

A CASE STUDY ON EARLY CHILDHOOD
EDUCATION TEACHER EDUCATORS USING
THE 1+X CERTIFICATE SYSTEM INTO
TEACHER EDUCATION TO DEVELOP
PRE-SERVICE NURSERY TEACHERS'
TEACHING COMPETENCE IN
SHAANXI PROVINCE, CHINA

LIU ZI RUI

UNIVERSITI PENDIDIKAN SULTAN IDRIS

2024



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‘Be a good teacher’, my grandfather’s slogan, has served as a guide for my professional life ever since I started working in school. I was only 23 years old at the time, and this phrase had a lasting impact on my life for the next 13 years. I made a commitment to myself that I would put what I had learned to use to fight for the well-being of mankind, particularly the educational fairs, in the future.

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Thanks to you all, you have earned my gratitude!



ABSTRACT

The main research purpose of this study is to investigate how early childhood education (ECE) teacher educators applied the 1+X Certificate System into the nursery teacher education curriculum to improve pre-service nursery teachers' (PSNTs') teaching competence in Shaanxi Province, China and the processes involved in the teaching and learning. This study explored the reasons why ECE teacher educators applied the 1+X Certificate System into the learning process of PSNT in vocational and technical colleges (VTCs), how PSNT applied the integration of the 1+X Certificate System into their learning experience to improve teaching competences; and investigated the views of the PSNT on the combination of '1' academic qualification and 'X' vocational certificate to enhance their teaching competence. This study employed a case study design which carried out in one selected vocational and technical college in China. Four ECE teacher educators and six PSNTs participated in this study. The data were collected through classroom observations, semi-structured interviews, and document analyses of the ECE teacher educators and PSNTs, including lesson plans, policy documents related to the 1+X Certificate System, and PSNTs' reflective notes. Findings from thematic analysis found that ECE teacher educators had applied the 1+X Certificate System into the nursery teacher education curriculum with the aim of enhancing the teaching competence of PSNTs. This implementation impacted various facets of teacher education, including teaching resources, methods, assessment, extracurricular activities, learning methods, teaching environments, emotional objectives, lesson preparation, subject matter comprehension, and the availability of learning materials. The implications provide valuable insights for educational policymakers and ECE teacher educators in vocational schools, assisting in the development of PSNTs' teaching competences and ultimately contributing to the enhancement of educational practices in the field.

**SATU KAJIAN KES TENTANG GURU AWAL KANAK-KANAK
MENGAPLIKASIKAN SISTEM SIJIL 1+X BAGI PENDIDIKAN GURU
UNTUK MENINGKATKAN KOMPETENSI PENGAJARAN GURU PRA-
PERKHIDMATAN DI WILAYAH SHAANXI, CHINA**

ABSTRAK

Tujuan utama kajian ini adalah untuk menyiasat bagaimana guru pendidikan awal kanak-kanak (PAKK) mengaplikasikan Sistem Sijil 1+X ke dalam kurikulum pendidikan guru awal kanak-kanak untuk meningkatkan kompetensi mengajar guru pra-perkhidmatan awal kanak-kanak (GPAKK) di Wilayah Shaanxi, China serta proses yang terlibat dalam pengajaran dan pembelajaran. Kajian ini meneroka sebab-sebab mengapa pendidik guru PAKK mengintegrasikan dan menerapkan Sistem Sijil 1+X ke dalam proses pembelajaran GPAKK di kolej vokasional dan teknikal (VTC), bagaimana GPAKK menerapkan integrasi Sistem Sijil 1+X ke dalam pengalaman pembelajaran mereka untuk meningkatkan kecekapan pengajaran; dan menyiasat pandangan GPAKK mengenai gabungan kelayakan akademik '1' dan sijil vokasional 'X' untuk meningkatkan kecekapan pengajaran mereka. Kajian ini menggunakan reka bentuk kajian kes yang dijalankan di sebuah kolej vokasional dan teknikal terpilih di China. Empat pendidik guru PAKK dan enam GPAKK terlibat dalam kajian ini. Data dikumpulkan melalui pemerhatian kelas, temu bual separa berstruktur, dan analisis dokumen guru PAKK dan GPAKK, termasuk rancangan pengajaran, dokumen dasar berkaitan dengan Sistem Sijil 1+X, dan nota reflektif GPAKK. Dapatan daripada analisis tematik mendapati bahawa guru PAKK telah menggunakan Sistem Sijil 1+X ke dalam kurikulum pendidikan guru awal kanak-kanak dengan tujuan untuk meningkatkan kompetensi mengajar GPAKK. Integrasi ini memberi impak kepada pelbagai aspek pendidikan guru, termasuk sumber pengajaran, kaedah, penilaian, aktiviti ekstrakurikulum, kaedah pembelajaran, persekitaran pengajaran, objektif emosi, persediaan pelajaran, pemahaman subjek, dan ketersediaan bahan pembelajaran. Implikasi ini memberikan wawasan berharga kepada pembuat dasar pendidikan dan guru PAKK di sekolah vokasional, membantu dalam pembangunan kompetensi mengajar GPAKK dan akhirnya menyumbang kepada peningkatan amalan pendidikan dalam bidang tersebut.

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LIST OF ABBREVIATIONS

CBTE	Competency-Based Teacher Education
CPC	The Communist Party of China
ECE	Early Childhood Education
HND	Higher National Diploma
MIS	Multiple Intelligences
NHC	National Health Commission of the People's Republic of China
PSNT	Pre-service Nursery Teacher
RQ	Research Question
RO	Research Objective
VTC	Vocational and Technical College
WTO	The World Trade Organization



LIST OF APPENDICES

- A Interview Protocol for Teacher Educator
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CHAPTER 1

INTRODUCTION

1.1 Introduction

The teaching competency of nursery teachers in teacher education affected young children's psychological development (Collie, 2022). What nursery teachers learned in teacher education can affect their competency in teaching for both the short and long term (Alzahrani et al., 2019). This led Chinese policymakers to establish a policy to enhance teaching competence into the teacher education (Ministry of Education of People's Republic of China, 2019). The need to ensure that young children received real benefits during early childhood education (ECE) led to a demand to reforms in teacher education and improvements in the teaching competence of nursery teachers (Fang, 2022). Teacher competency involves gaining effective mastery of teaching knowledge, which can be achieved by utilizing various class management approaches and tactics learning experiences during teacher education (Bourke et al., 2018). The

teaching competency of nursery teachers related to developing young children, helping them to enjoy positive learning experiences, as well as supporting their holistic and harmonious physical and mental development (Ajayi et al., 2022). In this educational context, this chapter aim to give background information and describe the conceptual framework of this study. The first part of this section provides an overview of the development of the nursery teaching profession in the People's Republic of China.

