

A Comparative Study of Pre-service Education for Preschool Teachers in China and the United States

Xin Gong

School of Education, Central China Normal University

Pengcheng Wang

School of Education, Central China Normal University

This study provides a comparative analysis of the pre-service education system for preschool educators in China and the United States. Based on collected data and materials (literature, policy documents, and statistical data), we compare two areas of pre-service training: (1) the formal system; (2) the informal system. In the formal system, most of the Chinese preschool teachers are trained in secondary education school but and the system is shifting towards higher reliance on associate degree programs in higher education, whereas the majority of American preschool teachers receive pre-service education in bachelor's degree and associate degree programs. US has relied more on the formal system to cultivate preschool teachers, while China has to rely on some informal pre-service training to candidates without early childhood background, especially for places with preschool teacher shortages. Trends for possible reforms in the two countries and lessons for elevating preschool teacher preparation are discussed.

Introduction

Early childhood education (ECE) has garnered more attention in the past few decades. To ensure children receive real benefits of early childhood education, the need for improving the quality of preschool teachers becomes a central policy topic in both the US and China. The US has a longer history of formal early childhood education than China; the first US preschool (at that time, called “kindergarten”) opened in 1856 in Wisconsin, whereas China’s first preschool opened in 1903, in Hubei province. Although US scholars see the need to improve the quality of the American ECE teacher education system (Kagan, Kaurez, & Tarrant, 2008; Whitebook & Austin, 2015), China can still learn from their best practices and lessons learned. By comparing the two countries, the purpose of the present study is to give practitioners and researchers context into the conditions that had

undermined the quality of China's preschool teacher education and also provide experience from China's recent reforms.

A number of studies have compared preschool education practices in China and the US (Che, Hayashi, & Tobin, 2007), and compared teacher preparation and qualification (Ingersoll, 2007). The present study will be the first English study to compare the two systems for early childhood education with a focus on teacher preparation. It is important to know the differences in teacher preparation system in order to understand the differences in the two countries' pedagogical methods for young children. Some researchers have discovered that preschool education in China and the US have differences in teaching methods or concepts and cultivates different types of students (Tobin et al., 1991). Generally speaking, teachers in the US emphasize student autonomy while Chinese teachers pay more attention to skill development (Wang, Elicker, McMullen, & Mao, 2006). We show how differences in preschool pedagogy is accounted for by systemic differences in preschool teacher preparation. What distinguishes teacher preparation in China from the US? What can the two countries learn from their experiences in teacher education?

This study aims to provide a comprehensive overview of the contemporary pre-service teacher education system for preschool teachers in China, and how it differs or relates to the system in the United States. For the purpose of this study, pre-service teacher education is defined as any type of teacher education or training that happens before a person works as a preschool teacher. It can be also defined as teacher preparation or professional development activities before becoming a preschool teacher. In Gomez et al. (2015), pre-service training refers to the range of activities in which individuals engage prior to entering the workforce. As such, training and education are used interchangeably in this study.

Before we proceed, it is necessary to briefly introduce the backgrounds and terminologies of early childhood education in the two countries. In the United States, early childhood education is the widest concept that covers ages zero to eight, with a marked differentiation between preschool education (for three and four year olds) and kindergarten education (grade K in the K-12 education system). For China and many East Asian countries, however, the first year of school is grade one rather than grade K, with preschools serving children aged three to six (i.e., age three, four and five). Chinese scholars often use "kindergarten" to refer to the preschool education institutions serving this population when translating their work into the English language, which is the same as the term "kindergarten" in the American context. In this analysis, comparisons will be

restricted to only include children between the ages of three to six years. We observe that both countries are relying heavily on the private market for the provision of early childhood education for three and four-year olds, however, the US has performed better in publicizing its education for five year old children.

The next section briefly introduces prior studies, followed by a research method section. Section Four gives an overall description of the pre-service teacher education systems in the two countries. Section Five analyzes the similarities and differences in the formal part of the two pre-service teacher education systems. Section Six compares the informal part. The final section summarizes the findings and the reflections.

Literature Review

Although many studies have discussed the development of early childhood education in China or in the US, comparison of their distinct traditions in preschool teacher preparation is relatively scarce. After careful searching, we found that existing studies are mainly focused on primary school teacher preparation, especially in China. There are not many studies involving comparisons of preschool teachers in the US and China, with limited numbers (e.g., Jiang, Yan, & Xu, 2012; Wang, 2014; Zhao, 1996). Moreover, most of these comparisons have been published in Chinese instead of communicating effective suggestions for a broader base of researchers.

This literature review provides useful information for our study. In the US, preschool teachers have mainly graduated from comprehensive universities; many training institutions hosted by early childhood education association and private organizations also take the responsibility of teacher preparation (Zhao, 1996; Wang, 2008). In China, preschool teacher preparation has traditionally taken place in normal universities or teacher colleges (Jiang et al., 2012). Some researchers have compared different program objectives and find they are quite different in the US (e.g., Indiana State University) as compared to in China (e.g. East China Normal University); the objectives are more professional oriented and structured in the US, as compared to China's more ad hoc approach (Wang, 2014).

The main contribution of this study is a comprehensive review of the institutional preparation of preschool teacher between the two countries in the two main aspects of the formal and informal system for the first time for comparative education researchers. A policy relevant contribution is to provide policy recommendations for the US in aspects that were previously rarely discussed, such as the unity of certification processes across states, and the use of one certifying institution governed by the department of education.

Methodology

This study is a comparative study that compares both the formal and informal systems of preschool teacher preparation in the US and China. For the comparison in the formal system, several sub-national cases are selected for each country. For the comparison in the informal system, comparison takes place at the national level. A combination of four research methods is used for the comparison, including literature research, historical research, comparative research, and case study.

Literature and historical research. We searched relevant literature using several keyword variations, including preschool teacher preparation, preschool teacher education, preparation of ECE, teachers in the US and China, using both English and Chinese sources. To depict the backgrounds of preschool education in each country, we also searched for studies related to the process of preschool education development.

Comparative analysis. According to Bereday's (1964) framework for comparative research, there are four stages to a comparative analysis: during the first stage, we described the two systems based on relevant information and statistical data from websites, yearbooks, official reports. In the second stage, we organized the literature and contextualized the research in historical, political, social and economic perspective. At the third stage, we juxtapose the information and arrived at our terms for comparison. We defined preschool teacher in each country, preschool teacher preparation in the formal education system and preparation in informal education sector. In the final stage, we summarize the similarities and differences between the two systems, and make recommendations for each country.

