficient data on the various research-related PLD needs and motivations in early, mid, and late academic careers.

The value and benefits of Chinese university-based PETEds' research outcomes are still under-researched (chapter four). In addition, little is known about the impact of PETEds' research on their work practices (Lawson 1990), and there is a lack of analysis on how research activity could contribute to teacher educators' practice, identities, and professional development which indicate other directions for future research (Swennen and Powell 2020).

6.6.6 Time for action

The international study of Czerniawski et al.'s (2017) concludes that much more needs to be done to support teacher educators' professional learning needs. It has been acknowledged that 'a real and international community (with special issues in journals and with conferences) has grown over the last ten years, with different stakeholders involved in the planning, design, implementation and evaluation of professional development initiatives for teacher educators' (Ruben Vanderlinde et al. 2021, p. 159). It is time for action. The urgent research agenda is to explore whom to involve in, and how best to, design and provide PLD activities for (Chinese) university-based PETEds, with an interest in identifying the challenges for those who are involved in providing and implementing PLD activities for Chinese university-based PETEds.

It is not until such recommendations are pursued that we will be in a better space to understand how best to ensure all those operating in the Chinese university PETE space are appropriately acknowledged for the work that they undertake in preparing teachers of the future.

References

- Åkerlind, G. S. 2008. "An Academic Perspective on Research and Being a Researcher: An Integration of the Literature." *Studies in Higher Education* 33 (1): 17-31.
- Allen, J., M. Park Rogers, and R. Borowski. 2016. "'I Am out of My Comfort Zone': Self-Study of the Struggle of Adapting to the Professional Identity of a Teacher Educator." *Studying Teacher Education* 12 (3):320-332.
- Amott, P. 2018. "Identification – A Process of Self-knowing Realised Within Narrative Practices for Teacher Educators During Times of Transition." *Professional Development in Education* 44 (4):476-491.
- Andriamampianina, P., and A. S. I. Moussa. 2005. "The Training of Physical-Education Teachers in France and China: A Comparative Analysis of Curricula and Attitudes." *International Review of Education* 51 (1):23-34.
- Attard, K. 2020. "Understanding the Reflective Process Through Self-study: A Teacher Educator's Journey Towards Continuous Professional Development " In *Being a Teacher Educator: Research-Informed Methods for Improving Practice* edited by A. Swennen and E. White, 27-42. London: Routledge.
- Bates, T., Swennen, A., and Jones, K. 2011. "Teacher educators - a professional development perspective". In T. Bates, A. Swennen, and K. Jones (Eds). *The Professional development of teacher educators*, 7-19. Abington/New York: Routledge.
- Beaton, M. C. 2020. "Old Learning, New Learning: Teacher Educators as Enquiring Professionals." In *Being a Teacher Educator: Research-Informed Methods for Improving Practice*, edited by A. Swennen and E. White, 86-98. London: Routledge.
- Beijaard, D., P. C. Meijer, and N. Verloop. 2004. "Reconsidering Research on Teachers' Professional Identity." *Teaching and Teacher Education* 20 (2):107-128.

- Berry, A. 2016. "Teacher Educators' Professional Learning: A Necessary Case of 'on your own'." In *Professional Learning in Education: Challenges for Teacher Educators, Teachers and Student*, edited by B. De Wever, R. Vanderlinde, M. Tuytens and A. Aelterman, 39-56. Gent [Belgium]: Academia Press.
- Berry, A. 2021. "Interlude: Teacher Educators' Professional Development in Australia." In *Teacher Educators and Their Professional Development: Learning From the Past, Looking to the Future*, edited by R. Vanderlinde, K. Smith, J. Murray and M. Lunenberg. Oxon and New York: Routledge.
- Berry, A., A. Clemans, and A. Kostogriz. 2007. *Dimensions of Professional Learning: Identities, Professionalism and Practice*, Dordrecht: Sense Publishers.
- Boyd, P., and C. Smith. 2016. "The Contemporary Academic: Orientation Towards Research Work and Researcher Identity of Higher Education Lecturers in the Health Professions." *Studies in Higher Education* 41 (4):678-695.
- Boyd, P., and K. Harris. 2010. "Becoming a University Lecturer in Teacher Education: Expert School Teachers Reconstructing Their Pedagogy and Identity." *Professional Development in Education* 36 (1-2):9-24.
- Britzman, D P. 1992. "The Terrible Problem of Kowing Thyself: Toward a Poststructural Account of Teacher Identity." *Journal of Curriculum Theorizing* 9(3):23-47.
- Bullock, S. M. 2009. "Learning to Think Like a Teacher Educator: Making the Substantive and Syntactic Structures of Teaching Explicit Through Self-study." *Teachers and Teaching: Theory and Practice* 15(2): 291-304.
- Bullock, S. M., and J. K. Ritter. 2011. "Exploring the Transition Into Academia Through Collaborative Self-study." *Studying Teacher Education* 7 (2):171-181.

- Byman, R., R. Jyrhämä, K. Stenberg, K. Maaranen, S. Sintonen, and H. Kynäslahti. 2020. "Finnish Teacher Educators' Preferences for Their Professional Development – Quantitative Exploration." *European Journal of Teacher Education* 44 (4): 432-451.
- Casey, A., and T. Fletcher. 2012. "Trading Places: From Physical Education Teachers to Teacher Educators." *Journal of Teaching in Physical Education* 31 (4):362-380.
- Casey, A., and T. Fletcher. 2017. "Paying the Piper: The Costs and Consequences of Academic Advancement." *Sport, Education and Society* 22 (1):105-121.
- Chetty, R., and F. Lubben. 2010. "The Scholarship of Research in Teacher Education in a Higher Education Institution in Transition: Issues of Identity." *Teaching and Teacher Education* 26 (4):813-820.
- Chetty, R., and F. Lubben. 2010. "The Scholarship of Research in Teacher Education in a Higher Education Institution in Transition: Issues of Identity." *Teaching and Teacher Education* 26 (4): 813-820.
- Chinese Ministry of Education, 2002. *Chinese Ministry of Education's Suggestions for the Reform and Development of Teacher Education During the Tenth Five-Year plan*. Available from: http://www.moe.gov.cn/srcsite/A10/s7058/200203/t20020301_162696.html. [Accessed 01 Mar 2002]. In Chinese.
- Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform. 2018. *Revitalisation Plan of Teacher Education (2018-2022)*. China: Chinese Ministry of Education. In Chinese.
- Chinese Ministry of Education. 1980. *Teaching plan of the physical education major in normal higher education*, China: Chinese Ministry of Education. In Chinese.

- Chinese Ministry of Education. 1999. *Notice on the issuance of the "Opinions on Strengthening the Construction of Teachers in higher education in the New Period.* China: Chinese Ministry of Education. In Chinese.
- Chinese Ministry of Education. 2002. *Chinese Ministry of Education's Suggestions for the Reform and Development of Teacher Education During the Tenth Five-Year Plan,* China, Chinese Ministry of Education. In Chinese.
- Chinese Ministry of Education. 2003. *Notice of the Ministry of Education on Printing and Distributing the "Chinese Bachelor's Physical Education Teacher Education Curriculum Program in Higher Education,* China: Chinese Ministry of Education. In Chinese.
- Chinese Ministry of Education. 2011a. *Chinese Teacher Education Curriculum Standards,* China: Chinese Ministry of Education. In Chinese.
- Chinese Ministry of Education. 2011b. *Opinions of the Ministry of Education on Vigorously Strengthening the Training of Primary and Secondary School Teachers]*. China: Chinese Ministry of Education. In Chinese.
- Chinese Ministry of Education. 2014. *Chinese Ministry of Education's Suggestions for Implementing the Excellent Teacher Cultivation Plan.* Available from: http://www.moe.gov.cn/srcsite/A10/s7011/201408/t20140819_174307.html. [Accessed 19 Aug 2014]. In Chinese.
- Chinese Ministry of Education. 2017. *Measures for the Implementation of Teacher Education Programm Accreditation in Higher Education Institutions (Interim).* China: Chinese Ministry of Education. In Chinese.
- Chinese Ministry of Education. 2018a. *Educational Statistics Yearbook of China.* Beijing: China Statistics Press. In Chinese.

- Chinese Ministry of Education. 2018b. *Suggestions for the Plan to Educate Excellent Teachers 2.0*. China: Chinese Ministry of Education. In Chinese.
- Chinese Ministry of Education. 2018c. *National Standards for Teaching Quality of PETE in Higher Education*, Beijing: Higher Education press. In Chinese.
- Chinese Ministry of Education. 2019. *Educational Statistics Yearbook of China*. Beijing: China Statistics Press. In Chinese.
- Chinese State Council, 2007. *Measures of the Implementation of Free Teacher Education for Normal Universities Which are Directly Under the Ministry of Education*. China. Available from: http://www.gov.cn/zwgk/2007-05/14/content_614039.htm [Accessed 9 May 2007]. In Chinese.
- Chinese State Council. 1999. *The Decision for Deepening Education Reform and Promoting All-round Quality Education*, China: Chinese Ministry of Education. In Chinese.
- Chinese State Council. 1999. *The Decision for Deepening Education Reform and Promoting All-round Quality Education*. Available from: http://old.moe.gov.cn/publicfiles/business/htmlfiles/moe/moe_177/200407/2478.html [Accessed 13 Jun 1999]. In Chinese.
- Chinese State Council. 2007. *Measures of the Implementation of Free Teacher Education for Normal Universities Which Are Directly Under the Ministry of Education*. China: State Council. Available from: http://www.gov.cn/zwgk/2007-05/14/content_614039.htm [Accessed 14 May 2007]. In Chinese.
- Chinese State Council. 2012. *The State Council's Intention to Strengthen the Construction of the Teachers' Team*. Beijing, Chinese State Council. Available from: http://www.gov.cn/zwgk/2012-09/07/content_2218778.htm [Accessed 7 Sep 2007]. In Chinese.