The second part focuses on the effects of the 1+X Certificate System on the teaching competences of pre-service nursery teachers (PSNTs) during their learning process at Vocational and Technical Colleges (VTCs). The scope of this study encompasses ECE teacher educators and final year students in Shaanxi province, China, enrolled in ECE majors at VTC, which provide diploma certification and a teaching permit. The study examines how 1+X Certificate System ingrates into teacher education reform and its potential effects on Chinese PSNTs' teaching competences during their practice in nursery school. The curriculum content for PSNT in education will enable PSNTs to gain the compulsory knowledge and teaching competences needed to ensure that young children enjoy healthy growth and development. The significance of this study and its limitations are discussed towards the conclusion of the chapter.

1.2 Research Background

In China, nursery teacher educators who educate children aged 0-6 years are required to obtain the Kindergarten Teacher Qualification, which enables them to teach at or below the preschool level (Ministry of Education of the People's Republic of China, 1995). Consequently, the curriculum for nursery teacher education has been centered on the Kindergarten Teacher Qualification exam. This requirement necessitates that anyone intending to teach children in the grades preceding elementary school, such as kindergarten teachers, nursery teachers, and other staff at early childhood institutes, must pursue the Kindergarten Teacher Qualification.

The Kindergarten Teacher Qualification system plays a crucial role in enhancing the teaching competence and specialization of ECE teachers. It is also a vital pathway for improving the teaching competence of pre-service nursery teachers (PSNTs) (Shi, 2021). In the People's Republic of China, PSNTs have historically had to develop their teaching competence independently, as there was no mandatory certification for kindergarten or nursery teachers working in nursery schools until 1994. This situation changed with the implementation of the Teachers Law of the People's Republic of China in 1994, when the government began to emphasize the need for highly competent teachers, addressing the issue that the vast majority of teachers in nursery education previously lacked formal education and training.

In the second stage, enhancing teaching competence through teacher qualification, particularly when PSNTs acquire kindergarten teacher certification signifies that they have developed the necessary skills for working with young

children. Over the last three decades, the Chinese government has endeavored to develop the teaching competence of nursery teachers through education and qualification requirements. Notably, the Ministry of Education (MOE) in China has focused on the curriculum of teacher education (Ministry of Education of the People's Republic of China, 2019, 2021). Table 1.1 summarizes key milestones in the evolution of preschool teaching professionals in the People's Republic of China, outlining four developmental stages: the laissez-faire stage from 1949 to 1993, the development stage from 1994 to 2014, the implementation stage from 2015 to 2018, and the refinement stage from 2019 to the present.

Table 1.1

The Summary of the Development of Nursery Teaching Profession in People Republic of China

Stage	Year	Official Documents	Development of the toddler and infant teaching profession in P.R. China
Laissez-faire (1949-1994)	1949	Not Available	No qualifications or credentials are required to work as a nursery teacher.
	- 1994		
	1994	Teachers Law of the People's Republic of China	For the first time, the fundamental academic requirements for teachers at all levels are enshrined in legislation. To be a nursery teacher, one needs to have either a diploma or a more considerable degree from an early childhood teacher training school.
	1995	Kindergarten Teacher Qualification Regulations	Clarify the content and specifications of the Kindergarten Teacher Qualification Exam.
	1997	On the Implementation of the Ninth Five-Year Plan Goal of National Early Childhood Education	For nursery teacher who have not mastered the qualification of kindergarten teacher for the moment, it is necessary to retrieve the certificate of a teacher. In the meantime, nursery teachers should continue to strengthen their vocational level training and progressively increase the proportion of those with a college diploma or more among nursery teachers.
Development Stage (1994-2014)	2010	Outline of the National Medium and Long-term Education Reform and Development Plan	Adhere to the principle that 'teachers are the first resource for educational development. 'and make the development of in-service preschool teachers' teaching competences a priority for the government in order to assure the quality of preschool education.

(Continue)

Table 1.1 (Continue)

Stage	Year	Official Documents	Development of the toddler and infant teaching profession in P.R. China
Implement Stage (2014-2019)	2014	Excellent Teacher Training Plan	Improve teaching competences for in-service nursery teacher from registration to employment, schools and local authorities.
	2016	Regulations on Kindergarten Work	The regular registration system for preschool teacher is designed to frequently assess preschool teachers' teaching competences after they are hired.
	2018	On the Reform of Teacher Team Construction in the New Era	Improve the teaching competence of nursery teachers in a comprehensive way, and build a team of teachers with higher teaching competence and better educational background.
Refinement Stage (2019-present)	2019	Implementation Plan of National Vocational Education Reform	Integration of enterprises and education, integration of the academic certificate and vocational skill level certificate (1+X). Nursery Care and Education (X certification) is one of the vocational skills certificates, which ensure the scientific teaching young children.
	2019	Guidance on Promoting the Development of Dare Services for Young children Under the Age of Three	Vocational colleges and universities provide young children educate-related majors to accelerate the training of nursery teacher in teaching professionals.
	2020	The Rules for the Cultivation of Preschool Normal Students at Public Expenses	Alter the content of nursery teacher education, optimize the curriculum system, expand the development of practical childcare education courses, and emphasize the integration of childcare and education.
	2021	Plan For the Development and Promotion of Pre-school Education During the 14th Five-Year Plan	To deepen the reform of early childhood education programs in normal universities and to improve the teaching competence of education and the level of normal students.



● **Laissez-faire (1949-1994)**

The teaching qualification was in a state of laissez-faire from the establishment of New China in 1949 until the enactment of the Teachers Law of the People's Republic of China in 1994. During this period, serving as a nursery teacher involved no mandatory requirements for specific education or qualifications. Consequently, nursery teachers primarily relied on themselves to develop their own educational teaching competence. Nursery teachers were known as Jiao Yang Yuan (教养员), a title referring to individuals responsible for the education, healthcare, and nutrition of young children (Ministry of Education of People's Republic of China, 1951). The term 'nursery teacher' first replaced Jiao Yang Yuan in October 1981 (Ministry of Education of People's Republic of China, 1981). The Kindergarten Teaching Guidelines, the foundational official document on teaching, marked the beginning of a professional career for these educators. The Teachers Law of the People's Republic of China, effective from January 1994, established the standards by which the Chinese government would regulate the teacher qualification system (Ministry of Education of People's Republic of China, 1994). This law established a regulatory framework for the employment of qualified teachers in China. However, specific teaching competence standards for nursery teachers were not clarified at that time.