Case study analysis. For the part on the US, three states were sampled to reflect diversity in geographical location and education development in the country. The three states are: New York, California, and Nebraska. For the comparison of the elements for degree programs, we select at least two institutes in each state: one offering associate degrees (AA), one offering bachelor's degree (BA). For example, Hudson Valley Community College and SUNY Fredonia were selected for New York. In China, we studied eight teacher preparation institutions at four levels (upper secondary, associate degree [AA], bachelor's, master's) across three geographical locations (East, Central and West). At the upper secondary level, we selected Baiyun Xingzhi Senior Vocational School and Zhangzhou City Vocational College; at the AA level, we select Shaanxi Xueqian Normal University, Shenyang Normal University, Southwestern University, Henan Institute of Science and Technology, Central China Normal University and East China Normal University as samples. We obtain detailed information about these schools from two sources: (1) policy documents and school plans available through each institutions'

websites, phone interviews, and school administrators, along with interviews with program directors at the Henan Institute of Science and Technology; and (2) information based on the published Chinese journal articles that described the course structure and school plans if the school had already been studied, such as Zhangzhou City Vocational College and Shenyang Normal University .

We use several sources in our data collection, including prior studies, policy documents, and statistical yearbooks. The analytical method includes statistical analysis, comparison, induction and deduction methods. The analytical framework for this study is divided into two parts. As mentioned earlier, we compared the teacher preparation system between the two countries by its formal and informal systems. We discuss the percentages of teachers in each system, educational background of the teaching workforce, the use of online early childhood education programs, in teacher certification, selected standards in early childhood programs, and courses and practicum by degree level. Regarding the informal system, we defined the concept of teacher preparation in the informal system, and outlined the share in each country.

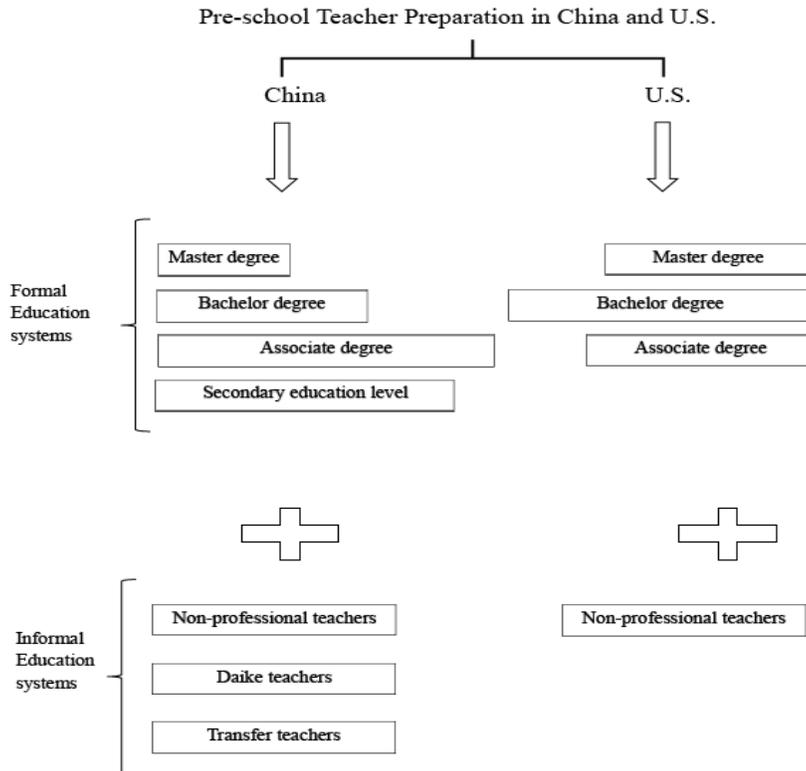
Overall Description of the Two Systems

In both the US and China, a system for pre-service teacher education exists according to career pathways. A person who goes to the preschool teaching workforce can either: (1) have no training or education in early childhood education; (2) have some informal training, but not a certificate, a permit or a credential; (3) have a certificate or a permit but not having a formal degree in early childhood education (including those with a degree in other irrelevant majors); (4) have a degree in early childhood education or a relevant major.

Structure of formal teacher preparation institutes. In the United States (see Figure 1), the formal system contains various degree programs (associate degree, bachelor's degree and above) in the higher education stage. Some early childhood education programs can certify teachers, but not all do. Those who enter the workforce with a Child Development Associate (CDA), state license or other permits but without a college degree can be viewed as partially in the formal system. The National Association for the Education of Young Children (NAEYC) and local school bureaus may also certify teachers. Moreover, those who get limited training or no training related to early childhood education could be defined in the informal teacher preparation system. Sometimes, a teacher may go through both a degree program and certification process. In China, the formal system also includes four degree programs in the higher education stage, which refers to associate degree,

bachelor's degree and above. All graduates regardless of their major should take the teacher certification exam hosted by the Ministry of Education.

Figure 1. The Formal and Informal Education Systems in China and the US



Note: Drafted according to information on formal education system and informal education system in the two countries; Length of text box for degree education indicates the share of that education level among all preschool teachers in each country.

Preschool teachers from the informal system. The percentage of preschool and kindergarten teachers with only informal pre-service education is about 25% in the US, whereas such percentage is about 40% in China. For the US, 25% is an estimate based on data in 2010 from the ECLS-B dataset for center-based care and education settings, considering the all kindergarten teachers in the US with a bachelor's degree and higher.¹ For China, according to statistics in 2012, 53.3% of the lead teachers have early childhood education background.² This figure does not include part-time teachers and *daike* teachers. Notably, *daike* teacher is a concept with Chinese characteristics, referring to teachers

¹ In the US, kindergarten teachers face the same options for specialization as any elementary school teacher. They can receive additional training to teach music, art, or physical education. They can also choose to earn a master's degree in special education to increase salary potential.

² <http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/s8493/201412/181623.html>

without a headcount in the public system (and thus informal), often not specialized trained. Figure 1 incorporates such information, along with the above description of the formal system.