- Chinese State Council. 2018. *Suggestions for Comprehensively Deepening the Reform of the Construction of the Teachers' Team in the New Era*. Beijing: Chinese State Council. Available from: http://www.gov.cn/zhengce/2018-01/31/content_5262659.htm [Accessed 31 Jan 2018]. In Chinese.
- Cochran-Smith, M. 2005. "Teacher Educators as Researchers: Multiple Perspectives." *Teaching and Teacher Education* 21(2): 219-225.
- Cochran-Smith, M., L. Grudnoff, L. Orland-Barak, and K. Smith. 2020. "Educating Teacher Educators: International Perspectives." *The New Educator* 16 (1):5-24.
- Costello, A. B., and J. Osborne. 2005. "Best Practices in Exploratory Factor Analysis: Four Recommendations for Getting the Most from Your Analysis." *Practical Assessment, Research & Evaluation* 10 (7):1- 9.
- Coulter, M. 2019. "Primary Physical Education Teacher Educators Professional Learning." In P. Michael A, B. Email and R. Vicky, edited by. *Encyclopedia of Teacher Education*, Singapore: Springer Nature. https://doi.org/10.1007/978-981-13-1179-6_338-1
- Creswell, J. W., and D. L. Miller. 2000. "Determining Validity in Qualitative Inquiry." *Theory Into Practice* 39 (3):124-130.
- Creswell, J. W., V. P. Clark, M. Gutmann, and W. Hanson. 2003. "Advanced Mixed Methods Research Designs" in *Handbook of Mixed Methods in Social and Behavioural Research*, Edited by A Tashakkori & C Teddlie. *Thousand Oaks, California: Sage Publications*.

- Cui, Z. 2018. "The Dilemma and Prospect of Teacher Educators' Identity——Based on an Analysis of the Published SSCI Papers From 2000 to 2017." *Contemporary Education and Culture* 10 (3):89-95.
- Czerniawski, G. 2018. *Teacher Educators in the Twenty-first Century: Identity, Knowledge and Research*. Edited by Lan Menter. London: Critical Publishing.
- Czerniawski, G., A. Guberman, and A. MacPhail. 2017. "The Professional Developmental Needs of Higher Education-based Teacher Educators: an International Comparative Needs Analysis." *European Journal of Teacher Education* 4 (1):127-140.
- Czerniawski, G., D. Gray, A. MacPhail, Y. Bain, P. Conway, and A. Guberman. 2018. "The Professional Learning Needs and Priorities of Higher-education-based Teacher Educators in England, Ireland and Scotland." *Journal of Education for Teaching* 44 (2):133-148.
- Davey, R. 2013. *The Professional Identity of Teacher Educators: Career on the cusp?* London, England: Routledge.
- Devellis, R. F. 2012. *Scale Development: Theory and Applications*. Thousand Oaks. CA Sage.
- Ding, S. 2016. "Comparing the Key Teacher Competencies and the Training Process Between China and Catalonia." PhD diss., Universitat Autònoma de Barcelona.
- Dinkelman, T. 2011. "Forming a Teacher Educator Identity: Uncertain Standards, Practice and Relationships." *Journal of Education for Teaching: International Research and Pedagogy* 37 (3):309-323.
- Ducharme, E. R. 1993. *The Lives of Teacher Educators*. New York: Teachers College Press.

- Dymoke, S and Harrison, J K. 2006. "Professional Development and the Beginning Teacher: Issues of Teacher Autonomy and Institutional Conformity in the Performance Review Process." *Journal of for Teaching* 32 (1): 71-92.
- European Commission. 2013. *Supporting Teacher Educators for Better Learning Outcomes*. Brussels: European Commission.
- Furlong, C., and M. O'brien. 2019. "An Exploration of Teacher Educator Identities Within an Irish Context of Reform." edited by J. Murray, A. Swennen, and C. Kosnik, In *International Research, Policy and Practice in Teacher Education*, 47-61. Cham, Switzerland: Springer.
- Furlong, J. 2013. "Globalisation, Neoliberalism, and the Reform of Teacher Education in England." *The Educational Forum* 77 (1):28-50.
- Gallagher, T., et al. 2011. "Establishing and Sustaining Teacher Educator Professional Development in a Self-study Community of Practice: Pre-tenure Teacher Educators Developing Professionally." *Teaching and Teacher Education*, 27 (5): 880-890.
- Gao, L., and T. Wu. 2016. "A Comparative Study of Graduate Physical Education Teacher Preparation Program among Mainland China, Hong Kong and Taiwan" *Asian Journal of Physical Education & Recreation* 22 (1):21-31.
- Gemmell, T., M. Griffiths, and B. Kibble. 2010. "What Kind of Research Culture do Teacher Educators Want, and How Can We Get It?" *Studying Teacher Education* 6 (2), 161-174.
- Geschwind, L., and A. Broström. 2015. "Managing the Teaching–research Nexus: Ideals and Practice in Research-oriented Universities." *Higher Education Research and Development* 34 (1): 60-73.

- Gleeson, J., et al. 2013. "Understanding the Role and Potential for Research Capacity-building in Initial Teacher Education (ITE) Programmes North-South Ireland: A Baseline and Comparative Study." The Standing Conference on Teacher Education North and South (SCoTENS), Cavan, 11-12 October 2012. Armagh: Centre for Cross Border Studies. <http://hdl.handle.net/10197/4954>.
- Gong, Y., A. MacPhail, and A. Guberman. 2021. "Professional Learning and Development Needs of Chinese University-based Physical Education Teacher Educators" *European Journal of Teacher Education*. DOI: 10.1080/02619768.2021.1892638
- Graber, K. C. 1995. "The Influence of Teacher Education Programs on the Beliefs of Student Teachers: General Pedagogical Knowledge, Pedagogical Content Knowledge, and Teacher Education Course Work." *Journal of Teaching in Physical Education* 14 (2):157-78.
- Graber, K. C., and P. Schempp. 2000. "The Influence of a Generalist-taught Methods Course." *Physical Educator* 57 (4):14-30.
- Greene, J. C., and V. J. Caracelli. 2003. "Making Paradigmatic Sense of Mixed Methods Practice." *Handbook of Mixed Methods in Social and Behavioral Research* 9:91-110.
- Griffiths, V., S. Thompson, and L. Hryniewicz. 2010. "Developing a Research Profile: Mentoring and Support for Teacher Educators." *Professional Development in Education* 36 (1-2): 245-262.
- Griffiths, V., S. Thompson, and L. Hryniewicz. 2014. "Landmarks in the Professional and Academic Development of Mid-career Teacher Educators. " *European Journal of Teacher Education* 37 (1):74–90.
- Gu, X. 2015. "Professional Development of Teachers of Physical Education Majors in Shandong Universities" Master's thesis, Shandong Normal University. In Chinese.

- Guberman, A., and O. Mcdossi. 2019. "Israeli Teacher Educators' Perceptions of Their Professional Development Paths in Teaching, Research and Institutional Leadership." *European Journal of Teacher Education* 42 (4), 507-522.
- Guberman, A., M. Ulvik, A. MacPhail, and H. Oolbekkink-Marchand. 2020. "Teacher Educators' Professional Trajectories: Evidence From Ireland, Israel, Norway and the Netherlands." *European Journal of Teacher Education*. doi: 10.1080/02619768.2020.1793948.
- Hadar, L. L., and D. L. Brody. 2017. Professional Learning and Development of teacher educators. SAGE Publishers London.
- Harkness, J. A., A. Villar, and B. Edwards. 2010. "Translation, Adaptation, and Design". In J. A. Harkness et al. edited by, *Survey Methods in Multinational, Multicultural and Multiregional Contexts*, Hoboken, NJ: John Wiley & Sons; p.117-140.
- Hefetz, A., and G. Liberman. 2017. "The Factor Analysis Procedure for Exploration: A Short Guide With Examples." *Culturay Educación* 29 (3):526-562.
- Holdsworth, P. 2020. "Being a Reflective Teacher Educator: Professionalism or Pipe Dream?" In *Being a teacher educator: Research-Informed Methods for Improving Practice*, edited by A. Swennen and E. White, 10-26. London: Routledge.
- Hong, Z. 2016. "Teacher educators: From an Individual to a Community." *Journal of Teacher Education* 3 (5):6-12. In Chinese.
- Høydalsvik, T. E. L. 2019. "The Hidden Professionals? An Interview Study of Higher Education-based Teacher Educators' Professional Identity." *Nordisk tidsskrift for utdanning og praksis* 13 (2):93-113.

- Hu, L., and P. M. Bentler. 1999. "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives." *Structural Equation Modeling* 6:1-55.
- Huang, H., Z. Chen, J. Wang, L. Ji, Q. Fang, and M. Jia. 2016. "Study on the Talents Cultivation of Undergraduate Sport Majors in China: Development and Interpretation of National Standards for Teaching Quality of Undergraduate Sport Majors in Universities" *China Sport Science* 36 (8):3-33. In Chinese.
- Huang, W. 2017. "Revitalizing Teacher Education for Education Modernization." *Teacher's Journal* 20:16-19. In Chinese.
- Huang, X. 2019. "Visualisation Analysis of Domestic Physical Education Teachers Education Based on Knowledge Map." *Hubei Sports Science* 38 (6):478-482. In Chinese.
- Izadinia, M. 2014. "Teacher Educators' Identity: A Review of Literature." *European Journal of Teacher Education* 39 (4):426-441.
- Jiang, J. 2006. "Teacher Education Reform in Normal Universities under the Background of New Curriculum." *Higher Education Research* 6:68-72.
- Karagiorgi, Y., and M. Nicolaidou. 2013. "Professional Development of Teacher Educators: Voices From the Greek-Cypriot Context." *Professional Development in Education* 39 (5):784-798.
- Kastner, J. D., J. Reese, K. Pellegrino, and H. A. Russell. 2019. "The Roller Coaster Ride: Our Music Teacher Educator Identity Development." *Research Studies in Music Education* 41 (2):154-170.
- Kayange, J. J., and M. Msiska. 2016. "Teacher Education in China: Training Teachers for the 21st Century." *The Online Journal of New Horizons in Education* 6 (4):204-210.

- Kelchtermans, G., K. Smith, and R. Vanderlinde. 2018. "Towards an 'International Forum for Teacher Educator Development': An Agenda for Research and Action." *European Journal of Teacher Education* 41 (1):120-134.
- Koster, B., and J. J. Dengerink. 2008. "Professional Standards for Teacher Educators: How to Deal With Complexity, Ownership and Function. Experiences From the Netherlands." *European Journal of Teacher Education* 31 (2):135-149.
- Lawson, H. A. 1990. "Constraints on the Professional Service of Education Faculty." *Journal of Teacher Education* 41 (4): 57-70.
- Lawson, H. A. 1991. "Future Research on Physical Education Teacher Education Professors." *Journal of Teaching in Physical Education* 10 (3):229-248.
- Leijgraaf, M. 2020. "'Are we doing the right thing?': Challenges Teacher Educators Face When Taking the Risk of Opening up Possibilities for Students." In *Being a teacher educator: Research-Informed Methods for Improving Practice*, edited by A. Swennen and E. White, 72-85. London: Routledge.
- Li, D., and H. Wang. 2016. Reflections on the Development of Physical Education Major Within the new Teacher Qualification Examination System." *Journal of Beijing Sport University* 39 (1):96-101. In Chinese.
- Li, F., H. Si , and L. Yin. 2015. "Comparative Study on the Research of Physical Education Teacher Education Between China and Foreign Countries." *Journal of Capital University of Physical Education and Sports* 27 (4):327-335. In Chinese.
- Li, J. 2019. "Examination and Thinking on the Construction of the Contingent of Physical Education Teacher Educators in higher education." *The 11th National Convention On Sport Science of China*, Nanjing, China, 1-3 Nov.