● **Development stage (1994–2014)**

From 1994 to December 5, 2014, the teacher qualification system to access the teaching profession in the People's Republic of China was in its early stages of development. In accordance with the Teachers Law of the People's Republic of China, the Chinese government began focusing on building comprehensive teaching teams (Ministry of Education of People's Republic of China, 1994). The country's Ministry



of Education then released its first formal document, the Kindergarten Teacher Qualification Regulations (1995), in response to rising societal demands for preschool teachers, as well as the increasing need for qualified teachers in kindergarten and nursery education to possess robust teaching competencies. These regulations detailed the content and requirements of the qualification exam for those wishing to work at the kindergarten level or below, including nursery teachers, caregivers, and related educators.

Furthermore, in 2014, the government shifted its focus toward enhancing the academic backgrounds of nursery teachers (Ministry of Education of People's Republic of China, 2014). The Excellent Teacher Training Plan (2014) identified key stakeholders responsible for nursery teacher education, including not only Vocational and Technical Colleges (VTCs) and the Ministry of Education of the People's Republic of China but also local nursery schools that were involved in the merger. The design of this talent training plan outlined the future direction for the development of teaching competencies in nursery teachers. The Excellent Teacher Training Plan significantly enhanced the teaching competence of nursery teachers, encompassing everything from school enrollment to employment at local nursery schools. The PSNT learning process was overseen by regional authorities. During this development stage, the Teachers Law (2014) in China had a profound impact on nursery teachers' teaching competencies. Meanwhile, the Excellent Teacher Training Plan (Ministry of Education of People's Republic of China, 2014) facilitated an increase in the number of qualified nursery teachers by comprehensively supporting education reform and modern educational philosophies. However, the teaching competency of a PSNT could only be fully verified upon obtaining a teaching

qualification, a process that remained distinct from the assessments conducted by nursery schools.

● Implement stage (2014–2019)

In 2016, the Regulations on Kindergarten Work clarified the content of ECE development and the job requirements for nursery teachers (Ministry of Education of People's Republic of China, 2016). According to these regulations, nursery teachers were required for the first time to combine education and care in their teaching activities, only after demonstrating their childcare competencies. The following year, the Ministry of Human Resources and Social Security of the People's Republic of China (2017) formally recognized nursery teachers and caregivers as specialized occupations in its database, marking the first time these roles were explicitly defined in legislation. These positions require specific nursery education teaching competencies, necessitating relevant occupational qualifications.

In 2018, the Ministry of Education of the People's Republic of China issued a regulation titled 'On the Reform of Teacher Training in the New Era'. This regulation emphasized that the teaching competence of nursery teachers directly impacts the quality of nursery education (Ministry of Education of People's Republic of China, 2018). As a result, both pre-service and in-service nursery teachers were required to enhance their teaching competencies and contribute to forming a team of educators with robust academic backgrounds. Despite these developments, the Kindergarten Teacher Qualification remained the sole proof of teaching competency for teachers working with young children aged 0-6. No official nursery teacher qualification was established under the supervision of the Ministry of Education of the P.R.C.



Moreover, in 2019, the Ministry of Human Resources and Social Security of the People's Republic of China abolished the proficiency level examination for nursery teachers due to increasingly rigorous standards and complex societal demands. This period of rapid economic expansion brought a heightened demand for highly qualified nursery teachers, while the Chinese government maintained strict entry requirements for the profession. Consequently, it became critical for the government to establish a certification system to enhance the teaching competence of nursery teachers and improve the overall quality of nursery education.

● Refinement stage (2019–present)

Since the implementation of the two-child policy, the number of young children enrolling in nursery schools in China has surged. Consequently, there is a significant annual demand for PSNTs with robust teaching competencies. Despite the growing need for qualified professionals, ECE graduates often lack the necessary qualifications to teach in nursery education (Uchida, 2021). Recruitment criteria for nursery teachers are becoming increasingly stringent, and the standards for practical teaching competency are also rising. In 2019, the State Council of China published the National Vocational Education Reform Implementation Plan, aiming to increase the number of PSNTs with teaching competencies and enhance these skills during their courses at VTCs. The Ministry of Education in China (2019) committed to extending the reform of the training model for compound technical talents, developing a work plan, specific management measures, and launching a pilot program for the Academic Certificate + Vocational Training Certificate, known as the 1+X Certificate System. This initiative, drawing on common international vocational education practices, sought to leverage the reform.



The content and assessment of the X Certificate exam are designed by industry leaders. Earning both the X Certificate and an academic certificate is considered one of the best educational programs offered by VTCs (Ji, 2021). The 1+X Certificate System encourages students at VTCs to pursue several occupational-level certifications while concurrently obtaining college degrees, thus enhancing their employment prospects and executive skills while addressing structural employment issues. However, it remains unclear how the X Certificate can be effectively applied into the curricula at VTCs, particularly in nursery teacher education, given the limited learning time available to PSNTs.

In China, besides accreditation, nursery teachers and other educators working with children under three years old possess extensive competencies in teaching young children. While the National Health Commission of the People's Republic of China is tasked with monitoring the quality of nursery schools' services and the teaching competencies of nursery teachers, the Ministry of Education and the National Health Commission have begun to recognize the importance of competencies in nursery education collectively. In 2021, the fourteenth Preschool Education Development Five-Year Plan was implemented. This plan established training initiatives for nursery teachers and implemented training across the entire ECE workforce. The effectiveness of the academic curriculum was enhanced by placing greater emphasis on practical training (Ministry of Education of People's Republic of China, 2021). However, the Fourteenth Preschool Education Development Five-Year Plan did not specify how practical training could be improved in the PSNTs' teacher education learning process.

1.3 Problem Statement

The current state of teacher preparation curriculum, especially in relation to the critical aspect of nursery teachers' teaching competence essential for child development, has been largely overlooked both in policy frameworks and academic discussions, sparking debate in recent years (Ma & Gu, 2022). Despite initiatives like the Ministry of Education of the People's Republic of China's proposal for Kindergarten Teacher Qualification to enhance nursery teachers' teaching competences, the specific requirements for PSNTs remain ambiguous. While the curriculum in teacher education guidelines were introduced to standardize nursery education, they fall short in defining the significance of teaching competences for nursery teachers, particularly for PSNTs (Ministry of Education of People's Republic of China, 2014).