Table 1. Distribution of Education Levels of China's Preschool Teachers, circa 2015

Graduates	M.A.	BA	AA	HS	Below HS
All China	5225	377392	1117219	529036	51445
Preschool leaders	2405	62786	127293	40048	3637
Full-time teachers	2820	314606	989926	488988	47808
(%)	(0.15%)	(17.06%)	(53.68%)	(26.52%)	(2.59%)
Urban Area	4243	220828	544294	195493	12679
Preschool leaders	1977	32731	47490	10192	774
Full-time teachers	2266	188097	496804	185301	11905
Rural-urban fringe zones	269	20639	85751	44847	3459
Preschool leaders	148	4370	9181	2547	190
Full-time teachers	121	16269	76570	42300	3269
County and Town Area	767	119869	399065	200470	20261
Preschool leaders	340	20109	45774	14073	1113
Full-time teachers	427	99760	353291	186397	19148
Rural Area	215	36695	173860	133073	18505
Preschool leaders	88	9946	34029	15783	1750
Full-time teachers	127	26749	139831	117290	16755

Source: Education Statistics from MOE China's website, based on authors' calculations

Educational backgrounds of the teaching workforce. Consistent with the pre-service preparation systems, existing educational backgrounds of the teaching workforce in the two countries also differ substantially. Common to the two countries, educational backgrounds vary widely among the early childhood workforce, from bachelor's degrees or higher to only limited formal schooling. However, the distributions are different. According to the Early Childhood Workforce Index 2016 report on the teaching staff in center based preschool settings of the United States (for year 2015), only 19% didn't have any college education, which means 81% have at least some college (Whitebook, Mclean, & Austin, 2016).³ In another study, it was estimated that 28% to 73% of the preschool teachers having at least a bachelor's degree (Maroto & Brandon, 2012). All kindergarten teachers have a BA, as it is a minimum requirement. Those working with infants and

³ Source: Number and Characteristics of Early Care and Education (ECE) Teachers and Caregivers: Initial Findings from the National Survey of Early Care and Education (NSECE) from the National Survey of Early Care and Education. Data were collected in the first half of 2012, include all instructional staff and do not differentiate by roles, for example, lead teacher, teacher, assistant teacher or aide.

toddlers have lower educational attainment. This percentage is higher than the number reported in 2015 by the Ministry of Education in China and is shown in Table 1, about half of the preschool teachers are associate degree (AA) graduates. Compared to earlier years, the number of BA graduates has increased and the number of high school graduates and lesser has decreased. In 2000, the majority of the teachers only had a high school education, and this situation changed in 2007 when 46% of the teachers earned an AA degree (Yuan, 2010). The levels for Chinese preschool teachers vary more widely than their American counterparts.

Comparing the Formal Pre-service Education Systems

Structure of the formal teacher preparation system in the United States. Having once relied on vocational high schools to train its teachers, pre-service training in the US now goes through colleges, and organizations that offer the Child Development Associate (CDA) and National Board for Professional Teaching Standards (NBPTS) credentials for training ECE teachers (Gomez, Kagan & Fox, 2015). Gomez et al. (2015) described it as a market-driven, mixed-delivery sector. There are more than 1000 teacher-training institutions (NPC, 2006; Whitebook & Austin, 2015). The teacher preparation system is tiered consisting mainly of BA programs alongside some AA and master's degree (MA) programs. The AA programs are offered by community colleges, whereas BA and MA's in related fields (e.g., human development, family studies, child development) are granted by four-year comprehensive universities or colleges offering BA and M.A. programs (NPC, 2006). In comparison, teachers colleges are much fewer. Bank Street College is famous for cultivating early childhood educators. Community colleges often provide one to two year programs and have students transfer to a four-year college to finish a bachelor's degree. Graduates can work at early childhood education centers with a certificate. Standards are important in the United States. National Association for the Education of Young Children (NAEYC) published its new guidelines for ECE professional preparation and stated learning objectives for each degree level (NAEYC, 2009).

We selected three states (New York, California and Nebraska) to illustrate the landscape for early childhood education degree programs in the regions of mid-Atlantic, Midwest, and West Coast. The Early Childhood Higher Education Report described the US landscape for degree programs in early childhood education in seven states (Whitebook & Austin, 2015). In New York, for the years of 2014-15, there were twenty-seven public community colleges, thirty-nine private and twenty-six public colleges offering an ECE major. Among them, there are about forty-four associate degree programs, fifty-eight bachelor's degree programs, 136 master's degree programs, and four doctoral degree programs. In California, there are 103 public community colleges, twenty-two private and

twenty public colleges offering the Early Childhood Degree. In the public community colleges, for the 2013-14 academic year, there are about 190 associate degree programs. 60% of these colleges offered two or more degree programs, and 20% provided three to five programs. In the private and public four-year colleges, there are fifty bachelor's degree programs, twenty-nine master's degree programs, and one doctoral degree program. In the 2014-15 academic year, three of Nebraska's eight public community colleges offered more than one associate degree program, and six of the twelve public and private colleges and universities offered more than one bachelor's degree. Notably, bachelor's degree programs also offered various endorsements.

States vary in the relative portion of programs in each degree level (California has more AA programs as compared to BA programs), but for the whole country, we can still conclude that the BA programs are the backbone. It is also interesting to relate the structure of these degree programs with the state economic and education development levels, as well as the qualification or standards for qualification that the state has set for the early childhood teaching workforce. According to the Early Childhood Workforce Index 2016 (pp. 63-64) and the National Institute for Early Education Research (NIEER) state of yearbook 2016, New York has been evaluated as "edging forward" when it set a BA threshold for all pre-K teachers, whereas California has not. This is consistent with the fact that NY has more M.A. and BA programs than California (the latter has more AA programs).

Scholars in China have observed that there are no teacher training institutions at the secondary education level in the United States at this time (Zhao, 1996; Wang, 2008). In the 1940s, many teacher schools in the US were closed; and public teacher schools were upgraded to teacher colleges or merged into universities (Wang, 2009). Compared to the US system, which consistently relies on AA, BA programs to meet its need for well-trained preschool teachers, China recently experienced a shift in the structure of its teacher preparation. Twenty years ago, high schools were the main institutions for training preschool teachers; teacher colleges or universities trained teacher educators to teach at these schools. For a long time, the qualification for preschool teachers in China was a high school graduation. Since the 1990s, however, AA and BA programs at the post-secondary education level have gradually increased their share. Some MA graduates also work as a preschool teacher (Guo, 2013; Liu & Wu, 2014). According to the most recent data from the Network of Science & Education Evaluation in China (2015), 266 colleges or universities have established a "preschool education" programs.⁴ Some of the colleges or

⁴ Source: <http://www.nseac.com/html/261/676355.html>

universities are teacher colleges or universities, i.e., normal colleges or universities according to China's English translation; some are specialized preschool (i.e., *xueqian*) colleges.

Online early childhood education programs. With the rise of Mass Open Online Courses came the online early childhood education programs.⁵ Ashworth College of Nebraska provides online early childhood programs for candidates who want to work in a preschool program, after-school program or day care centers or special education classes and so forth. Graduation from this program allows potential teachers to apply 120 hours of professional development towards their requirements for a CDA credential.⁶ This model helps accommodate teachers' part-time study. In addition, Hudson Valley Community College in New York has part of their courses available online. In contrast, there are no online pre-service programs for preschool teachers in China, however, most in-service training are offered through online education services for Chinese preschool teachers.