- Li, X. 2008. "Discussion on Teacher Educators." *Contemporary Teacher Education* 1 (1):47-50. In Chinese.
- Li, X. 2012. "Teacher Eduators' Professional Development." *Educational Development Research* 12: 53-57. doi: DOI:10.14121/j.cnki.1008-3855.2012.12.010. In Chinese.
- Lian, B., X. Wang, and H. Li. 2014. "Research on the Teaching Ability Status and Cultivation of Physical Education Majors Basketball Derection From Sports Universities." *Journal of Beijing Sport University* 37 (5):93-97. doi: 10.19582/j.cnki.11-3785/g8.2014.05.015. In Chinese.
- Lincoln, Y. S., and E. G. Guba. 1985. *Naturalistic Inquiry*. Thousand Oaks, CA: Sage.
- Liu, P. 2016. "The Elements, Structure and Characteristics of Teacher Educators' Teaching Capacity." *Curriculum, Teaching Material and Method* 36 (9), 95-101. In Chinese.
- Liu, Y., and G. Fu. 2014. "The Mechanism Innovation of the Development of Integrated Teacher Education." *Educational research* 1: 111-116. In Chinese.
- Livingston, K. 2014. "Teacher Educators: Hidden Professionals?" *European Journal of Education* 49 (2): 218-232. doi: 10.1111/ejed.12074.
- Livingston, K., J. Mccall, and M. Morgado. 2009. "Teacher Educators as Researchers." In: A. Swennen and M. Van der Klink, eds. *Becoming a Teacher Educator*. Dordrecht: Springer. 191-203.
- Loughran, J. 2006. *Developing a Pedagogy of Teacher Education: Understanding Teaching and Learning About Teaching*, London, United Kingdom: Routledge.
- Loughran, J. 2014. Professionally Developing as a Teacher Educator. *Journal of Teacher Education* 65 (4):271-283.
- Lunenberg, M., and M. L. Hamilton. 2008. "Threading a Golden Chain: An Attempt to Find our Identities as Teacher Educators." *Teacher education quarterly* 35 (1):185-205.

- Lunenberg, M., J. Dengerink, and F. Korthagen. 2014. *The Professional Teacher Educator: Professional Roles, Behaviour, and Professional Development of Teacher Educators*, Rotterdam: Sense.
- Lunenberg, M., J. Murray, K. Smith, and R. Vanderlinde. 2017. "Collaborative Teacher Educator Professional Development in Europe: Different Voices, One Goal." *Professional Development in Education* 43 (4):556-572.
- Ma, W., and Y. Hu. 2018. "Becoming a Teacher Educator: A Qualitative Study of University-based Teacher Educators' Identity Construction" *Journal of Educational Studies* 14 (6):88-96. In Chinese.
- Maaranen, K., H. Kynäslähti, R. Byman, S. Sintonen, and R. Jyrhämä. 2020. "“Do You Mean Besides Researching and Studying?’ Finnish Teacher Educators’ Views on Their Professional Development.” *Professional Development in Education* 46 (1): 35-48.
- MacPhail, A. 2011. "Professional Learning as a Physical Education Teacher Educator." *Physical Education and Sport Pedagogy* 16 (4):435-451.
- MacPhail, A. 2020. "Teacher Educator as Researcher: Striving Towards a Greater Visibility for Teacher Education." In *Being a Teacher Educator: Research-Informed Methods for Improving Practice*, edited by A. Swennen and E. White, 142-154. London: Routledge.
- MacPhail, A., and M. O’sullivan. 2019. "Challenges for Irish Teacher Educators in Being Active Users and Producers of Research." *European Journal of Teacher Education* 42(4): 492-506.
- MacPhail, A., et al. 2019. "The Professional Development of Higher education-based Teacher Educators: Needs and Realities." *Professional Development in Education* 45 (5): 848-861.

- MacPhail, A., K. Patton, M. Parker, and D. Tannehill. 2014. "Leading by Example: Teacher Educators' Professional Learning Through Communities of Practice." *Quest* 66 (1):39-56.
- MacPhail, A., M. Ulvik, A. Guberman, G. Czerniawski, H. Oolbekkink-Marchand, and Y. Bain. 2019. "The Professional Development of Higher Education-based Teacher Educators: Needs and Realities." *Professional Development in Education* 45 (5):848-861.
- Mannes, A. 2020. "The Confused Professional Identity of Native and Non-Native EFL Teacher Educators: Are They Teachers or Researchers?" *Athens Journal of Education* 7 (4):385-396.
- Mayer, D., J. Mitchell, N. Santoro, and S. White. 2011. "Teacher Educators and 'Accidental' Careers in Academe: An Australian Perspective." *Journal of Education for Teaching* 37 (3):247-260.
- McEvoy, E., A. MacPhail, and P. Heikinaro-Johansson. 2015. "Physical Education Teacher Educators: A 25-year Scoping Review of Literature." *Teaching and Teacher Education* 51:162-181.
- McEvoy, E., A. MacPhail, and P. Heikinaro-Johansson. 2018. "Research Lives of Physical Education Teacher Educators." *Curriculum Studies in Health and Physical Education* 9 (1):90-103.
- McEvoy, E., P. Heikinaro-Johansson, and A. MacPhail. 2019. "An Exploration of the Influence of Professional Relationships on the Career Pathways of Physical Education Teacher Educators." *European Physical Education Review* 25(4), 913–928.

- Meizi, C. 2008. "A Comprehensive Analysis of the Teaching and Research Status of Teachers' of Physical Education Majors in Xinjiang Universities." Master's thesis, Xin Jiang Normal University. In Chinese.
- Melnychuk, N., D. Robinson, C. Lu, D. Chorney, and L. Randall. 2011. "Physical Education Teacher Education (PETE) in Canada." *Canadian Journal of Education* 34 (2):148-168.
- Metzler, M. W., and M. S. Freedman. 1985. "Here's Looking at You, PETE: A Profile of Physical Education Teacher Education Faculty." *Journal of Teaching in Physical Education* 4 (2):123-133.
- Mitchell, M. F. 1992a. "A Descriptive Analysis and Academic Genealogy of Major Contributors to JTPE in the 1980s." *Journal of Teaching in Physical Education* 11 (4): 426-442.
- Mitchell, M. F. 1992b. "Scholarly Behaviors of Physical Education Methods Teacher Educators in Ohio." *Journal of Teaching in Physical Education* 11(3): 303-314.
- Mitchell, M. F. 1997. "Productive Physical Education Pedagogy Scholars: Why They do it and How." *Journal of Teaching in Physical Education* 16 (3): 278-299.
- Murray, J. 2016. "Beginning Teacher Educators: Working in Higher Education and Schools." In *International Handbook of Teacher Education*, edited by J. Loughran and M. L. Hamilton, 35-70. Singapore: Springer.
- Murray, J., A. Swennen, and L. Shagrir. 2009. "Understanding Teacher Educators' Work and Identities." In *Becoming a Teacher Educator*, edited by A. Swennen and M. Van Der Klink, 29-43. London: Springer.
- Murray, J., and T. Male. 2005. "Becoming a Teacher Educator: Evidence From the Field." *Teaching and Teacher Education* 21 (2):125-142.

- Murray, J., K. Smith, R. Vanderlinde, and M. Lunenberg. 2021. "Teacher Educators and Their Professional Development." In *Teacher Educators and their Professional Development : Learning from the Past, Looking to the Future*, edited by R. Vanderlinde, K. Smith, J. Murray, and M. Lunenberg. Oxon and New York: Routledge.
- Muthén, L., and B. Muthén. 2017. *Mplus User's Guide. Eighth Edition*. Los Angeles: Muthén & Muthén.
- Newberry, M. 2014. "Teacher Educator Identity Development of the Non-traditional Teacher Educator." *Studying Teacher Education* 10 (2):163-178.
- O'Connor, B. P. 2000. "SPSS and SAS Programs for Determining the Number of Components Using Parallel Analysis and Velicer's MAP Test." *Behavior Research Methods, Instruments, & computers* 32 (3):396-402.
- O'Sullivan, M. 2021. "Global Challenges and Opportunities for Physical Education Teacher Educators." *Research Quarterly for Exercise and Sport* 92(3):327-338.
- Olsen, B., and R. Buchanan. 2017. "'Everyone Wants You to Do Everything': Investigating the Professional Identity Development of Teacher Educators." *Teacher Education Quarterly* 44 (1):9-34.
- Ping, C., G. Schellings, and D. Beijaard. 2018. "Teacher Educators' Professional Learning: A Literature Review." *Teaching and Teacher Education* 75: 93-104.
- Ping, C., G. Schellings, D. Beijaard, and J. Ye. 2021. "Teacher Educators' Professional Learning: Perceptions of Dutch and Chinese Teacher Educators." *Asia-Pacific Journal of Teacher Education* 49 (3): 262-281.

- Polit, D. F., and C. T. Beck. 2012. *Nursing Research: Principles and Methods*. 9th Edition ed. Philadelphia, United States: Lippincott Williams and Wilkins.
- Qiu, C. 2015. "The Professional Development of Teacher Educators in Shanghai." PhD diss., University of Glasgow.
- Rao, C. 2020. "Teacher Education Policies in China Since the Mid-1990s." In *Handbook of Education Policy Studies*, edited by G. Fan., and T. Popkewitz., 95-111. Singapore: Springer.
- Rivas, C. 2012. "Coding and Analysing Qualitative Data." *Researching Society and Culture* 3:367-392.
- Roberts, A., and K. Weston. 2014. "Releasing the Hidden Academic? Learning From Teacher-educators' Responses to a Writing Support Programme." *Professional Development in Education* 40 (5): 698-716.
- Ruben Vanderlinde, S. Kari, J. Murray, and M. Lunenberg. 2021. "Teacher educators' professional development: Looking to the future." In *Teacher educators and their professional development: learning from the past, looking to the future*, edited by R. Vanderlinde, S. Kari., J. Murray., and M. Lunenberg. Oxon and New York: Routledge.
- Russell, T., and M. A. Flores. 2020. "Developing as Teacher Educators: Lessons Learned From Student Voices During Practice and Research." In *Being a Teacher Educator: Research-Informed Methods for Improving Practice*, edited by A. Swennen and E. White. London: Routledge.
- Seifert, T., and S. Bar-Tal. 2020. "A Professional Social Network as a Platform for Teacher Educators' Professional Development " In *Being a Teacher Educator: Research-Informed Methods for Improving Practice*, edited by A. Swennen and E. White, 99-111. London: Routledge.