While prior research has extensively examined various facets of nursery teacher education, such as organizing teaching activities, teaching STEM subjects, professionalism, language development, organizational culture, care services, literacy development, pediatric care competence, self-learning abilities, empathy, multimedia technology, and mindfulness meditation (Vorobyeva & Le-van, 2017; Reeves et al., 2018; Kim & Ryu, 2020; Fang, 2022), there remains a gap in understanding how ECE teacher educators apply the 1+X Certificate System into nursery teacher education curriculum to enhance PSNTs' teaching competence within the Chinese nursery education context. Existing nursery teacher education primarily focused on the Kindergarten Teacher Qualification, neglecting the specific development of teaching competences for nursery teachers (Li et al., 2019). Few studies have explored

curriculum designs aimed at improving PSNTs' teaching competence, leaving this area vulnerable to uncertainty (Reeves et al., 2018; Kim & Ryu, 2020; Li, 2022; Wu & Wang, 2022). Studies by Zhang, Wu et al. (2021), Yu (2021), and Ji (2021) have highlighted deficiencies in teaching competences among PSNTs, particularly evident during their teaching practicum. Therefore, there is an urgent need to investigate the aspect of teaching competence among PSNTs and how ECE teacher educators applied the 1+X Certificate System into the teacher education procedure. Additionally, the themes of education and care for young children were taught in the module. The new approach to curriculum design helped eliminate the need for theoretical courses disconnected from the requirements for teaching young children. This study interviewed individuals with frontline experience as PSNTs to determine how the 1+X Certificate System could impact PSNTs' teaching competence in nursery education.

1.4 Purpose of the Study

The purpose of this study is to demonstrate how the effectiveness of PSNTs' teaching competences can be improved through the implementation of the 1+X Certificate System into the learning process of nursery teacher education in Shaanxi, the People's Republic of China.

1.5 Objective of the Study

The research objectives are summarized in this study as follows:

1. To investigate how the ECE teacher educators integrate the 1+X Certificate System to cultivate PSNTs' teaching competence in teacher education;
2. To explore the reasons why the ECE teacher educators implement the 1+X Certificate System into the learning process of PSNT in VTC;
3. To explore how the PSNT apply the integration of the 1+X Certificate System into their learning experience to improve their teaching competences;
4. To investigate the perception of the PSNT on the combination of '1' academic qualification and 'X' vocational certificate to enhance their teaching competence.

 05-4506832 Overall, this study aims to gain insights into how ECE teacher educators integrate the

1+X Certificate System into the nursery teacher education curriculum to enhance PSNTs' teaching competence at Chinese vocational and technical colleges. The implementation of the 1+X Certificate System by ECE teacher educators can offer valuable insights for nursery teacher education programs, guiding them in training PSNTs to improve their teaching competencies. By incorporating the 1+X Certificate System into the nursery teacher education curriculum, ECE teacher educators can support and enhance PSNTs' understanding of teaching competencies during their learning process in VTCs. This implementation ensures the provision of high-quality learning curricula within the nursery teacher education program. The curricula can better inform teacher educators on how to prepare PSNTs to benefit from the outcomes generated through the 1+X Certificate System, as they provide evidence of official authorization, which will help improve PSNTs' teaching proficiency levels.

1.6 Research Questions

Based on the research objectives, research purpose, and problem statement, the research questions for this study are addressed as follows

RQ 1: How do the ECE teacher educators integrate the 1+X Certificate System to cultivate PSNTs' teaching competence in teacher education?

RQ 2: Why do the ECE teacher educators implement the 1+X Certificate System into the curriculum of nursery teacher in education?

RQ 3: How do the PSNT apply the integration of the 1+X Certificate System into the curriculum to improve teaching competences?

RQ 4: What is the perception of the PSNT on the combination of '1' academic qualification and 'X' vocational certificate to enhance their teaching

1.7 Rationale of the Study

According to the research background and problem statement, several significant concerns have been highlighted as barriers to the effective development of PSNTs' teaching competencies with young children in nursery education. Currently, all PSNTs are required to acquire teacher qualifications in pedagogy, psychology, and teaching methodologies, as stipulated by the Chinese Teachers Law (2014). However, at the college level, nursery teacher education lacks useful educational modules specifically for PSNTs (Yang, 2020). Other findings have revealed a deficiency in teaching competency criteria to gauge how well PSNTs should be able to teach young children



during their pre-service practicum (Zhang, Wu, et al., 2021; Yu, 2021; Ji, 2021). Therefore, there is an urgent need for effective learning curricula for PSNTs who teach children under three years old to meet the demands of their future roles. This study aims to enhance PSNTs' teaching competence through the integration of the 1+X Certificate System into teacher education. ECE teacher educators need to understand what is required in the teacher education program curricula to enhance the teaching competencies of PSNTs. The 1+X Certificate System includes a combination of teaching credentials and professional skills certificates. With the 1+X Certificate System as a requirement at VTCs, ECE teacher educators will be better equipped to train PSNTs to develop more robust teaching competencies, given that PSNTs' teaching competencies are linked to the content taught in ECE programs and the education provided to young children (Liu, 2022). Nursery teachers will benefit from the outcomes generated through the 1+X Certificate System, as it provides evidence of official recognition, which will help improve PSNTs' teaching proficiency level.

The 1+X Certificate System has been developed to assist ECE teacher educators in improving PSNTs' teaching competence related to educating and caring for young children, especially those under three years old. Nursery teacher education content advocates the integration of education and healthcare services, which can enhance teaching competencies (Guangxi Liuzhou Liunan District People's Government, 2021). The healthcare services supervised by nursery teacher schools provide scientific and standardized care services for children under three (National Health Commission of the People's Republic of China, 2019). PSNTs' teaching competencies are influenced by a combination of nursing and medical knowledge, and deficiencies in either area can affect the quality of care provided to young children. Additionally,



this study may contribute to identifying an appropriate teaching competency quality standard for PSNTs that would apply to their nursery school teacher qualification and thus enhance the subsequent development of Chinese society. Finally, a personal commitment to lifelong learning and professional development has inspired this study to pursue a topic that not only advances the researcher's own knowledge and skills but also contributes to the broader field of teacher education. This study aligns with the values of continuous improvement and the transformative power of education.