Qualifications. In the United States although entry requirements differ across states, the minimum requirement is at least having a CDA, and in many cases, it is a bachelor's degree. The map of standards is upgrading over the years.⁷ Head Start mandated that more than half of all Head Start center-based preschool teachers had a BA or higher in Early Childhood Education, or in a related field with experience by 2013. For state pre-Kindergarten programs, according to the national Institute for Early Education Research (NIEER) 2014-2015 State of Preschool Yearbook, more than half of the states have adopted the BA as a threshold for a lead teacher, and some specifically required a BA in ECE. However, some states only implemented a BA threshold for teachers in public-school settings and require an associate degree (AA) or CDA credential for teachers in private school settings. The state of Rhode Island extended the BA requirement to all teachers. Many states have their own state license. Certification is called Birth-Grade 2 in New York, and Nebraska offers a Birth-through-age-eight certification.⁸

The teacher preparation system in China has changed substantially since the 2015 reform in teacher certification. Before the reform, early childhood education graduates from normal universities (i.e., universities that originally prepared teachers) and teacher schools could become certified by submitting materials, with exemption from the

⁵ Source: <http://www.early-childhood-education-degrees.com/top-online-early-childhood-education-degree-programs/>

⁶ Source: <https://www.ashworthcollege.edu/bachelors-degrees/early-childhood-education-degree-online/>

⁷ Two states require that teachers complete a vocational childcare program (LeMoine & Azer 2006).

⁸ This certification is required only for teachers working in public pre-kindergarten to third grade classrooms.

qualification test. Only non-ECE major students or candidates from other occupations had to take the test. In 2015, after the pilot use of the new policy in some provinces (e.g., Hubei, Zhejiang, and Guangxi), all college graduates in China, irrespective of his or her major, have to take the test. Along with tests for elementary school teachers, and middle school teachers, the test for preschool teachers is organized once a year, with three components: comprehensive competence, care and education skills, and interview. The certificate must be renewed with review every five years, following what similar procedures in the US. The aim of the reform is to encourage teacher education colleges and universities to improve the quality of teacher preparation quality, and to attract more individuals to join the early childhood teaching workforce.

Overall, as is also shown in Figure 1, China has just experienced the substitution of “schools and colleges,” and approaching its AA threshold, whereas the US is experiencing the substitution of “AA and BA” in some states, and approaching a BA threshold. Although the Chinese government is upgrading teacher qualification requirements along with actual educational and training level, the preschool teaching workforce upgrading needs more time given the cyclical nature of teacher preparation.

Arrangements in the teacher preparation institutions. At each level of the two countries’ teacher preparation institutions, we compare candidate selection criteria, lent cultivating goals, credits and courses, and practicum, as shown in Table 2. The detailed data for the earlier mentioned eight institutions sampled from west, middle and east China are listed in Table A1 of the Appendix.

At the BA level in higher education, a major similarity of the programs in the two countries lies in length and basic course structure, as well as graduate placements. Four-year length is the standard. Course structure includes core courses and electives, in addition to a practicum in an actual preschool. The differences lie mainly in the criteria for student admissions and goals of the program, and practicum. The US’s BA programs for preschools teachers are often hosted in liberal arts colleges and universities, whereas Chinese BA programs often reside in normal universities or specialized preschool (xueqian) normal universities.

Same as the system in higher education, selection for the US ECE bachelor’s degree programs is two-fold: high school graduates apply into the program and college or university of his or her interest, and the college or university decides whether to accept them, based on multiple standards (high school GPA, ACT/SAT scores, personal statements, interviews, and so forth). Students’ personal interest in early childhood

education is also considered for enrollment. For many schools, entry GPA requirement is a minimum average of B-. For example, the early childhood program in Indiana University asks for an average high school GPA over 2.5, and the applicants should finish courses like oral expression, writing, science, and child development. In China's normal universities, students are selected only by individual test scores on the national college entrance exam. For instance, the early childhood program in Central China Normal University has an entry score of about 552 (total score 750); no other standards are applied.

Table 2. Comparison of the BA and AA Programs in China and US

	China		US	
	BA	AA	BA	AA
Study years	Four years	Three years or five years	Four years	Two years
Selection Standards	The college entrance exam	Lower than BA	NAEYC's standards	Lower than BA
Teaching courses	Focus on theory courses, moral education and political belief course	More of skill courses	More of general education courses	Broad understanding of the psychological, emotional, intellectual and developmental needs of children
Practicum	Usually 108 hours to eight weeks to a semester	Almost a semester	The share is high	The share is less
Placements after graduation	Preschool teachers or administrators	Preschool teachers and assistant teachers	Assistant teachers, caregivers, educators, administrators and researchers	Day care and nursery school teachers, teaching assistants and so on

Note. Content in this table was summarized by the authors according to website program information and the existing studies mentioned in the paper

Goals for teachers stated differently for each country's BA programs. BA programs in the US often rely on the NAEYC's standards for professionals (NAEYC, 2009) as a performance reference, emphasizing multiple roles of an early childhood education professional (assistant teachers, caregivers, educators, administrators and researchers). In Nebraska, a recent job title description for Wayne State College's graduates lists the following job titles they can assume: "preschool teacher or director, daycare provider or director, after school program director, camp director, child development specialist, family service worker, and pediatric specialist." Conversely, BA graduates from Chinese colleges or universities (e.g., East China Normal University, Central China Normal

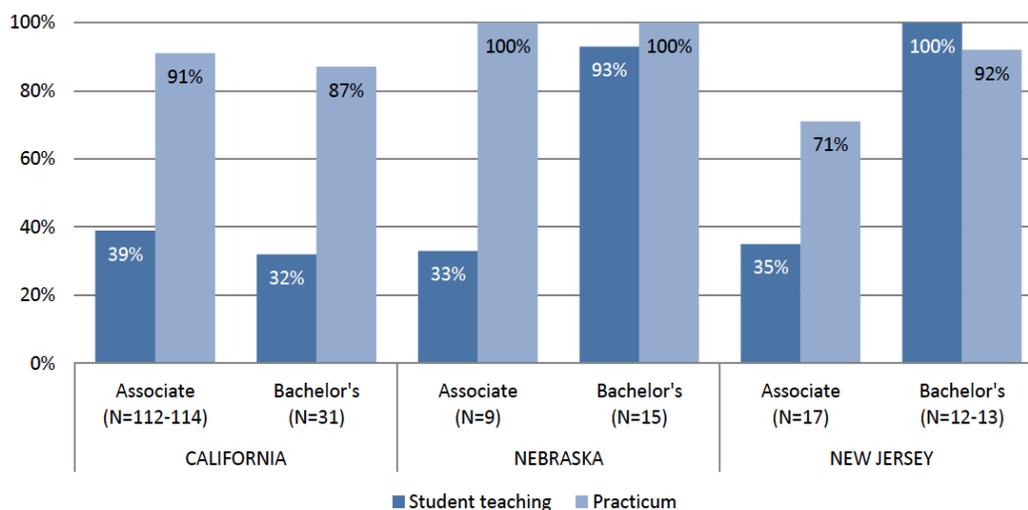
University, Shaanxi Xueqian Normal College) often work as teachers or administrators in kindergartens (preschools) and nursery schools.