- Senese, J. C. 2016. "A Work in Progress." In *Professional Learning Through Transitions and Transformations*, edited by J. Williams and M. Hayler, 137-150. The Netherlands: Springer.
- Shagrir, L. 2020. "International semi-collaborative research initiative: a critical reflection of the research process." In *Being a Teacher Educator: Research-informed Methods for Improving Practice*, edited by A. Swennen and E. White, 112-125. London: Routledge.
- Smith, K. 2003. "So, What About the Professional Development of Teacher Educators?" *European Journal of Teacher Education* 26 (2):201-215.
- Smith, K. 2005. "Teacher Educators' Expertise: What do Novice Teachers and Teacher Educators Say?" *Teaching and Teacher Education* 21 (2): 177-192.
- Smith, K. 2017. "Learning From the Past to Shape the Future." *European Journal of Teacher Education* 40 (5):630-646.
- Smith, K., and M. A. Flores. 2019. "Teacher Educators as Teachers and as Researchers." *European Journal of Teacher Education* 42 (4):429-432.
- Solbrekke, T. D., and C. Sugrue. 2014. "Professional Accreditation of Initial Teacher Education Programmes: Teacher Educators' Strategies—Between 'Accountability' and 'Professional Responsibility?'" *Teaching and Teacher Education* 37: 11-20.
- State Education Commission. 1986. *The Reform of the Teaching Plan for Sport Related Majors in Normal Universities*. China: State Education Commission. In Chinese.
- State Education Commission. 1991. *Teaching Plan of Undergraduate Physical Education Major in Higher Education*. China: State Education Commission. In Chinese.

- State Education Commission. 1997. *The Pilot Reform of Teaching Plans for Sport Related Majors in Normal Colleges*. China: State Education Commission. In Chinese.
- Stern, N. 2016. *Building on Success and Learning From Experience: An Independent Review of the Research Excellence Framework*. Lodon, UK: Department for Business, Energy & Industrial Strategy.
- Strauss, A., and J. Corbin. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Newbury Park, CA: Sage publications.
- Strauss, A., and J. Corbin. 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory, 2nd ed*, Thousand Oaks, CA, US: Sage Publications.
- Strauss, A., and J. Corbin. 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory, 2nd ed*. Thousand Oaks, CA, US: Sage Publications.
- Stylianou, M., E. Enright, and A. Hogan. 2017. "Learning to Be Researchers in Physical Education and Sport Pedagogy: The Perspectives of Doctoral Students and Early Career Researchers." *Sport, Education and Society* 22 (1):122-139.
- Swennen, A., and D. Powell. 2020. "Brave Research as a Means to Transform Teacher Education " In *Being a Teacher Educator: Research-Informed Methods for Improving Practice*, edited by A. Swennen and E. White, 155-170. London: Routledge.
- Swennen, A., and E. White. 2020. "Epilogue: Lessosns From this Book and Next Steps in Developing the Profession of Teacher Educators." In *Being a Teacher Educator: Research-Informed Methods for Iproving Practice*, edited by A. Swennen and E. White. 171-177. Oxon and New York: Routledge.

- Swennen, A., and T. Bates. 2010. "The Professional Development of Teacher Educators." *Professional Development in Education* 36 (1-2):1-7.
- Swennen, A., and V. Monique. 2019. "The Development of the Identity of Teacher Educators in the Changing Context of Teacher Education in the Netherlands." In *International Research, Policy and Practice in Teacher Education*, edited by J. Murray, A. Swennen and C. Kosnik. 107-121. Cham: Springer.
- Swennen, A., K. Jones, and M. Volman. 2010. "Teacher Educators: Their Identities, Sub-Identities and Implications for Professional Development." *Professional Development in Education* 36 (1-2):131-148.
- Swennen, A., L. Shagrir, and M. Cooper. 2009. "Becoming a Teacher Educator: Voices of Beginning Teacher Educators." In *Becoming a teacher educator: Theory and practice for teacher educators*, edited by A. Swennen and M. van der Klink, 91-102. Dordrecht, The Netherlands: Springer.
- Swennen, A., and Volman, M. 2019. "The development of the identity of teacher educators in the changing context of teacher education in the Netherlands". In J. Murray, A. Swennen, and C. Kosnik (Eds.), *International research, policy and practice in teacher education: Insider perspectives*, 107–121. Springer International Publishing Switzerland.
- Swennen, A., M. Volman, and M. Van Essen. 2008. "The Development of the Professional Identity of Two Teacher Educators in the Context of Dutch Teacher Education." *European Journal of Teacher Education* 31 (2):169-184.
- Tack, H., and R. Vanderlinde. 2014. "Teacher Educators' Professional Development: Towards a Typology of Teacher Educators' Researcherly Disposition." *British Journal of Educational Studies* 62 (3): 297-315.

- Tack, H., and R. Vanderlinde. 2019. "Capturing the Relations Between Teacher Educators' Opportunities for Professional Growth, Work Pressure, Work Related Basic Needs Satisfaction, and Teacher Educators' Researcherly Disposition." *European Journal of Teacher Education* 42 (4): 459-477.
- Tack, H., M. Valcke, I. Rots, K. Struyven, and R. Vanderlinde. 2018. "Uncovering a Hidden Professional Agenda for Teacher Educators: A Mixed Method Study on Flemish Teacher Educators and Their Professional Development." *European Journal of Teacher Education* 41 (1):86-104.
- Tack, H., R. Vanderlinde, Y. Bain, W. Kidd, M. O'sullivan, and A. Walraven. 2021. "Learning and Design Principles for Teacher Educators' Professional Development." In *Teacher Educators and Their Professional Development: Learning from the Past, Looking to the Future*, edited by R. Vanderlinde, K. Smith, J. Murray, and M. Lunenberg. Oxon and New York: Routledge.
- Tan, J., and J. Long. 2012. "Analysis on the Teaching and Research Abilities of University-based Teachers of Physical Education Majors in Jiangxi Province." *Journal of Yichun College* 34 (12):122-126. In Chinese.
- Tang, X. 2012a. "The Current Situation, Problems and Countermeasures of Teacher Education Programmes in Chinese Comprehensive Universities." *University Education Science* 77-82. In Chinese.
- Tang, X. 2012b. "Research on the Definition, Identities and Roles of Teacher Educators." *Teacher Education Research* 24 (2):13-17. In Chinese.
- Tannehill, D. 2016. "My Journey to Become a Teacher Educator." *Physical Education and Sport Pedagogy* 21 (1): 105-120.

- Tanner, H., and S. M. B. Davies. 2009. "How Engagement With Research Changes the Professional Practice of Teacher-educators: A Case Study From the Welsh Education Research Network." *Journal of Education for Teaching* 35 (4): 373-389.
- Tashakkori, A., and C. Teddlie. 2003. *Handbook of Mixed Methods in Social & Behavioral Research*. Thousand Oaks, CA: Sage.
- Teddlie, C., and F. Yu. 2007. "Mixed Methods Sampling: A Typology with Examples." *Journal of Mixed Methods Research* 1 (1):77-100.
- The General Office of the State Council. 2018. *Notice of the General Office of the State Council on Forwarding the Implementation Measures for the Public-funded Education of Pre-service Teachers from Normal Universities Which Are Directly Under the Ministry of Education and Other Departments*. China: The General Office of the State Council. Available from: http://www.gov.cn/zhengce/content/2018-08/10/content_5313008.htm [Accessed: 10Aug 2018]. In Chinese.
- Tryggvason, M.-T. 2012. "Perceptions of Identity Among Finnish University-based Subject Teacher Educators." *European Journal of Teacher Education* 35 (3):289-303.
- Useem, J., R. Useem, and J. Donoghue. 1963. "Men in the Middle of the Third Culture: The Roles of American and Non-Western People in Cross-Cultural Administration." *Human Organizations* 22(3). 169-179.
- Van Der Klink, M., Q. Kools, G. Avissar, S. White, and T. Sakata. 2017. "Professional Development of Teacher Educators: What Do They Do? Findings From an Explorative International Study." *Professional Development in Education* 43 (2):163-178.

- Vanassche, E., and G. Kelchtermans. 2015. "The State of the Art in Self-Study of Teacher Education Practices: A Systematic Literature Review." *Journal of Curriculum Studies* 47(4): 508-528.
- Vanassche, E., and G. Kelchtermans. 2016. "A Narrative Analysis of a Teacher Educator's Professional Learning Journey." *European Journal of Teacher Education* 39 (3):355-367.
- Vloet, K., and J. Van Swet. 2010. "'I Can Only Learn in Dialogue!' Exploring Professional Identities in Teacher Education." *Professional Development in Education* 36: (1-2), 149-168.
- Wang, J. 2019. "Outline of New Chinese Teacher Education System." *Journal of Northeast Normal University* 5: 10-16. In Chinese.
- Wang, J., and J. Dai. 2016. "Professional Development of Pre-service Physical Education Teachers." *Journal of Capital University of Physical Education and Sports* 2016 (28):1. In Chinese.
- Wang, J., and X. Wang. 2019. *Structural Equation Modeling, Applications Using Mplus. 2nd Edition*, Hoboken: John Wiley & Sons.
- Wang, J., and Y. Tang. 2019. "The Evolution, Characteristics and Enlightenment of the Physical Education Teacher Education Policy in China." *Journal of Chengdu Sport University* 45 (4):98-104. In Chinese.
- Wang, J., X. Ping, D. Zhang, W. Liu, and X. Gao. 2017. "Evolution of Physical Education Undergraduate Majors in Higher Education in China." *Journal of Teaching in Physical Education* 36 (4):373-387. In Chinese.
- Wang, J. 2019. "The outline of Chinese New Teacher Education System" *Journal of Northeast Normal University* 5 (301) :10-16. In Chinese.