1.8 Conceptual Framework of Research

Howard Gardner's theory of Multiple Intelligences (MIs) and Lee Shulman's Pedagogical Content Knowledge (PCK) are central to understanding nursery teachers' teaching competencies and the integration of the 1+X Certification System into teacher education curricula. The conceptual framework for this study is divided into two core parts, consisting of concepts that guide the entire research process.

The first section details the process of building PSNTs' teaching competencies in teacher education at VTCs. This is achieved by identifying the distinctions in personal intelligences and addressing the genuine teaching challenges that arise with young children. In the first section, the MIs theory is introduced, followed by an outline of the intelligences that PSNTs should consider in teacher education. This concept explains how PSNTs can leverage their intelligences to improve their teaching competencies with young children through teacher education. Based on this conceptual framework, the PCK theory will address the enhancement of PSNTs'

teaching competencies through targeted teacher education modules.

The second section focuses on the 1+X Certificate System, designed to enhance PSNTs' teaching competencies by providing high-quality learning curricula to be integrated into teacher education programs. This framework outlines the study's aim to improve PSNTs' teaching competencies during their training and practice in VTCs. The conceptual framework specifically targets teaching competencies within the context of PSNT education. The second section elaborates on how integrating the 1+X Certificate System into teacher education can improve PSNTs' teaching competencies. This framework details how the MIs and PCK theories can elevate PSNTs' competence levels, as illustrated in Figure 1.1.

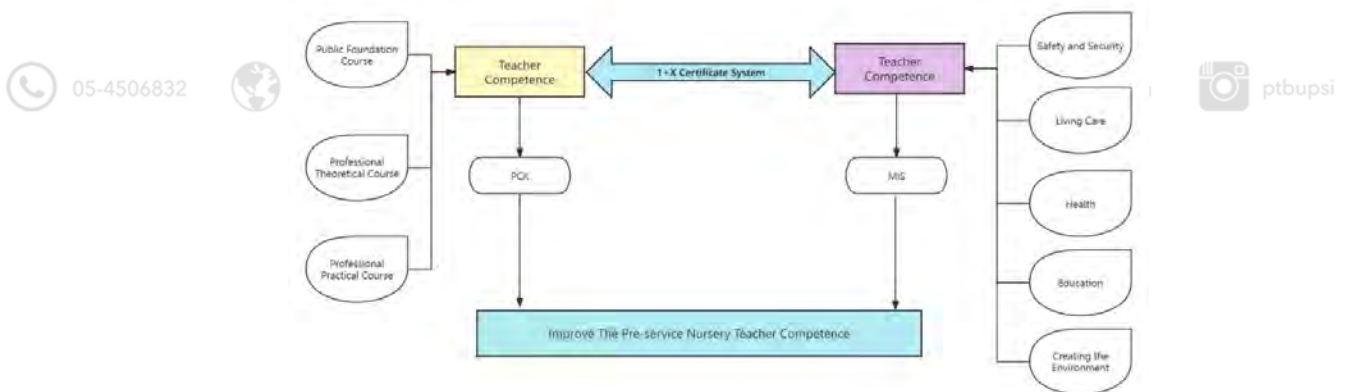


Figure 1. 1. The Conceptual Framework of This Study

1.8.1 Multiple Intelligences Theory

Howard Gardner, an American developmental psychologist, devised the theory of MIs in the early 1980s as an alternative to traditional intelligence assessment methods. This design was based on the recognition of the diverse ways people learn and understand. Gardner (1983) developed this theory in response to the need to



accommodate the various ways individuals learn and comprehend information. According to Gardner's theory (2016), for each type of intelligence to be considered a competence, it must have its own memory system and distinct cerebral structures dedicated to processing its specific contents. Each type of intelligence comprises a complex set of particular talents that encompass both convergent problem-solving and divergent thinking abilities, collectively referred to as competencies.

Gardner (1989) identified nine distinct facets of human intelligence, each associated with a specific set of competencies in individuals. These include verbal-linguistic intelligence, logical-mathematical intelligence, visual-spatial intelligence, bodily-kinesthetic intelligence, musical intelligence, naturalist intelligence, interpersonal intelligence, intrapersonal intelligence, and existential intelligence. He posited that everyone possesses these intelligences, but in each person, one form tends to be more dominant than the others. This groundbreaking work was significant because traditional assessments of intelligence typically recognized only two types: logical ability and linguistic ability. Gardner's MIs theory, which established a learner-centered philosophy, has been one of his most notable contributions to cognitive research.

By applying Gardner's concept to nursery teacher education, PSNTs can better utilize their particular intelligences to perform relevant teaching activities, thereby improving the quality of education for young children in nursery settings. Relevant studies include work on verbal-linguistic intelligence (Hasanudin & Fitriarningsih, 2020), logical-mathematical intelligence (Ulya & Munastiwi, 2021), visual-spatial intelligence (Clarke, 2018), bodily-kinesthetic intelligence (Han & Lim, 2019),



musical intelligence (Moluayonge, 2022), naturalist intelligence (Hasanah et al., 2019), interpersonal intelligence (Wilson, 2018), intrapersonal intelligence (Lee & Kim, 2021), and existential intelligence (Mulyani, 2021).

A vocational skills certificate signifies a given level of technical expertise, with various careers corresponding to different levels of education and experience required to achieve them (Wang & Wang, 2019). The vocational skills certificate is intended to supplement teacher certification in nursery education and contribute to improvements in PSNTs' teaching competence. The term 'X' in the 1+X Certificate System represents optional VTC modules aimed at enhancing different teaching competencies. The 1+X Certificate System allows PSNTs to select qualifications that match their intellectual strengths, thereby supporting them in developing their teaching competencies. The teaching competencies of PSNTs can be improved using X Certificates, aligning with the varied work content at nursery schools. The addition of the X Certificate not only meets the complex employment requirements of nursery schools but also enables PSNTs to understand the appropriate teaching activities to provide for young children in nursery education.

There are widespread concerns among scholars that nursery teachers' teaching competencies are crucial for young children's short-term and long-term development, especially in the early stages (Wu & Perisamy, 2020). Therefore, the Chinese government has aimed to enhance the teaching competence of nursery teachers (Ministry of Education of People's Republic of China, 2014, 2019, 2021; National Health Commission of the People's Republic of China, 2021, 2022).