There is no unified course standard in for BA programs of different universities. In SUNY Fredonia, the curriculum for the Bachelor of Science in Education (BSEd) degree involves courses, for the major, fulfillment of the College's Core Curriculum, and electives. At Wayne State College in Nebraska, students can choose to take "Principles of Food Preparation" or "Principles of Baking". At the California State University of Sacramento, the early childhood education program consists of the core child development courses and fourteen to fifteen units of electives, choosing from developmental theory, systematic observation and assessment, and preschool curriculum development. In China, like in the US, both general education in the liberal arts and sciences and early childhood education core courses are required; both academics and teaching skills are viewed as important. However, the share of general education courses (often one-third) is higher in the US BA programs, with more diverse content. In China, moral education and politics course takes up a significant portion. In the core course component, apart from early childhood pedagogy, child development and other related courses, China lacks courses like 0-3 [year-old] education and community education. Singing, dancing, and piano skills courses are overemphasized in China, whereas the US programs focus more on artistic appreciation. A recent innovation in China is to add mental health education course in the training program (pilot programs are ongoing at Beijing Normal University).

A practicum is part of most preschool teacher training programs. Two dimensions of the professional assessment system in the US include field observations to become acquainted with a preschool setting and a teaching practicum that is designed to give students supervised practical application of specialized methodologies, both of which must be evaluated by a cooperating teacher in that grade level or subject area, and a university supervisor (see The New York City Department of Education Student Teacher Handbook). Placement must be State Board of Education approved college/university education program, which must have a contract with the partnering school district. Practicum leads directly to teacher certification after 150 hours (New York State Education Department Office of Teacher Initiatives). In China, the concept of practicum in most of normal universities is similar to the US, but field experiences are often regarded as apprentice teaching.

Figure 2. Requirements of Field-based Experience by Degree Program

Pre-service Education for Preschool Teachers



Source: Replicated from Figure 2 in Whitebook and Austin (2015).

In many US BA programs, practicum in the real teaching environment is required or encouraged with opportunities offered (Whitebook & Austin, 2015; Putman et al., 2016). For example, as shown in Figure 2, 87% of the BA programs in California offer student teaching experience and the share is 100% in Nebraska. Compared to practicum, student teaching is less required.⁹ In Nebraska, which confers an early childhood certification at the bachelor's degree level, almost all baccalaureate programs required students to complete both a student teaching experience and at least one practicum. Field-based experience often starts in the second semester, including observation, research, reflections, and teaching practices in the third year and fourth years. At the University of Nebraska, which requires credit hours for observed learning, training in the lab and research practice account for 876 hours (about twenty-one weeks), which are conducted before student teaching practicum (about 600 hours). Among them, 324 hours are for interaction with zero to two-year olds; 198 hours are for interactions with two to five year olds. This is above the average for US BA programs in early childhood education (ECE), with practicum making up at least one-third of coursework. Wayne State College also has a separate preschool lab for three, four and five year olds. In China, practicum are regular components of a BA programs, but right now, the share of program time is not high. The length ranges from 108 hours to eight weeks (about two months), to a full semester (about four months).

⁹ Student teaching is required for students who are not yet certified to teach. This is different from a practicum. The latter required when a student already holds certification to teach, yet wants a certificate extension to teach another area of specialization. They are both college-supervised field-based experiences.

At the associate level, both the US and China's early childhood programs emphasize more on student teaching skills than general education, but China can learn more from the long history of associate degree programs in the US. One example is Hudson Valley Community College's Early Childhood program, which is accredited by NAEYC. The program states that applicants should be aware that "early childhood education requires enthusiastic performance and sensitivity toward the diverse needs of children." The goal is to "prepare graduates for work in an early childhood education setting or for transfer to a four-year program." As an associate degree program, it requires a broad understanding of the psychological, emotional, intellectual and developmental needs of children. Job placements for graduates include: day care and nursery school teachers, who interact with young children and manage the staff and resources of childcare facilities; teaching assistants and substitute teachers in public and private schools and preschools, who work as members of a childcare or educational team; staff employees in hospital pediatric wards or in developmental facilities that provide specialized child care. Hudson Valley Community College students' field experience takes place in a school or childcare agency each term in urban, rural and suburban settings with high risk and special needs children. A total of 300 hours of student teaching field experiences is the goal for Hudson Valley. In California, fewer programs at the associate degree level required student teaching, but most did require the completion of at least one practicum.

In China, AA graduates from specialized teachers colleges or vocational colleges with ECE programs often work as assistant teachers in kindergartens preschools and other early childhood institutions. AA programs like the preschool education program in Zhangzhou City Vocational College requires 960 hours of practice time (Hu, 2013). At the MA level, in China, MA programs in first-tier teachers college like Beijing Normal University and East China Normal University are more research- and leadership-focused. Graduates work as teachers in a college or university's preschool education program, kindergarten leaders, researchers, or teachers in the cities' best kindergartens, etc. For example, in East China Normal University's program booklet, the placements are described as "college teachers, magazine editors, kindergarten (preschool) administrators, and researchers..." This is similar to Bank Street College, Vanderbilt University and Teachers College, Columbia University's MA program in early childhood education programs, as well as the MA programs at California State University at Long Beach.

At the secondary education level, graduates from vocational and technical high schools in China can take administrative jobs and care or education jobs in nursery schools, kindergartens (preschools), early childhood education centers, and senior household

management industry (e.g., with job placement rates as high as 98% for Baiyun Xingzhi Vocational and Technical School in Guangzhou City) (see Tang, 2014).