- Wang, S. 2019. "Research on the Construction of a Teacher Education Information Sharing Platform in the Context of Professional Certification of Normal Universities." *The Science Education Article Collects* 8, 4-6. In Chinese.
- Wang, S., and B. Wu. 2017. "Learning Phase Mode: A New Concept for Physical Education Teacher Pre-service Education Reform." *Journal of Xi'an Physical education University* 34 (2):237-241. In Chinese.
- Wang, T., and Z. Zhao. 2020. "Problems and Strategies of Physical Education Teacher Education Curriculum Reform Under the Background of Professional Accreditation and Discipline Evaluation." *Journal of Physical Education* 7 (4):99-104. In Chinese.
- Wang, W. 2017. "Professional Identity Development of University-based Teacher Educators in China." Paper presented at the AERA Annual Conference. Texas, April 27-May 1.
- Wenger, E. 1998. *Communities of Practice: Learning, Meaning, and Identity, Learning in Doing. Social, cognitive, and computational perspectives*. Cambridge: Cambridge University Press.
- White, E., and A. Swennen. 2020. "Introduction to Being a Teacher Educator." In *Being a Teacher Educator: Research-Informed Methods for Improving Practice*, edited by A. Swennen and E. White. Oxon and New York: Routledge.
- White, E., M. Timmermans, and C. Dickerson. 2020. "Learning From the Stories About the Practice of Teacher Educators in Partnerships Between School and Higher Education Institutions." Edited by A. Swennen and E. White, *Being a Teacher Educator: Research-Informed Methods for Improving Practice*, 126-141. London: Routledge.
- White, S. 2019. "Teacher Educators for New Times? Redefining an Important Occupational Group." *Journal of Education for Teaching*. 45 (2):200-213.

- Williams, J., and M. Hayler. 2015. *Professional Learning Through Transitions and Transformations: Teacher Educators' Journeys of Becoming*. Vol. 15: Springer.
- Williams, J., and M. Hayler. 2016. "Learning from Stories of Becoming." In *Professional Learning Through Transitions and Transformations*, edited by J. Williams and M. Hayler, 199-208. Dordrecht, The Netherlands: Springer.
- Williams, J., J. Ritter, and S. M. Bullock. 2012. "Understanding the Complexity of Becoming a Teacher Educator: Experience, Belonging, and Practice Within a Professional Learning Community." *Studying Teacher Education* 8 (3):245-260.
- Woods, M. L., D. A. Philips, and C. Carlisle. 1997. "Characteristics of Physical Education Teacher Educators." *Physical Educator* 54:150-159.
- Wu, Q. 2019. " Domestic Progress of Teacher Educators' Research: Analysis Based on 78 Literatures of CNKI]." *The Science Education Article Collects* 451 (3):4-7. In Chinese.
- Wu, Y., S. Hwang, and J. Cai. 2017. "Being a Mathematics Teacher Educator in China: Challenges and Strategic Responses." *International Journal of Science & Mathematics Education* 15 (7):1365-1384.
- Yan, C., and C. He. 2015. "To be or not to be? The 'Publish or Perish' Syndrome for English Teacher Educators in China." *Frontiers of Education in China* 10 (4): 526-543.
- Yan, L. 2015. "Research on the Demographics of Teachers of Physical Education Majors Who Teach Sport Skills Modules in Shanxi Universities." Master's thesis, Taiyuan University of Technology. In Chinese.

- Yang, Y. 2011. "Who Are Teacher Educators? A Sociological Analysis of the Identity Construction in Teacher Education Reform." *Journal of Nanjing Normal University* 6:71-76. In Chinese.
- Yin, Z., et al. 2016. "Ten research Issues in Physical Education Teacher Education Since the 2012 PETE conference." *Journal of Beijing Sport University* 39 (10): 89-100. In Chinese.
- Yin, Z., X. Wang, and L. Ji. 2015. "Changes of Professional Development of Physical Education Teachers." *Journal of Beijing Sport University* 38 (5):95-101. In Chinese.
- Yu, X. 2010. "A Study of the Teacher Education Policies in China in the Era of Great Transformation." PhD diss., Northeast Normal University. In Chinese.
- Yuan, R. 2016. "Understanding Higher Education-Based Teacher Educators' Identities in Hong Kong: A Sociocultural Linguistic Perspective." *Asia-Pacific Journal of Teacher Education* 44 (4):379-400.
- Yuan, R. 2019. "A Comparative Study on Language Teacher Educators' Ideal Identities in China: More Than Just Finding a Middle Ground." *Journal of Education for Teaching* 45 (2):186-199.
- Yuan, R. 2020. "Novice Non-traditional Teacher Educators' Identity (re)Construction in Higher Education: A Hong Kong Perspective." *International Journal of Educational Research* 99: 101508.
- Yuan, R., and M. Yang. 2020. "Understanding University-based Teacher Educators' Boundary Crossing Experiences: Voices from Hong Kong." *Teachers and Teaching, Theory and Practice* 26 (2):193-213.

- Zhang, L., and Y. Sun. 2018. "The Differences of Pre-service Physical Education Teachers' Pedagogical content Knowledge in Genders, Grades and Schools." *Journal of Physical Education* 25 (3):97-103. In Chinese.
- Zhang, X. 2017. " Analysis on the Present Situation and Influencing Factors of Employment Difficulties of Physical Education Students in Henan Province." *School Physical Education* 7 (24):93-94. In Chinese.
- Zhang, X., and Q. Zhang. 2016. "The Cornerstone of Improving the Teaching Skills of Pre-service Physical Education Teachers." *Journal of Shanghai University of Sport* 40 (1):85-89. In Chinese.
- Zhao, J. 2013. "Study on Team Building for Teachers Who Teach Physical Education Majors in Hebei Universities." Master's thesis., Hebei Normal University. In Chinese.
- Zheng, D. 2015. *International Comparative Study on Teacher Educators and Their professional Standards*, edited by G. Shi. Hangzhou, China: Zhejiang University Press. In Chinese.
- Zheng, S., F. Hu., and L. Zhang. 2012. "Discussion on Teacher Educators and Their Professional Development." *Journal of Shijiazhuang University* 14 (2):93-98. In Chinese.
- Zhong, B. 2010. "Promote the Flexible and Diversified Preparation to Improve the Quality of Teacher Education." *China Higher Education* 19:13-16. In Chinese.
- Zhong, X., and D. Huang. 2020. "A Literature Review of Chinese Teacher Educators and Those Within the Physical Education Subject Area." *Zhejiang Sport Science* 42 (2):81-84. In Chinese.

- Zhu, H., 2010. "Curriculum Reform and Professional Development: A Case Study on Chinese Teacher Educators." *Professional Development in Education* 36 (1-2): 373-391.
- Zhu, X. 2001. "Foreign Professional Teacher Education and Accreditation System." *Comparing Education Research* 3:6-12. In Chinese.
- Zhu, X., and Y. Zhao. 2018. "The Development of Teacher Education Programmes in Normal Universities in the Context of Building 'Double First Class' Universities." *Research on Education Development* 9:7-14. In Chinese.
- Zhu, X., and Y. Zhao. 2018. "The Development of Teacher Education Programmes in Normal Universities in the Context of Building 'Double First Class' Universities." *Research on Education Development* 9: 7-14. In Chinese.
- Zhu, X., and Y. Zhao. 2019. "Discussion on the Teacher Education Discipline Construction." *Teacher Development Research* 3 (1):32-38. In Chiense.

Appendix

Appendix A. PETE programme in 2020 in Zhengzhou University

(see <http://www5.zzu.edu.cn/tyx/info/1010/2239.htm>)

Module Categories	Module Name	Credits in each semester							
		1	2	3	4	5	6	7	8
General Modules	Moral & Fundamentals of Law	3							
	Outline of Chinese Modern History		3						
	Basic Principle of Marxism			3					
	Introduction to Mao's Thoughts & Theoretical System of the Chinese Characteristics of Socialism (I)			2.5					
	Introduction to Mao's Thoughts & Theoretical System of the Chinese Characteristics of Socialism (II)				2.5				
	Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era					2			
	Forms and Policy							2	
	Military Theory	1							
	Career Planning and Employment Guidance							2	
	Foundation of Innovation and Entrepreneurship		2						
	Etiquette Education of University Students		1						
	Cultural Literacy: Sports History/Chinese History/General History of Chinese Philosophy (Selective)					2			
	Learning Potential: Mind Map/Application of Modern Education Technology/Logic (Selective)				2				
	Scientific Frontiers: Theories of Science Frontiers (Selective)							1	
	University English Reading & Writing (I)	2							
	University English Listening & Speaking (I)	1							
	University English Reading & Writing (II)		2						
	University English Listening & Speaking (II)		1						
	University English (III)			2					
	University English (IV)				2				
	Basic Computing Module	2							
	University Chinese	2							
	Social Practice	1	2						
	Innovation and Entrepreneurship Practice				4				
Theoretical Modules	Sports Physiology		4						
	Sports Psychology						2		
	Sports Anatomy	2							
	Introduction to Physical Education	2							

	Sports Sociology					2			
	Health Education					2			
	School Physical Education				2				
	Physical Education Curriculum and Pedagogy					2			
	Motor Skills Learning and Control				2				
	Science of Sports Training			2					
	Physical Education Teaching Materials and Methods					2			
	Educational Foundation				1				
	Educational Philosophy				1				
	School Education Development				1				
	Standardisation of Middle School Teachers' Occupational Ethics			1					
	Students' Moral Development and Moral Education				1				
	Design and Evaluation of Physical Education Teaching					1			
	Educational Psychology (including Middle School Cognition and Learning)					1			
	Sports Biochemistry							1	
	Sports Biomechanics				1				
	Sports Illustration					1			
	Sports Management							1	
	Sports Measurement and Evaluation			1					
	Health Club Management and Administration				2				
	Prevention and First Aid of Sports Injury			1					
	Theory and Method of Fitness Training				1				
	Theory and Method of Exercise Plans					2			
	Sports Injury and Rehabilitation			1					
	Sports Nutrition				1				
	Treatment of Sports Rehabilitation					1			
	Effective Teaching of Physical Education			1					
	Research on Textbook and Physical Education (and Health) Curriculum Standards				1				
	Professional Development of Physical Education Teacher				1				
Sport skill modules	Athletics	2	2						
	Gymnastics	2	2						
	Basketball	2							
	Volleyball		2						
	Football		2						
	Martial Arts	2							
	Swimming		0.5		0.5		1		
	Tennis		2						
	Table Tennis		2						
	Badminton		2						
	Taekwondo	2							
	Korfball		2						
	Fancy Rope Skipping				2				
	Tai Chi			2					

	Shaolin Kung Fu					2			
	Healthy Qigong			2					
	Softball							2	
	Cheerleading				2				
	Bodybuilding					2			
	Roller-skating				2				
	Walking With Sticks							2	
	Waist Drum					2			
	Rock Climbing			2					
	Yoga					2			
	Comprehensive Fighting Fitness				2				
	Outward Bound				2				
	Diabolo							2	
	Baseball and Softball			2					
	Shuttlecock							2	
	Sports Dance			1					
	Wrestling			1					
	Judo			1					
	Teaching Theory and Practice of a Specific Sport			4	4	4	4		
Teaching Practice	Training of Physical Education Teaching Skills					2			
	Professional Probation (Observation)	0.2	0.2	0.2	0.2				
	School Placement (including Educational Research)					8			
Research Modules	Academic Activity			1					
	Physical Education Statistics					2			
	Educational Research Methods					1			
	Methodology in Sports Research						2		
	Thesis							3	3

Appendix B: Ethical Approval

RE: 2017_01_03_EHS

From: Anne.O'Brien
Sent: Thursday, February 16, 2017 2:37 PM
To: Ann.MacPhail
Cc: AnnMarie.Young
Subject: 2017_01_03_EHS

Dear Ann

Thank you for your amended Research Ethics application which was recently reviewed by the Education and Health Sciences Research Ethics Committee.
The recommendation of the Committee is outlined below:

Project Title: 2017_01_03_EHS Professional Learning Needs of Physical Education Teacher Educators in China
Principal Investigator: Ann MacPhail
Other Investigators: Ann-Marie Young, Yueying Gong
Recommendation: Approved until December 2017.