The concept of intelligence has been defined as the act of processing information independently in a way that enables problem-solving and demonstrates the competencies needed to adapt to one's environment or context (Garrett, 1946). Thus, there is a clear association between a PSNT's teaching competence and their learning strategies.

In addition, Howard Gardner's study (1983) emphasized how intelligence is an essential means of processing information and developing competencies. Gardner defined intelligence as an individual's capacity to solve genuine problems or to create and construct successful items while adhering to the norms of a particular social or cultural context (Gardner, 1989). A nursery teacher's teaching competency entails meeting the teaching requirements of a nursery school and developing effective strategies to address the real-world challenges that PSNTs encounter in their classroom teaching (Seo, 2018). Based on the MIs theory, Gardner (1989) concluded that human intelligence consists of multiple dimensions, as opposed to a single dimension, which respond to information processed according to individual learning strategies. PSNTs utilize intelligences that enable them to effectively solve problems and build resilience against challenges they face. Additionally, intelligence allows PSNTs to exhibit an innate curiosity for learning, with problem-solving not requiring external motivation in the form of societal rewards when they are teaching in nursery education (Nosirovna, 2020).

A nursery teacher's teaching competence is conceptualized as a framework that describes specific intelligences (Alelaimat et al., 2020). PSNTs must meet the considerable demands of their profession using their intelligences. However, these

alternative concepts of intelligence have not been successful in replacing the unitary conception of intelligence in the minds of most psychologists and educators, nor in the development of PSNTs' teaching competence (Otto & Karbach, 2019; Inmaculada et al., 2021). During nursery teacher education at VTCs, ECE teacher educators are tasked with providing exercises that enhance students' teaching competencies. The teaching activities content accommodates the various intelligences and learning styles of the PSNTs (Ministry of Education of People's Republic of China, 2019). MIs are responsible for ensuring that the curriculum is presented in a manner that enables each PSNT to improve their teaching competence with young children in nursery education.

The modular curriculum implemented in nursery teacher education is based on the job tasks required at nursery schools. PSNTs undertake modular learning according to their intelligence through the incorporation of the MIs theory into teacher education. This teaching approach is evident in the design of the 1+X Certificate System, which reflects student-centered teaching as the curriculum design in teacher education focuses on PSNTs' intelligences. They pursue the X Certificate that best suits their professional goals and interests. To acquire the X Certificate, PSNTs' teacher educators must implement instructional strategies appropriate for the level of intelligence exhibited by the PSNTs. These strategies assist PSNTs in improving their teaching competencies and identifying their own intelligences to solve problems during their teaching in nursery education.

Significantly, improving PSNTs' teaching competence in teacher education is connected to teacher qualification and professional certification, professional teaching standards and skill level standards, teaching practical training content and certificate

training content, as well as course evaluation and teaching competence evaluation (Ministry of Education of People's Republic of China, 2019). Enhancing PSNTs' teaching competencies can be achieved through the incorporation of MIs into the curriculum reform process in nursery teacher education. Evaluations of nursery teacher education and PSNTs' teaching competencies are interconnected (Tican & Deniz, 2019). PSNTs assess their teaching competencies through tests in settings specifically designed for those aiming to teach in nursery education.

Incorporating the concept of multiple intelligences into teacher education might encourage PSNTs to overcome the limitations of their nursery education teaching, broaden their teaching competencies, help them learn how to obtain relevant professional teaching certifications, promote the comprehensive development of multiple intelligences, improve their overall teaching competence, and evolve into composite talents. The goals for PSNTs include fostering the development of multiple intelligences, enhancing their overall teaching competencies, and progressing towards becoming multidimensional talents. Ideally, PSNTs' teaching competencies should be improved through their intelligences within the educational setting, particularly by ECE teacher educators. Therefore, the PCK theory must be adopted when reforming nursery teacher education curricula. The following section elaborates on Lee Shulman's perceptions to provide a better understanding of the need for reform in nursery teacher education.

1.8.2 Pedagogical Content Knowledge

Lee Shulman (1987) was the first to introduce the concept of Pedagogical Content Knowledge (PCK). This term refers to the integration of a teacher's pedagogical skills and content knowledge, specifically applied when educating PSNTs in a manner that aligns with their teaching competencies and interests. PCK encompasses three domains particularly pertinent to the teaching competencies of PSNTs (Mahler et al., 2017): (1) Knowledge of tasks that enhance PSNTs' understanding; (2) Knowledge of explanations and instructional strategies; (3) Awareness of PSNTs' preconceptions, misconceptions, and common challenges during their learning process. Therefore, PCK is intimately connected to the concept of subject-matter knowledge for teaching. This focuses not merely on the mastery of content but on how effectively this knowledge is utilized within classroom settings (Gore et al., 2017).

Given the generalized nature of teacher education content, it poses significant challenges for educators in effectively imparting knowledge to PSNTs (Fauth et al., 2019). The PCK framework provides a critical opportunity to explore the constructs related to this study by examining the teaching competencies of nursery teachers within educational settings. Torbeyns et al. (2019) further elaborated on PCK, highlighting that exceptional nursery teachers not only comprehend the subject matter deeply but also possess the requisite skills to convey this knowledge effectively to their students.

PCK facilitates more effective performance of cognitive teaching activities by PSNTs (Hennissen et al., 2017). Moreover, teacher education modules are tailored to

the individual intelligence of each PSNT, providing more personalized learning support (Baumert et al., 2010). In the field of ECE, PCK is crucial for understanding the typical misconceptions and challenges PSNTs encounter when developing their content-related knowledge. It is also vital for addressing the unique requirements of young children's knowledge acquisition (Tang & Mohd, 2020). Additionally, PCK encompasses PSNTs' understanding of teaching strategies, use of models, conducting experiments, and making observations, all of which are essential for effective teaching (Wu & Wang, 2022).