Reflections. In the era of change and innovation, both countries' formal teacher education institutions need to update courses to reflect new knowledge about children's development and learning, and to develop multidisciplinary expertise for future preschool teachers. China's early childhood teacher preparation programs can increase opportunities for field-based learning experiences and provide better courses, especially when policy encourages this shift. One possible adjustment for China is to combine early childhood education and early childhood special education in the BA programs, as done so at New York University in the US. Another potential reform area for China's AA programs is to specify the technical standard for teacher preparation programs regarding what practical skills are desirable and to add online course options, modeling that of Hudson Valley Community College. Furthermore, each program should build their own strength from their specialty in teacher preparation, and not to use the same standards across associate, bachelor's and master's programs. Both countries should align programmatic missions with NAEYC's six core standards for early childhood teachers, including promoting child's learning and development, able to connect family and community, capable of observing and evaluating child development, and so forth. (see Table A2 in the Appendix).

Comparing the Informal Pre-service Education Systems

As stated earlier, informal education or informal teacher preparation is related to "non-specialized" study, for whom students have "no early childhood education background," and lack a certificate, or their jobs are part-time in informal settings. In this article, it refers to education activities outside of the formal education system. It includes teacher induction program, pre-service training, short-term training, online learning, teachers' curriculum seminar, and other types of informal or irregular education.

First, in both countries, there are still many preschool teachers whose background training is not in early childhood education. They joined the early childhood teaching workforce without specialized training in ECE. As pointed out by Tout, Zaslow and Berry (2006), many teachers only have lower levels of education combined with workshops held outside of educational settings. Yet as the standards go up, the US has done a better job in cultivating teachers in the formal system than in the informal system: it equips teachers with more professionalized knowledge and skills before entering the profession. Based on the ECLS-B dataset for 2010, 57.13% of the center-attending children's teachers reported having a degree majored in ECE or a related field; more than 75.5% of the BA

teachers (including those above BA) have a degree majored in ECE, but this college major may be associated with a prior associate degree. Also, among those teachers with some college or above, 63% reported having majored in ECE, and the percentage is higher among those with BA or above (85.76%); and 80% of those with ECE majors have currently achieved a degree level of at least a BA (Gong, 2015).¹⁰ In China, the proportion of preschool teachers with a bachelor's degree in poor, rural areas is 15.9% for rural poor areas in Shandong province (Li, 2014), and the status is worse in earlier years (Xie, 2007).

To meet teacher needs in the two Three Years Plan of Preschool Education (2011-2013 and 2014-2016), many primary school teachers are transferred to teach in preschools. The training they receive include one-day to one-week long classes on preschool education theory and skills, and some group activities in the recent years. In rural and remote areas, NGOs are helping local residents build preschool classrooms. They either use volunteer teachers who participate in the 'China Development Research Foundation' model or train villagers as teachers, who are at least graduates of junior high schools, according to the 'Human People to People China' model. In Shanghai's Qingpu district, preschool teacher applicants without an early childhood education background are required to have two certificates, one interview, and six skills proficiency before they can be hired.

In terms of certification, both countries face the need to increase the certificate holding rate, with a greater need in China's rural areas. According to US data in Kagan et al. (2008), 57% of teachers in pre-kindergarten programs were certified by their states, and 23% have the Child Development Associate (CDA) credential. Some states did worse on that measure, but certification rates have gone up in recent years (Gong, 2015). In China, 43.9% of preschool teachers held a teaching certificate in 2007, 56.1% the full time teachers were not certified. Such an issue is more serious in the middle and western regions (China's Preschool Education Development Strategy Research Group, 2010). In some rural areas, the ratio is even lower, ranging from 1% to 18.2% (Li, 2014).

Third, *daike* teachers or substitute teachers are specific to China, where they compose a significant portion of preschool teachers in rural areas with the share of such type of informal kindergarten teachers as high as 67% in Haiyan County, Jiangsu Province (Wang, 2014).

Conclusions and Discussion

¹⁰ This is also confirmed in a study regarding California: according to the study for licensed centers, no degree, no college ECE credits, about 0.4% for teachers and 12.1% for assistant teachers.

The 21st century has witnessed a rapid growth of early childhood education programs around the world. Teacher preparation affects teacher quality and defines the core quality of a preschool program. This study compares the pre-service teacher education systems in China and the United States, based on various types of data and materials including literature, policy documents, and statistical data. The comparison mainly focused on children of three to six-years of age. Scholars in both countries have used terms like “incomplete” or “unsystematic” to describe their teacher preparation systems, but comparatively, the US has done better in improving the level of teacher education for preschool teachers.

Similarities. On the one hand, the relative low quality of preschool education in both countries can be reflected in the education background of their teachers, for whom the training is concentrated around a degree program: BA, or AA and below. The government should focus more on improving teachers’ professional knowledge and skills, especially for those whose formal academic training is not in early childhood education, and provide more opportunities for teachers to develop practical skills through in-service training and online learning. On the other hand, inequality across different geographical areas (e.g., provinces and counties; rural and urban; east, middle and west) continues to exist, which may be related to economic development levels. For example, the average education level of preschool teachers’ education in rural China is an AA, compared to a BA in urban China. This is expected to cause large disparity in the quality of preschool education. In the US, teachers’ education level varies across states: for example, in 2015, 29.61% of the early childhood care and education teaching workforce has a bachelor’s degree in Wyoming state; but only 11.70% in South Dakota state, based on data from ACS (Gong, 2015).

Differences. First, most of US preschool teachers have ECE background (a degree or credits related to ECE from colleges or universities), while only a little more than half of the Chinese preschool teachers do. In the current workforce, and over a long period, the average education level of US preschool teachers in center-based settings is higher than that of the Chinese preschool teaching workforce. A typical degree for a US preschool teacher is a BA, whereas the typical degree for a Chinese preschool teacher is an AA (from what used to be a vocational high school diploma about ten years ago). This may lead to differences in the effect of a bachelor’s degree on children’s development outcomes in the two countries and how educators and parents define a good preschool teacher. At the college level, student selection criteria, course content and practicum arrangements differ in the two countries. Ultimately, the US have relied more on a formal system than the informal system to train preschool teachers, whereas in some areas of China (especially for places with great preschool teacher shortages), preschools still rely heavily on informal

pre-service training (e.g., short teacher induction programs) for candidates who previously did not work worked have not been in the early childhood education sector or a related profession.

Policy suggestions for both countries. First, the Chinese system can improve student field experiences, provide standards for evaluating the quality of student teaching, consider expanding training to non-ECE candidates via online education, and establish a preschool law that ensures the rights and benefits of preschool teachers. Both countries can encourage teacher preparation programs to offer a preschool endorsement and ask relevant programs to provide relevant coursework and high-quality student teaching experiences. While alternative pathways can be used, the quality of training before the service should be monitored and ensured, and it should be consistent with in-service training. In this perspective, establishing a cohesive accreditation system is important.