Please note that as Principal Investigator of this project you are required to submit a Research Completion Report Form (attached) on completion of this research study.

Yours Sincerely

Anne O'Brien

Anne O'Brien
Administrator, Education & Health Sciences
Research Ethics Committee
Ollscoil Luimnigh / University of Limerick
Guthán / Phone +353 61 234101
Facs / Fax +353 61 202561
Ríomhphost / Email: anne.obrien@ul.ie
Gréasán / Web: <http://www.ehs.ul.ie>



Appendix C: Chapter 3

Appendix C.1: Participants Information Sheet



Dear Colleague,

I am Yueying Gong, a PhD student at the Department of Physical Education and Sport Sciences at the University of Limerick, Ireland. I am working with Prof. Ann MacPhail and Dr. Ann Marie Young to conduct a survey on the professional learning needs of Chinese university-based physical education teacher educators. The survey is based on research by the international Forum for Teacher Educator Development (InFoTED). The research results are published by Czerniawski, Guberman & MacPhail (2017),

DOI:10.1080/02619768.2016.1246528

<http://www.tandfonline.com/doi/abs/10.1080/02619768.2016.1246528>

The information we collect will provide a platform to support the development of all physical education teacher educators. Your opinions are extremely important to us and will support the future work of all teacher educators. Whether you are a newly appointed member of staff, an experienced colleague or a university-based academic we would like to hear your views on what you consider to be effective professional learning for physical education teacher educators.

Please help us by completing this questionnaire which should only take about 15 minutes to complete. There is also an option for you to volunteer to take part in follow up interviews if you would like to participate further in this important research. The questionnaire can be completed anonymously, and all reasonable steps will be taken to ensure confidentiality.

We thank you for your time and effort in completing the is questionnaire. If you have any questions, please feel free to contact me by email: Yueying.gong@ul.ie

Appendix C.2: Chinese University-based Physical education Teacher Educators'

Professional Learning Needs Questionnaire

Professional learning needs of Physical Education Teacher Educators in China

Dear colleagues,

This is a survey on the professional learning needs of physical education teacher educators. The information we collect will be used to provide a platform to support the development of all physical education teacher educators in China. The survey has been developed by an international and preliminary results are published by Czerniawski, [Guberman& MacPhail](#) (2017)
DOI:10.1080/02619768.2016.1246528

<http://www.tandfonline.com/doi/abs/10.1080/02619768.2016.1246528>

Your opinions are extremely important to us and will help support the future work of all physical education teacher educators. Whether you are a newly appointed member of staff or an colleague we would like to hear your views on what you consider to be effective professional for physical education teacher educators.

Please help us by completing this questionnaire which should only take about 15 minutes.

There is also an option for you to volunteer to take part in follow up interviews if you would like to participate further in this important research. The questionnaire can be completed anonymously and reasonable steps will be taken to ensure confidentiality.

We thank you for your time and effort in completing this questionnaire. If you wish to discuss the of this survey further please contact Yueying.gong@ul.ie.

Life as a teacher educator

*** 1. Teacher educators work in many different contexts. Please identify which context/s you are currently working in, to support the professional learning of teachers (you can tick more than one option)**

☐ University <1>

☐ College <2>

☐ Other (please specify)

<TXT >

*** 2. Please indicate in the box below how long you have worked as a teacher educator**

<TXT >

*** 3. Did you work as a teacher before your first experience as a teacher educator?**

☐ Yes <1>

☐ No <2>

If you answered 'yes' please identify how many years you worked as a teacher and in what capacity/capacities (e.g. head of department; primary/secondary; deputy head teacher etc)

<TXT >

* 4. As a teacher educator:				
	Yes		No	
Q4.1	☐	<1>	☐ <2>	
Q4.2	☐	<1>	☐ <2>	
Q4.3	☐	<1>	☐ <2>	
Q4.4	☐	<1>	☐ <2>	
Q4.5	☐	<1>	☐ <2>	
Q4.6	Additional roles/responsibilities I undertake as a teacher educator include: <TXT>			
* 5. As a teacher educator I prepare teachers to work in the following sectors:				
	Yes		No	
Q5.1	☐	<1>	☐ <2>	
Q5.2	☐	<1>	☐ <2>	
Q5.3	☐	<1>	☐ <2>	
Q5.4	☐	<1>	☐ <2>	
Q5.5	☐	<1>	☐ <2>	
Q5.6	☐	<1>	☐ <2>	
Q5.7	Other (please specify) <TXT>			
* 6. Please rank the following, where "1" best describes how you see your role in teacher education and "5" least describes how you see your role				
Q6.1	☐ Teacher	<1> <2> <3> <4> <5>		
Q6.2	☐ Academic/Scholar	<1> <2> <3> <4> <5>		
Q6.3	☐ Researcher	<1> <2> <3> <4> <5>		
Q6.4	☐ Mentor	<1> <2> <3> <4> <5>		
Q6.5	☐ Teacher Educator/Trainer	<1> <2> <3> <4> <5>		

Teacher education and research

In this survey, research is defined as the systematic and intentional study of materials and sources in order to develop new knowledge and reach new conclusions. The primary focus of research can be the development of new theories, the improvement of practice or the (further) development of policy. Possible forms of research can be, for instance, practitioner research, practice-based research, policy research or fundamental research.

*** 7. The following statements concern the extent to which you use research. Please indicate the most applicable answer to each statement**

		Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
Q7.1	I am familiar with research concerning the education of future teachers	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q7.2	My teaching is informed by research	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q7.3	I often read research articles in educational journals	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q7.4	I am inclined to use research literature to solve problems in my teaching practice	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q7.5	I know how to use research as a teacher educator	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q7.6	I attend research conferences and seminars to keep up to date with educational research	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>

***8. The following statements concern the extent to which you actively conduct research. Please indicate the most applicable answer to each statement**

		Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
Q8.1	I am capable of presenting and sharing my own research results with other teacher educators (e.g. at conferences, in journals, etc)	☒ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q8.2	I conduct research in order to develop knowledge relevant to other teacher educators	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q8.3	I see myself as someone who is capable of conducting research	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q8.4	I have experience with conducting research to improve my own teaching practice	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q8.5	I present at conferences and seminars to share my own research results	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q8.6	I conduct research to improve my own practice	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>

***9. The following statements concern the extent to which you value your role as a teacher educator-researcher. Please indicate the most applicable answer to each statement**

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
Teacher educators should regularly conduct research to improve their practice	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Research is essential for the teacher education profession	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Teacher educators should conduct research to contribute to the wider knowledge base on teacher education	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Teacher educators should conduct research to investigate their own beliefs and practices about teaching, learning and education	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Teacher educators have a responsibility towards their students to study their own practice	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
I understand why teacher educators are expected to conduct research	☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>

***10. This question seeks to find out what experience you have of research/scholarly activity. Please tick the box(es) that most relevantly describe these activities**

- Q10.1 ☐ I have actively been involved in research (gathering data) and written about my findings <0> <1>
- Q10.2 ☐ As a member of a team I have gathered research data but not been involved in writing up the findings <0> <1>
- Q10.3 ☐ I have no experience of gathering research data <0> <1>
- Q10.4 ☐ I am involved in scholarly research (e.g. reading to prepare for lessons, lectures) <0> <1>
- Q10.5 ☐ I have written book reviews <0> <1>
- Q10.6 ☐ I have edited journals/magazines/books <0> <1>
- Q10.7 ☐ I have written textbooks and/or chapters (e.g. for teachers, students, 'academics') <0> <1>
- Q10.8 ☐ I have written support materials for colleagues (e.g. teaching 'tips' and other resources) <0> <1>
- Q10.9 ☐ Other (please specify) <0> <1>

<TXT>

Professional learning opportunities

Professional learning constitutes the learning that is undertaken as part of the remit of fulfilling the role of a teacher educator

*** 11. As a teacher educator, to what extent are you personally satisfied with the professional learning opportunities you have experienced to date?**

- ☐ 1 (extremely dissatisfied) <1>
- ☐ 2 <2>
- ☐ 3 <3>
- ☐ 4 <4>
- ☐ 5 <5>
- ☐ 6 (extremely satisfied) <6>

*** 12. As a teacher educator, what sorts of professional learning activities do you (or would you) most value?**

	1 (least value)	2	3	4	5	6 (most value)
Q12.1	Observation by or of colleagues ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.2	Award bearing courses (e.g. related to Masters; Fellowships; Postgraduate certification etc) ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.3	Secondment/Sabbatical ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.4	Training activities within your institution (not award bearing) ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.5	Informal learning conversations with other colleagues ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.6	Action research/practitioner-based research ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.7	Other forms of empirical research ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.8	Visits to other schools/teacher education institutions ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.9	Personal reading (e.g. books, journals etc) ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.10	International exchanges/visits ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.11	On-line learning ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.12	Peer coaching ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.13	Academic writing ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.14	Conference presentations ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.15	Participation in professional organisations ☐ <1>	☐ <2>	☐ <3>	☐ <4>	☐ <5>	☐ <6>
Q12.16	Other (please specify) <TXT >					