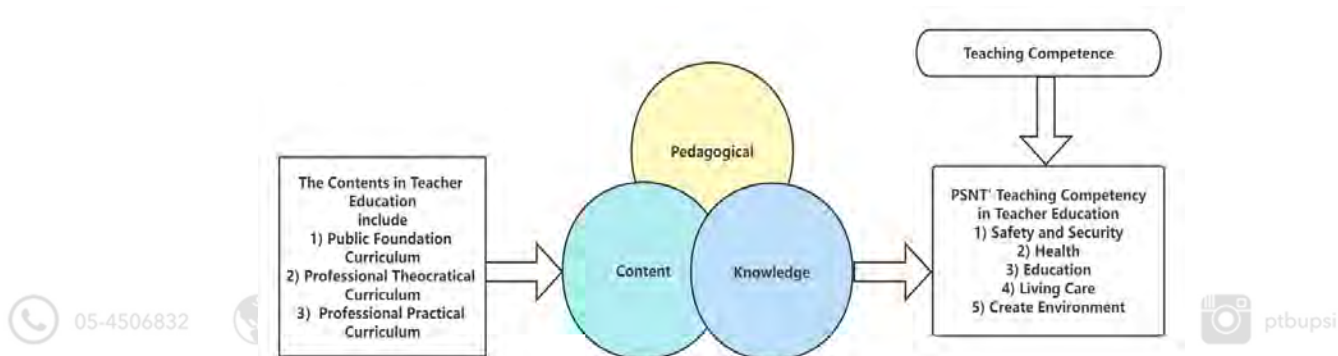


Figure 1. 2. The Structure of Nursery in Teacher Education is Designed by PCK

Some scholars have examined the impact of PCK on enhancing the teaching competence of nursery teachers within the realm of teacher education (Torbeyns et al., 2019; Gou, 2022). For example, Jenßen et al. (2021) investigated the progression of teaching competencies among 129 PSNTs from their education phase to their practical application as nursery teachers. The findings suggest that PCK may alleviate anxiety and stress during teaching activities at nursery schools while also affording PSNTs greater autonomy, thereby enhancing their job satisfaction. This study also provided an overview of reforms implemented by PSNT's supervisor in teacher education, aligning with the requirements and competencies of PSNTs as depicted in Figure 1.2.

The effectiveness of teaching strategies in improving PSNTs' teaching competencies has been contested by various researchers (Osborne et al., 2019; Affouneh et al., 2020; Zhang et al., 2021). In the context of PSNT education, 'curriculum' refers to the PSNTs' ability to develop practical teaching competencies with young children and to adapt to the diverse challenges encountered in nursery schools. While improvements in PSNTs' teaching competencies are often supported by quantitative data, it is important to note that their academic performance should not be the sole measure of their teaching capabilities during their training at vocational and technical colleges (Damianidou & Phtiaka, 2018).

In the People's Republic of China, PCK within teacher education is categorized under the umbrella of teaching competencies (Wu & Li, 2022). For instance, the Implementation Plan of National Vocational Education Reform (Ministry of Education of the People's Republic of China, 2019) specifies that PSNTs should develop a deep understanding of the complex nature of teaching, which is crucial for enhancing the effectiveness of teacher education. This understanding is considered a manifestation of PCK. It includes PSNTs' knowledge of learners, the curriculum, their contextual environment, and pedagogical content, which are central to applying various teaching and learning strategies effectively (Fonsén & Ukkonen-Mikkola, 2019). However, research into PSNTs' teaching competencies often remains concentrated within the field of ECE, rather than extending to broader ECE teacher education or exploring the relationships between different components of PCK. Given the scarcity of research in the area of nursery teacher education, this study will employ a PCK and MIs framework to develop and evaluate research-based strategies aimed at enhancing PSNTs' teaching competencies.

Fundamentally, the purpose of this study is to investigate how the ECE teacher educators integrate the 1+X Certificate System into the learning curriculum of nursery teacher education to improve PSNTs' teaching competence in Shaanxi Province, China. In addition to this, this study will explore the reasons why the ECE teacher educators integrate the 1+X Certificate System into the learning process of PSNT in VTC, using the responses from the PSNTs' interviews and their practicum experiences, this study also seeks to explore how the PSNT apply the integration of the 1+X Certificate System into their learning experience to improve teaching competences and investigate the perceived views of the PSNT on the combination of '1' academic qualification and 'X' vocational certificate to enhance their teaching competence.

1.9 Operational Definition

In this study, several key terms are frequently employed to delineate various facets of the research topic. These include 'nursery teacher', 'teacher educator', 'teacher education', 'teaching competence of pre-service nursery teachers', and 'the 1+X Certificate System'. Each term will be clearly defined to ensure a consistent understanding based on the specific context of this study.

1.9.1 Nursery Teachers

In nursery schools or kindergartens, nursery teachers were the professionals

responsible for the education and health of young children. Scholars defined nursery teachers as individuals who had completed an academic program in early childhood education at a university or vocational institution (Goyal et al., 2019; Harris et al., 2018; Lee, 2019; Purnama et al., 2020). These teachers combined theoretical knowledge with extensive practical experience, equipping them to effectively support the developmental needs of children, their families, and communities.

Nursery teachers were tasked with the care and educational guidance of children aged 0 to 3 years. They provided services that promoted health, cognitive, and social development, ensuring that children grew in a nurturing environment. Additionally, nursery teachers played a critical role in educating parents on best practices for child development and early education. In this study, a nursery teacher was characterized as a qualified professional who delivered comprehensive and structured early education services. These services included direct educational activities with children up to the age of 3 and extended to offering support and guidance to their caregivers. This operational definition underscored the dual role of nursery teachers in direct child education and family and community engagement.

1.9.2 Teacher Educator

The term ‘teacher educators’ refers to individuals engaged in training both aspiring and practicing student teachers, overseeing their development and supporting their ongoing learning within the field of education (Seel, 2012). While historically, the term may have solely encompassed those preparing future educators, contemporary



understandings extend to those facilitating the professional growth of practicing teachers, rather than exclusively those instructing prospective educators entering the workforce (Tortorelli et al., 2021). Within the context of this study, teacher educators within Chinese Vocational and Technical Colleges, possessing qualifications in early childhood education, play a crucial role in cultivating teaching competence among students pursuing careers in teacher education and nursery education practice. These educators cover diverse subjects within early childhood education and actively assess the teaching capabilities of PSNT, assuming responsibility for their diploma training.

1.9.3 Teacher Education



The teacher education program is broadly segmented into three phases: pre-service teacher education, induction teacher education, and in-service teacher education (Korhonen et al., 2017). Within the scope of this study, PSNT in education specifically refers to the education and training provided to students in the final year of their teacher education program, immediately preceding their initial teaching assignment at a nursery school. In China, PSNTs are mandated to complete a 10-month practicum at a nursery school before finalizing their teacher education and obtaining a teaching certificate. During this practicum, a student majoring in ECE is designated as a PSNT. This practicum phase in nursery education serves as an essential preparatory stage, equipping prospective nursery teachers for their entry into the teaching profession. Consequently, 'teacher education' in this context denotes the participation of an individual in an ECE program aimed at acquiring Kindergarten Teaching Qualifications, under the supervision of a curriculum instructor throughout



their instructional course.