Second, the US system can be simplified to make state-specific certificates applicable to all states, and a space to access and create centralized information on alternative pathways available to teach preschool, with the goals to achieve an integrated birth-through-age-eight certification pipeline, and improve program content. As previously mentioned, China has a unified educational system that is rooted in the country's characteristics, with plans to train its teacher to meet the needs of national development. For example, the government unifies teacher certification standards across the 32 provincial regions, and the Ministry of Education has exclusive rights to issue educational planning in order to promote quality of teacher preparation. The US may consider unifying standards of preschool teacher preparation and standards for certification.

Third, both countries need to build relevant systems to elevate the quality of preschool teacher preparation system. Such relevant systems may include: (1) formal preschool programs should update their framework to improve faculty development; and (2) address the importance of economic incentive in attracting high quality teachers into the preschool education workforce, given that the current compensation for preschool teachers in both countries is relatively low in each country (US Department of Education, 2016; He, 2015), a system for ensuring sufficient compensation is commensurate with the professional work of preschool teachers in the new century should be established, for both public and private preschools. Finally, it is worthy to consider of the dynamic nature of the two education systems. This paper mainly provides a snapshot or at most a brief introduction of the evolving process of preschool teacher preparation at the college level and the findings should be interpreted with this in mind.

Authors' Acknowledgement: Authors are grateful to the support of the Starting Research Fund of Central China Normal University, and the Youth Research Fund of Humanity and Social Science provided by Ministry of Education, China (16YJCZH022). Special thanks go to our colleagues in the School of Education in Central China Normal University and Zhenyi Li.

About the Authors:

Xin Gong is an associate professor in Central China Normal University. Her research interest lies in the economic analysis of issues in basic education, with a particular focus on early childhood education in China. She is working on two projects: (1) an in-depth survey research on the composition and retention of preschool teachers in poor rural counties of Hubei province; (2) effect evaluation of the first U.S.-type children's museum in China. Dr. Gong got her Ph.D. in Economics and Education from Teachers College, Columbia University in 2015. Before that, she earned B.A. and M.A. in Economics from Peking University.

Pengcheng Wang is currently a graduate student in Central China Normal University. His research interest lies in the economic analysis of issues in basic education. He earned B.A. in Elementary Education from Hunan First Normal University in 2014.

Contact: Xin Gong at gongxin0207@163.com, and Pengcheng Wang at 605242107@qq.com

References

- Austin, L. J. E., Whitebook, M., Kipnis, F., Sakai, L., Amanta, F., & Abbasi, F. (2015). *teaching the teachers of our youngest children: The state of early childhood higher education in California, 2015. highlights*. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley.
- Beredy, G. Z. F. (1964). *Comparative method in education*. New York: Holt, Rinehart and Winston, Inc, 28.
- Cao, H. (2015). Research on the talent-training mode of preschool education program in colleges and universities- taking Liaoning province as an example. Master thesis from Shenyang Normal University.
- Che, Y., Hayashi, A., & Tobin, J. (2007). Lessons from China and Japan for preschool practice in the United States. *Educational Perspectives, 40*, 7-12.
- China preschool education development strategy research group (2010). *The research on China's preschool development strategies*. Beijing: Education Science Press, pp.160-162.
- Gomez, R. E., Kagan, S. L., & Fox, E. A. (2015). Professional development of the early childhood education teaching workforce in the United States: An overview. *Professional Development in Education, 41*(2), 169-186.
- Gong, X. (2015). Does having a preschool teacher with a bachelor's degree matter for children's development? Doctoral dissertation from Columbia University.
- Guo, Y. (2013). Understanding kindergarten teacher quality. In Pang L. (eds.) *Understanding of the professional standards for kindergarten teachers*, chapter 6, Beijing: Beijing Normal University Press.
- He, J. (2015). Research on public kindergarten teachers' pay system. Master thesis from Northeast Normal University.
- Hu, Q. (2013). Research on reform and practice of vocational preschool education major's talents training model-a case study of Zhangzhou City University. Master thesis from Xiamen University.

- Ingersoll, R. M. E. (2007). A comparative study of teacher preparation and qualifications in six nations. CPRE research report series. *Consortium for Policy Research in Education* (3), 117.
- Jiang, Y., Yan, J., & Xu, L. (2012). *The international preschool teacher education policy research*. Shanghai: East China Normal University Press.
- Kagan, S. L., Kauerz, K., & Tarrant, K. (2008). *The early care and education teaching workforce at the fulcrum: An agenda for reform*. Teachers College Press.
- LeMoine, S. and Azer, S.L., 2006. Center child care licensing requirements (October 2006): Minimum early childhood education (ECE) pre-service qualifications and annual ongoing training hours for teachers and master teachers. Retrieved from: <http://www.nccic.org/pubs/cclicensingreq/cclr-teachers.html>
- Li, Z. (2014). Survey and analysis on the preschool teachers' quality in underdeveloped rural areas: Case study on Bingzhou in northern Shandong province. *Studies in Teacher Education*, 26(2).
- Liu, D., & Liu, L. (2011). A comparative study on Chinese-American master programs of elementary teacher education. *Teacher Education Research (Jiaoshi jiaoyu yanjiu)*, 2, 59-65.
- Liu, D. & Wu, R. (2014). A comparative study on the Chinese master programs of preschool education and that of America. Contemporary. *Teacher Education (Dangdai jiaoshi jiaoyu)*, 7(3), 58-65.
- Maroto, M. L., & Brannon, R. N. (2012). Summary of Background Data on the ECCE Workforce. In *The Early Childhood Care and Education Workforce: Challenges and Opportunities: A Workshop Report*.
- NAEYC. (2009). Standards for early childhood professional preparation. ERIC. Retrieved from <http://www.naeyc.org/files/naeyc/file/positions/ProfPrepStandards09.pdf>
- National Prekindergarten Center (NPC) (2006). *Early childhood teacher preparation programs in the United States*. Retrieved from http://fpg.unc.edu/sites/fpg.unc.edu/files/resources/reports-and-policy-briefs/NPC_National_Report_2006.pdf