*** 13. To what extent do the following factors influence your engagement in professional learning?**

		1 (not significant)	2	3	4	5	6 (highly significant)
Q13.1	The cost of the activity	<1>	<2>	<3>	<4>	<5>	<6>
Q13.2	The location of the activity	<1>	<2>	<3>	<4>	<5>	<6>
Q13.3	The availability of staff to cover your teaching/learning/normal work in your absence	<1>	<2>	<3>	<4>	<5>	<6>
Q13.4	Knowledge of who the providers are (e.g. reputation, authority, experience etc)	<1>	<2>	<3>	<4>	<5>	<6>
Q13.5	The extent to which the activity addresses teaching and learning	<1>	<2>	<3>	<4>	<5>	<6>
Q13.6	The extent to which the activity addresses research and writing skills (including publication)	<1>	<2>	<3>	<4>	<5>	<6>
Q13.7	The extent to which the activity addresses networking potential	<1>	<2>	<3>	<4>	<5>	<6>
Q13.8	The extent to which a salary rise might be one outcome from the learning activity	<1>	<2>	<3>	<4>	<5>	<6>
Q13.9	Other (please specify)	<TXT>					

*** 14. To what extent would you like to receive further professional learning in the following areas:**

	1 (not at all)	2	3	4	5	6 (very much)
Q14.1 Coaching and mentoring student teachers	☐	☐	☐	☐	☐	☐
Q14.2 Specialisation in academic administration	☐	☐	☐	☐	☐	☐
Q14.3 Integrating technology into your teaching and learning strategies	☐	☐	☐	☐	☐	☐
Q14.4 Subject knowledge enhancement	☐	☐	☐	☐	☐	☐
Q14.5 Current developments in teacher education	☐	☐	☐	☐	☐	☐
Q14.6 Curriculum development	☐	☐	☐	☐	☐	☐
Q14.7 Assessment	☐	☐	☐	☐	☐	☐
Q14.8 Presentation and participation at conferences	☐	☐	☐	☐	☐	☐
Q14.9 Reviewing journal articles, conference abstracts etc.	☐	☐	☐	☐	☐	☐
Q14.10 Scholarly writing (e.g. articles, chapters, learning materials)	☐	☐	☐	☐	☐	☐
Q14.11 Research Skills	☐	☐	☐	☐	☐	☐
Q14.12 Researching my own practice	☐	☐	☐	☐	☐	☐
Q14.13 Other (please specify)						

*** 15. To what extent would you (or do you) value professional learning opportunities to develop your own pedagogy within the context of teacher education?**

1 (not at all)	2	3	4	5	6 (very much)
☐	☐	☐	☐	☐	☐
<1>	<2>	<3>	<4>	<5>	<6>

*** 16. Currently, what are your two most important professional learning needs?**

*** 17. What professional learning opportunities would best meet these needs?**

Background information on participants

***18. Which country are you employed in?**

Country:

<TXT>

***19. Please complete the following information:**

I am:

☐ Male <1>

☐ Female <2>

☐ Other <3>

***20. What is your age?**

☐ 18-24 years old <1>

☐ 25-34 years old <2>

☐ 35-44 years old <3>

☐ 45-54 years old <4>

☐ 55-64 years old <5>

☐ 65-74 years old <6>

☐ rather not say <7>

***21. I work as a teacher educator:**

☐ Full-time <0> <1>

☐ Part-time <0> <1>

☐ If part-time please indicate what percentage of a full-time job you have

< TXT >

***22. Please tick the box to indicate your highest academic qualification**

☐ Schooling up to, but not including, university education <1>

☐ First Degree <2>

☐ Masters <3>

☐ PhD and/or Professional Doctorate <4>

***23. If you are a qualified teacher please state your type(s) of qualification(s) (if you are not a qualified teacher please tick 'not applicable')**

- ☐ Primary/elementary school teacher <0> <1>
- ☐ secondary/high school teacher <0> <1>
- ☐ Post-16/college/further education teacher <0> <1>
- ☐ University <0> <1>
- ☐ Not applicable <0> <1>
- ☐ Other (please specify) <0> <1>

<TXT >

***24. My contract is:**

- ☐ Permanent <0> <1>
- ☐ Fixed term/supply (one month to one year) <0> <1>
- ☐ Fixed term (one year or longer) <0> <1>
- ☐ Other (please specify) <0> <1>

<TXT >

Voluntary participation in the follow-up to this survey

Thank you again for taking the time to complete this questionnaire. Your answers will help InFoTED understand more fully the professional learning needs of all teacher educators. This has been an anonymous questionnaire. You may wish to take part in follow-up interviews that would provide an opportunity for you to share what it means to be a teacher educator in your particular context. If you would like to be involved in this next stage please fill in the following details:

25. Name:

<TXT >

26. email address:

<TXT >

27. mobile telephone number:

<TXT >

Appendix D: Chapter 4 and 5

Appendix D.1: Participant Information Sheet



I'm Yueying Gong, a PhD candidate at University of Limerick in Ireland. Thank you for completing the previous survey about Chinese university-based physical education teacher educators' professional learning needs and your interests in the further study. The questions in the interview have already been reviewed by the Education and Health Sciences Research Ethics Committee whose email address is: ehsresearchethics@ul.ie. I do appreciate that you can make the time to attend the interview.

Research goal: The topic of the interview is factors influencing Chinese university-based physical education teacher educator's professional identity and professional learning needs.

Note: The concept of 'identity' can be described as a socially and culturally constructed 'self' formed through life experiences and through communication about their experiences. The definition of teacher educators' identity development for this study is teacher educators' construction of their own identities in the academic teacher education community.

Recording: The interview will take you about 60 mins. I'll record our conversation which allows me to get all the details for data analysis and I will take the protection of your information very seriously. You will be sent a copy of the transcription of this interview, and you can remove any statements which you do not want to be recorded.

Break: If you want to have a break at any point or you don't want to answer any of the questions below, please let me know, there's no problem.

If you have any questions, please feel free to contact me by email: Yueying.gong@ul.ie.

Appendix D.2: Informed Consent Form for Chapter 4 and 5



UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH

Study Title: Chinese university-based physical education teacher educators' professional learning needs

If you agree to the following statement and would like to participate in this study, please sign the consent form.

- (i) I have read and understood the participant information sheet.
- (ii) I understand what the project is about, and what the results will be used for.
- (iii) I am aware of the risks and benefits of the study and agree to be a participant in this project.
- (iv) I know that my participation is voluntary and that I can end my participation at any stage without giving any reasons to the researchers.

Signature of Participant: _____

Date: _____

Signature of Interviewer: _____

Date: _____



Title: factors influencing Chinese university-based physical education teacher educator's professional identity and professional learning needs.

Interview Guide

Part 1: Background

- (i) Please detail your path into teacher education and how you came to be in your current post?

(Prompts: contexts they have worked in – university, college, schools; length of time as a teacher; length of time as a teacher educator)
- (ii) What does your current post as a teacher educator entail?

(Prompts: sectors they prepare teachers for;)
- (iii) When you look at the following roles on the paper, which one do you identify yourself? It can be multiple answers. (Teacher, Teacher educator, Researcher, Trainer, Scholar)
- (iv) Can you please tell me about the reasons why you identify in this way?
- (v) Are there any other professional 'labels' which you would like to define yourself?
- (vi) To what extent to the following have impacted (or continue to impact) your professional identity as a teacher educator – (prior beliefs, knowledge, abilities, attitudes, previous teaching experience in school, role models and identities). And please explain it. Tips--Do you think it's strongly, light strongly, or moderate.

Part 2: Self-support

- (i) How do you make sense of your own professional identity as a teacher educator?
- (ii) What or who do you believe influences the sense you make of your professional identity as a teacher educator?
- (iii) What types of self-support activities do you undertake that prompt you to revisit your own professional identity as a teacher educator, e.g (tips)., (self-study) research, critical reflection, self-evaluation, personal reading, daily teaching, student engagement?

- (ii) In what way do each prompt you to revisit your own professional identity as a teacher educator?

Community support

- (i) To what extent are you supported in your role as teacher educator by a team of colleagues?
- (ii) To what extent would you consider you are part of a learning community that develops your professional knowledge and identity?
- (iii) What types of interaction do you have with colleagues regarding planning, teaching and supervision?

(Tip: Exchange, competition, conflict, cooperation, accommodation)
- (vi) What level of social interaction do you have with colleagues?
- (v) To what extent does such interaction support your identity, learning and development as a teacher educator?

Professional learning opportunities:

- (i) What is your level of satisfaction with the professional learning opportunities you have experienced to date as a teacher educator? What and / or who has contributed to the level of satisfaction?
- (ii) What influences your engagement in professional learning?
- (iii) What types of professional learning activities do you most value?
- (iv) What types of professional learning activities would you be interested in accessing in the future?
- (v) What would be two of your most important professional learning needs in the near future? How would you propose these could be most effectively delivered?

Teacher education and research:

- (i) How do you define research in your life as a teacher educator? Describe the types of activity you define as research.
- (ii) How do you use research as a teacher educator? To what extent are you supported and / or encouraged to use research on a day-to-day basis?

(Prompts: inform my teaching; solve problems in my teaching practice; attend research conferences; read educational journals)

- (iii) To what extent do you actively conduct research? For what reason(s) do you conduct research? To what extent are you supported and / or encouraged to conduct research?

(Prompts: share research results with others; conduct research to develop own knowledge; improve own teaching practice; present at conferences)

- (iv) To what extent do you value the role of a teacher-educator researcher? In what way does your role/responsibility encourage you to be a teacher-educator researcher? What and / or who facilitates the role of you being / possible being a teacher-educator researcher?

(Prompts: research essential for the teacher education profession; contribute to the wider knowledge base; responsibility towards students to study our own practice)

- (v) What types of research / scholarly activity have you had an opportunity to experience? What types of activities have you prioritised and for what reasons? What types of activities would you like to have more opportunity to pursue – why and if there are particular barriers to pursuing them what are they?

(Prompts: gathering data; writing for publication; written book reviews; reviewed journal articles; written books; presented at conferences)

Final question:

- (i) Is there anything else you would like to add / discuss with respect to your role as a teacher educator, teacher education and research and / or professional learning opportunities?

Appendix E: Chapter 5

Appendix E.1 Participant Information Sheet for Chapter 5



Title: Relationships between PETEds' professional identity and professional learning needs

I am Yueying Gong, a PhD student at the Department of Physical Education and Sport Sciences at the University of Limerick, Ireland. Thank you very for attending the interview last year. This is a follow-up interview. The questions in the interview had already reviewed by the Education and Health Sciences Research Ethics Committee (2017_01_03_EHS 7) whose email address is: ehsresearchethics@ul.ie.

Research goal: The focus of this interview is to explore the relationship between physical education teacher educators (PETEds)' professional identity and professional learning.

Note:

- (i) Here are some examples of professional learning activities that were mentioned during the first interview: research skills, academic writing, training in sport skill, international exchanges, curriculum development, conversations with colleagues, on-line learning, visit to other institution etc.
- (ii) Professional learning is to help you to develop professional knowledge, skills, and abilities in ways that are responsive to your needs, issues and concerns (Loughran, 2011), it constitutes the learning that is undertaken on a daily basis (Berry, Clemans, and Kostogritz, 2007).
- (iii) Professional identity is defined as the 'valued professional self' (Davey, 2010), that we see ourselves as being or wanting to be as individuals, and as being or wanting to be part of as a social group (Davey, 2011).