1.9.4 The Teaching Competence of Pre-service Nursery Teachers

The research conducted by Dong and Xu (2021) aimed to assess the quality of teaching provided in nursery schools. Their findings indicated that the teaching competency of pre-service nursery teachers (PSNTs) underwent a dynamic growth process, continuously revised and updated. This conclusion was supported by numerous other scholars (Zhang et al., 2018; Dalinger et al., 2020; Kelleci & Aksoy, 2020). In the context of the People's Republic of China, PSNTs were required to pass the Kindergarten Teacher Qualification examination and hold an academic degree. For the purpose of this study, 'The Teaching Competence of PSNTs' referred to their ability to promote the health and development of young children, specifically those aged 0 to 3 years, and to impart life skills that prepare them for future stages of life. These competencies involved conveying knowledge to young children and fostering essential language and social skills through various activities, including games and one-on-one sessions. In this study, teaching competence was understood as the process through which PSNTs, as full-time nursery student teachers, met employment standards and achieved qualified teacher education status following rigorous training.

1.9.5 The 1+X Certificate System

The literature on the 1+X Certificate System is extensive, focusing primarily on its role in reforming VTCs in the People's Republic of China. Key studies by Yang (2020), Huang (2021), Yu (2021), and Shi (2021) have significantly advanced our understanding of its implementation and broader implications. The 1+X Certification System is often viewed as a transformative departure from traditional academic qualifications, emphasizing a holistic approach to enhancing both student competencies and job satisfaction. The 1+X Certificate System is a composite certification framework that integrates academic qualifications and vocational certificates. The academic component confirms a student's mastery of executive abilities, assessed through academic examinations, while the vocational certificate highlights specialized skills acquired through practical training. The '1' in the system symbolizes the integration and expansion of unique academic content, whereas the 'X' represents an extension of knowledge that transcends traditional educational boundaries. This system embodies the core of vocational education, equipping students with a comprehensive skill set tailored for the modern workforce. In this study, the 1+X Certificate System is considered a pivotal element of vocational education reform. Through an in-depth exploration of this framework, the study seeks to elucidate skill formation processes and assess their impact on enhancing vocational education practices.



1.10 Study Limitation

The study conducted a comprehensive analysis of the challenges facing PSNTs specializing in children aged 0 to 3 years, aiming to design a curriculum structure for nursery teacher education. It evaluated how integrating the 1+X Certificate System into teacher education could impact PSNTs' teaching competencies through qualitative methods. The approaches included document analysis, observational data analysis, and semi-structured interviews to gather and interpret data. However, some aspects were not addressed, indicating the need for ongoing review and resolution of limitations to aid future scholars conducting similar studies.

Firstly, this study adopts a case study approach with purposive sampling, focusing on selected PSNTs and ECE teacher educators at a single college in Shaanxi, China. Therefore, the findings to other institutions may be constrained.

Secondly, this research is limited to teacher educators in the field of ECE at VTCs in China. It specifically examines the feedback and actions of these educators and PSNTs within the ECE major, excluding those from other disciplines within VTCs. Therefore, it does not encompass the outcomes of the entire ECE program.

Thirdly, this study focuses on how ECE teacher educators incorporate the 1+X Certificate System and teaching methods in classrooms to enhance PSNTs' teaching competence in teacher education. Therefore, the findings may not apply to other teacher educators or educational settings outside the scope of this specific study.



1.11 Importance of Research

This study aims to enhance the teaching competencies of PSNTs and produce qualified educators through the reform of teacher education via the 1+X Certificate System. Recently, the teaching competency of PSNTs has garnered considerable attention from scholars, educational administrators, nursery school directors, parents, and the general public as a critical factor influencing the quality of nursery education (Egert et al., 2018; Namaziandost et al., 2019; Gangadhar et al., 2019; Cerezci, 2020). Prior research underscores that advancements in ECE consistently emphasize the necessity for nursery teachers to possess robust teaching competencies without diminishing the value of teacher education. Furthermore, this study seeks to assess the effectiveness of the 1+X Certificate System in enhancing teaching competencies within nursery education, based on feedback from PSNTs.

Firstly, the findings are intended to inform the Ministry of Higher Education in China about how teacher educators are integrating the 1+X Certificate System and the instructional strategies they employ in classrooms to develop PSNTs' teaching competencies. This knowledge is expected to facilitate ongoing enhancements by the Ministry of Education in the teaching of early childhood education, thus ensuring the effectiveness of programs implemented at vocational and technical colleges and tertiary institutions.

Secondly, this study aims to improve the teaching competencies of PSNTs and produce skilled ECE teacher educators through the 1+X Certification System reform in teacher education. The insights gained from this study will be instrumental for ECE

teacher educators in training PSNTs, particularly in managing teaching activities at nursery schools and understanding the challenges they encounter.

Thirdly, the findings should motivate ECE teacher educators to make necessary curricular adjustments within their teaching scope. ECE teacher educators are encouraged to plan their daily lessons incorporating the 1+X Certificate System, aimed at bolstering PSNTs' teaching competencies. This study will also enlighten ECE teacher educators about the factors that enhance teaching competencies in PSNT education programs, thereby equipping them with effective pedagogies, strategies, and activities that promote teaching and learning.

Finally, this study examines how the integration of teacher qualifications and professional certification into nursery teacher education can further improve PSNTs' teaching competencies. The goal is to identify contextual challenges and provide insights for tertiary institutions offering nursery teacher education programs. As a result, this study will contribute to expanding the body of literature on nursery teacher education, particularly within the Chinese context.

1.12 Summary

This chapter has outlined the main objective of the research, which is to investigate how integrating the 1+X Certificate System into nursery teacher education can enhance the teaching competencies of PSNTs by teacher educators. The implementation of the 1+X Certificate System aims to ensure that PSNTs are well-

prepared to effectively engage in teaching activities related to the care and education of young children. By incorporating this system into the nursery teacher education curriculum, it is expected that there will be an improvement in PSNTs' teaching competencies, thereby contributing to an increased number of skilled nursery teachers in the People's Republic of China. The next chapter will comprehensively review relevant literature for this study.