- Putman, H., Moore, A., & Walsh K. (2016). Some Assembly Required: Piecing together the preparation preschool teachers need. National Council on Teacher Quality.
- Tang, N. (2014). On the curriculum setting of the preprimary education in the secondary vocational schools-taking Guangzhou Baiyun Xingzhi Senior Vocational School as an example. Master thesis from Guangzhou Technical Normal College.
- US Department of Education. (2016). Fact sheet: troubling pay gap for early childhood teachers. Retrieved from <https://www.ed.gov/news/press-releases/fact-sheet-troubling-pay-gap-early-childhood-teachers>
- Whitebook, M., Mclean, C., & Austin, L. J. E. (2016). Early Childhood Workforce Index. University of Berkeley. Retrieved from <http://csce.berkeley.edu/files/2016/Early-Childhood-Workforce-Index-2016.pdf>
- Whitebook, M., & Austin, L. J., E. (2015). Early childhood higher education: Taking stock across the states. Retrieved from <http://csce.berkeley.edu/early-childhood-higher-education-taking-stock-across-the-states/>
- Wang, J. (2009). Model in comprehensive university in the United States and its revelation. *The Modern Education Journal (Xiandai Jiaoyu Luncong)*, 151, 67-70.
- Wang, J., James, Elicker., Mary, McMullen., Mao, S (2006). Preschool teachers' curriculum research in China and the United States. *History and Comparison*, 55(10).
- Wang, R. (2014). Research on the professional qualities of daike teachers in kindergartens. *Education Watch: Mid-to-Late Month (Jiaoyu Guancha: Zhongxiacun kan)*, 8, 5-6.
- Wang, S. (2008). Research on the pre-service training system of American kindergarten teacher. Doctoral dissertation in Sichuan Normal University.
- Wang, Z. (2014). Preschool teacher training scheme comparison and analysis in the US and China-based on the analysis of training scheme in the East China Normal University and Indiana University. *Education and Examination (Jiaoyu yu kaoshi)*, (4), 81-85.

Xu, H. (2016). Experience and Enlightenment on Pre-primary Education Teachers Pre-service Training Model in Developed Countries. *Elementary & Secondary Schooling Abroad (Waiguo zhongxiaoxue jiaoyu)* (2), 43-48.

Xie, X. (2007). Survey and analysis of the status of rural private kindergarten teachers in Northwestern area. *Studies in Preschool Education (Xue qian jiaoyu yanjiu)*, 11, 44-47.

Yuan, Z. (2010). *Research on China's preschool education development strategies*. Beijing: Education Science Research Press.

Zhao, Z. (1996). The comparison of preschool teacher preparation in current China and United States. *Global Education Prospects (Quanqiu jiaoyu zhanwang)*, 6, 60-62.

Appendix

Table A1. The content of the ECE programs in China, by degree levels and institute levels

Level	Region	Institution	Degree level	Credit	Length (Years)	Core courses	Internship (Practicum)
Regular universities/colleges	East	East China Normal University	MA, PhD	Thirty	Three	Child learning, children's play, preschool curriculum, the history of education thoughts	-
		University	BA	156	Four	Education theory, psychology of preschoolers, preschool curriculum, play, preschool science education, preschool arts education, etc.	108 hours
		Shenyang Normal University	BA	165	Four	Child development, preschool education, curriculum and teaching, music and singing for preschoolers, the basics of drawing, etc.	-
	Middle	Central China Normal University	MA, PhD	Thirty-eight	At least two	Degree courses+ electives	One-month for academic degree; two months for professional degree
			BA	130	Four	Preschool education, developmental psychology, preschool health, evaluation and observation of preschoolers, activity design, play, etc.	Eight weeks
		Henan Institute of Science and Technology	BA	-	Four	Anatomy and physiology, education, psychology, preschool education, piano playing skills, dancing, arts, play, etc.	-
Western		MA.		Three	-	-	

Pre-service Education for Preschool Teachers

		Southwestern University	BA		Four	Anatomy and physiology, education, psychology, preschool education, preschool administration, piano playing skills, dancing, arts, play, etc.	
		Shaanxi Xueqian Normal College	BA		Four	Anatomy and physiology, education, psychology, preschool education, preschool administration, piano playing skills, dancing, arts, history of education, etc.	-
			AA (junior college degree)		Three	-	-
Vocational colleges	East	Zhangzhou City Vocational College	AA	130	Three	Music theory, sight singing, ear training ; piano and extemporaneous accompaniment; dance; preschool arts; Montessori education method; puppet show; Sensory integration training, etc.	960 hours
Secondary vocational and technical school	East	Baiyun Xingzhi Senior Vocational School	Secondary vocational school diploma	183.5	Three	Computer application, music, art designing, piano, dance, child health, education, psychology, preschool administration, , teacher oral language and activity design	A semester

Note: The content in this table was summarized by the authors according to: (1) website program information; and (2) the existing studies, including Tang (2014), Hu (2013), and Cao (2015).

Table A2. NAEYC's Six Core Standards for Early Childhood Preparation Programs

Core standards for students in the program	Key elements
1 Promoting child development and learning	<ul style="list-style-type: none"> • Knowing and understanding young children's characteristics and needs • Knowing and understanding the multiple influences on development and learning • Using developmental knowledge to create healthy, respectful, supportive, and challenging learning environments
2 Building family and community relationships	<ul style="list-style-type: none"> • Knowing about and understanding diverse family and community characteristics • Supporting and engaging families and communities through respectful, reciprocal relationships • Involving families and communities in their children's development and learning
3 Observing, documenting, and assessing to support young children and families	<ul style="list-style-type: none"> • Understanding the goals, benefits, and uses of assessment • Knowing about and using observation, documentation, and other appropriate assessment tools and approaches • Understanding and practicing responsible assessment to promote positive outcomes for each child • Knowing about assessment partnerships with families and with professional colleagues
4 Using developmentally effective approaches to connect with children and families	<ul style="list-style-type: none"> • Understanding positive relationships and supportive interactions as the foundation of their work with children • Knowing and understanding effective strategies and tools for early education • Using a broad repertoire of developmentally appropriate teaching/learning approaches • Reflecting on their own practice to promote positive outcomes for each child
5 Using content knowledge to build meaningful curriculum	<ul style="list-style-type: none"> • Understanding content knowledge and resources in academic disciplines • Knowing and using the central concepts, inquiry tools, and structures of content areas or academic disciplines • Using their own knowledge, appropriate early learning standards, and other resources to design, implement, and evaluate meaningful, challenging curricula for each child
6 Being a professional	<ul style="list-style-type: none"> • Identifying and involving oneself with the early childhood field • Knowing about and upholding ethical standards and other professional guidelines • Engaging in continuous, collaborative learning to inform practice • Integrating knowledgeable, reflective, and critical perspectives on early education • Engaging in informed advocacy for children and the profession

Source: NAEYC (2009).