Recording: The interview will take you about 60 mins. I'll record our conversation which allows me to get all the details for data analysis and I will take the protection of your information very seriously. You will be sent a copy of the transcription of this interview, and you can remove any statements which you do not want to be recorded.

Break: If you want to have a break at any point or you don't want to answer any of the questions below please let me know, there's no problem.

If you have any questions, please feel free to contact me by email: Yueying.gong@ul.ie

Title: Relationships between PETEds 'professional identity and professional learning needs



Interview Guide

Background and Teaching context

- (i) Describe your daily experience of 'work' and the professional tasks you undertake? Which of these tasks do you identify as teacher educator tasks and which do you identify as teacher tasks?
- (ii) What is your responsibility as a teacher educator in delivering a PETE programme?
 - 1. When do you view yourself as a teacher educator? When do you view yourself as a teacher?
 - 2. What elements of your work are you satisfied with?
 - 3. What elements of your work are you unhappy with?
- (iii) What's your motivation to become a (more effective) teacher educator in teacher education?
- (iv) Please talk me through how you view your own professional identity as a teacher educator. How does this differ as a teacher?
- (v) What knowledge-bases and skills do you feel you need to have as a PETEd?
- (vi) Describe your initial induction experiences into teacher education and / or becoming a teacher educator.
- (vii) What opportunities do you have to meet with other PETEds and discuss practices and teacher education? Describe any professional learning community or group you are involved in that supports, in some way, your work.

Professional learning activities in the past

- (i) During the last year, identify and describe any professional learning activities that you attended which has impacted your professional development.
- (ii) Why was it significant for you to engage in these learning activities? Describe the reasons.
- (iii) What other learning opportunities did you not engage in? What were the reasons? How could those reasons be addressed?
- (iv) Did those learning activities which you attended address your learning needs?
 - 1. Please describe what kind of learning experience helped you achieve your professional learning needs.
- (v) Did you develop relationships in the learning activities?
 - 1. If you developed relationships, how could the new relationship impact your teaching practice and professional identity as a teacher educator?
 - 2. If not, who would you like to develop a professional relationship with? Why?
- (vi) Describe how your professional identity developed through these professional learning activities.

Professional learning needs in the present

- (i) What's your professional learning needs now?
 - 1. Why do you have these needs?
 - 2. What kind of professional knowledge and skills do you want to improve?
- (ii) Last year, you said your professional learning needs were..., how has your learning needs changed?
 - 3. What reasons made them change?
 - 4. How do you propose to effectively address your professional learning needs?
 - 3. If your professional learning needs haven't changed, what can you do to achieve your professional learning needs?

(ii) Who do you expect to engage in the professional learning activities?

1. What type of relationship would you like to build?
2. Why would such a relationship be important?
3. What impact would such a relationship have?

(iii) In what way do you consider that undertaking such professional learning activities would affect your professional identity as a teacher educator?

(iv) What would you suggest is the relationship between professional learning and professional identity? What would you like to change in either your professional learning needs and / or professional identity?

Future goal

(i) What's your professional aspirations and goals?

Is there anything that I have not asked that you would like to comment on or add?

Professional learning and development needs of Chinese university-based physical education teacher educators

Yueying Gong^a, Ann MacPhail^a and Ainat Guberman^b

^aDepartment of Physical Education and Sport Sciences, University of Limerick, Limerick, Ireland; ^bThe MOFET Institute, David Yellin Academic College of Education, Tel Aviv-Yafo, Israel

ABSTRACT

This study examines the professional learning and development (PLD) needs of Chinese university-based physical education teacher educators (PETEds) and their views about effective ways to address them. This is significant given the limited research exploring this group. A European-wide survey was translated and distributed in China, receiving 251 responses of PETEds from 28 provinces. We found that the majority of PETEds had a strong desire to undertake further PLD in three areas: subject knowledge and didactics with particular emphasis on professional training in specific types of sports, research related academic activities and institutional activities. They preferred formal learning programmes as well as international learning activities to address these needs. The cost of the activities was the most significant factor influencing their engagement. We recommend paying closer attention to the PLD needs of specific subject area groups of teacher educators.

ARTICLE HISTORY

Received 13 September 2019
Accepted 13 February 2021

KEYWORDS

Physical education; teacher educators; professional learning; professional development; needs

Introduction

Teacher educators play a crucial role in the education system and significantly impact the quality of teacher education (Lunenberg et al. 2017; Smith 2003; Vanassche and Kelchtermans 2016). To best understand and support teacher educators' professional learning and development (PLD), it is important to learn what skills and knowledge they need and how they effectively acquire such skills and knowledge throughout their career (MacPhail et al. 2018). The area of teacher educators' PLD needs is gaining more interest, but is still under-researched (Czerniawski et al. 2018; MacPhail et al. 2018; White 2019). The literature on the PLD of physical education teacher educators (PETEds) is particularly scant (Coulter 2019).

Recently, the Chinese Ministry of Education (2018b) and the Chinese Ministry of Education, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resources and Social Security, and State Commission Office for Public Sector Reform (2018) have published two documents offering more opportunities and support for teacher educators' PLD. These include, for example, international and domestic visits and teaching observations. However, as Qiu (2015) suggested, Chinese institutions and

CONTACT Yueying Gong  Yueying.gong@ul.ie  Department of Physical Education and Sport Sciences, University of Limerick, Limerick Ireland

© 2021 Association for Teacher Education in Europe

Chinese higher education-based physical education teacher educators' professional learning needs for involvement in research activities

Yueying Gong ^a, Ann MacPhail ^a and Ann-Marie Young ^b

^aPhysical Education and Sport Sciences, University of Limerick, Limerick, Ireland; ^bSchool of Education, University of Limerick, Limerick, Ireland.

ABSTRACT

Research activity is one of the key professional learning needs noted by teacher educators working in higher education. The purpose of this study is to explore what research activities Chinese higher education-based physical education teacher educators (PETEds) prioritised and, in turn, expressed their aligned research-related professional learning needs. A sample of 15 Chinese higher education-based PETEds was interviewed. The results conveyed that Chinese PETEds had a strong desire to avail of research-related professional learning activities, with the majority prioritising peer-review publication. The motives for PETEds to be involved in research tend to be extrinsic to the individual and include pressures aligned to the evaluation of their academic position and institute requirements. PETEds who entered teacher education with a PhD were expected and supported to do research, while PETEds without a PhD requested opportunities to undertake a PhD abroad. While it was easier for PETEds to undertake collaborative research with a research group within their faculty/department, there was a lack of collaborative research external to the faculty/department as well as a lack of international collaboration.

ARTICLE HISTORY

Received 29 January 2020
Accepted 22 February 2021

KEYWORDS

Teacher educators; physical education; professional learning; research activities; teacher education

Introduction

Teacher educators are at the core of good teacher education (Vloet and Van Swet 2010), and key to the educational system as a whole (Smith 2003, 2017, Vanassche and Kelchtermans 2016). It is acknowledged that teacher educators' work is complex and they require high-quality learning opportunities for continuing professional development (Kelchtermans *et al.* 2018). In a recent study, Ping *et al.* (2018) reported on a systematic review of teacher educators' professional learning and found many current studies on teacher educators' professional learning to undertake research. Teacher educators being research active continues to gain increasing support from higher education institutions in many countries (Lunenberg *et al.* 2014). For instance, teacher educators from the UK in Roberts and Weston (2014) study were supported to attend research activities (i.e. workshops on how to write a research plan or abstract and a seminar series to offer peer support). There have been various calls to better identify and address teacher educators' ongoing professional learning needs (Berry 2016, Czerniawski, Guberman *et al.* 2017, Czerniawski, Gray *et al.* 2018, MacPhail *et al.* 2019). Interestingly, professional learning activities related to research were one of the top professional learning needs identified by teacher educators from many different countries (Czerniawski, Guberman *et al.* 2017, Czerniawski, Gray *et al.* 2018, MacPhail *et al.* 2019). Research has become

CONTACT Yueying Gong  Yueying.gong@ul.ie  Physical Education and Sport Sciences, University of Limerick, Limerick, Ireland.

© 2021 Informa UK Limited, trading as Taylor & Francis Group

ARTICLE



The complexity of professional identity: Chinese university teachers teaching in physical education teacher education (PETE) programmes

Yueying Gong^a, Ann-Marie Young^b and Ann MacPhail^a

^aDepartment of Physical Education and Sport Sciences, University of Limerick, Limerick, Ireland; ^bSchool of Education, University of Limerick, Limerick, Ireland

ABSTRACT

In this study, we explore how Chinese teachers, who are involved in PETE programmes in universities, understand their professional identity and what specific factors influence their professional identity as teacher educators. Initially, a sample of 15 Chinese university teachers involved in PETE were interviewed and five follow up interviews were conducted. The results expressed that Chinese university teachers lacked an understanding of the term 'teacher educator'. Noting the diverse responsibilities and teaching to different groups of students, the majority of the participants perceived their professional identity more as university teachers than as teacher educators. One of the most significant factors positively impacting participants' professional identity as teacher educators was their level of interaction with pre-service teachers. There is a need for future research on the diverse work of university teachers involved in teacher education and how their multifaceted roles and responsibilities may influence professional identity as teacher educators.

ARTICLE HISTORY

Received 4 December 2020
Accepted 19 August 2021

KEYWORDS

Teacher educators; university teachers; teacher education; complexity; professional identity

Introduction

Professional identity forms a key part of teacher educators' ways of understanding the world of teacher education as well as the ways in which they enact their beliefs, values and principles through work (Czerniawski 2018, 9–10).

Teacher educators are crucial in supporting and facilitating the initial education of new teachers and continuing professional development of experienced teachers (European Commission 2013). Teacher educators undertake various roles and responsibilities in relation to the different types of work they engage in, for example, teaching, school placement supervision and research (Yuan and Yang 2020). Yuan (2020) suggested that identity struggle and conflicts are part of their professional experiences when they enter teacher education in higher education, and they need to constantly experience, explain and navigate identity conflicts through reflections and practice. Research in a Chinese context found that teacher educators encounter difficulties in identifying as a teacher

CONTACT Yueying Gong  Yueying.gong@ul.ie  Department of Physical Education and Sport Sciences, University of Limerick, Limerick, Ireland

This article has been republished with minor changes. These changes do not impact the academic content of the article.

© 2021 Association for Teacher Education in Europe

