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## Examining The General Quality Of Early Childhood Education And Structural Variables In Support Of Early Childhood Inclusion In Beijing, China

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EXAMINING THE GENERAL QUALITY OF EARLY CHILDHOOD EDUCATION  
AND STRUCTURAL VARIABLES IN SUPPORT OF EARLY CHILDHOOD INCLUSION  
IN BEIJING, CHINA

by

BI YING HU  
M.Ed. University of Central Florida, 2005

A dissertation submitted in partial fulfillment of the requirements  
for the degree of Doctor of Philosophy in Education  
in the Department of Child, Family, and Community Science  
in the College of Education  
at the University of Central Florida  
Orlando, Florida

Summer Term  
2009

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## ABSTRACT

The primary purpose of this study was to (a) explore the global quality of early childhood programs within the Chinese socio-cultural context, and (b) examine the effects of teachers' years of experience, degree, major, and class size on teachers' perceptions of developmentally appropriate practices, inclusion, and training needs in order to provide services for children with disabilities in regular classrooms.

The researcher completed observations in 40 early childhood classrooms using the Early Childhood Environment Rating Scale- Revised (ECERS-R). Results from classroom observations revealed that the global quality of the early childhood learning environment was between minimum and good. Areas that were in need of improvement included materials, time for free play, and provisions for children with disabilities.

In addition, 276 teachers from 12 inclusion pilot kindergartens in Beijing completed 3 surveys. Teachers' responses to the developmentally appropriate practices survey revealed a gap between teachers' self-reported developmentally appropriate beliefs and activities. Further, MANOVA results indicated that both class size and years of teaching experience contributed to the differences between teachers. In surveying teachers' inclusion perceptions, MANOVA results suggested that only class size contributed to the differences between teachers. A discriminant function analysis was performed as a follow-up procedure to determine which of the independent variables contributed most to group differences. Moreover, the researcher found that no variables made a difference to teachers' perceived training needs for inclusion. Implications of current study findings for teacher preparation, future research, and policy formation will be discussed.

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## CHAPTER 1 INTRODUCTION

### Rationale for Early Childhood Inclusion

Inclusion means children with multi abilities are learning and playing together in the same setting. The benefits of inclusion on children with disabilities as well as typical developing children have been widely recognized (Odom, 2000; Stahmer & Carter; 2005; Tsao et al., 2008) and federal policies support inclusive practices (IDEA, 2004). Although, empirical evidence on the effectiveness of inclusion is limited, the rationale for inclusion can be approached from three main perspectives: philosophical, legal and educational (Bailey, McWilliam, Buysse, & Wesley, 1998).

From the philosophical point of view, people believe that children with disabilities have the right to be included in regular settings because everyone, no matter how severely disabled, is entitled to participate in everyday activities, routines, and places. A strong indicator of a quality life is to be able to participate in the community (Kugelmass, 2006; Soodak, Podell, & Lehman, 1998). Researchers (Odom, 2002; Odom et al., 2004) in early childhood special education have identified strategies to include children with disabilities in the community through participating in activities with typical developing children.

From the legal stand point, in the United States, such laws as the Individuals with Disabilities Act (IDEA, 1991, 1997, 2004) require that children with disabilities be placed in their least restrictive environment or natural environment, where the majority of children are typically developing. Also, the Americans with Disabilities Act (ADA) of 1990 stresses that

denial of children's access to regular early childhood settings because of disabilities is not permitted.

From the educational point of view, many professionals state that the benefits of inclusive settings exceed segregated settings (e.g., Odom, 2000; Stahmer & Carter; 2005; Tsao et al., 2008) under the following conditions: (1) the inclusive settings and curriculums are carefully modified (McConnell, 1991; Wolery, 1993); (2) learning goals and objectives for students with disabilities are embedded in activity based daily routines (Daugherty, Grisham-Brown, & Hemmeter, 2001); and (3) there is use of a developmentally appropriate curriculum (Cavallaro et al., 1993; Filler & Xu, 2006). As a result, more and more children with disabilities are being placed in inclusive settings (Bruns & Mogharreban, 2007; McDonnell, Brownell, & Wolery, 1997).

The previously discussed rationale for early childhood inclusion has strongly influenced the service delivery for young children with disabilities in the United States (Bailey et al., 1998). The Individuals with Disabilities Act of 1990 (IDEA) mandated that children with disabilities from ages birth to 21 were entitled to a free, appropriate public education (FAPE). In 2004, the IDEA was reauthorized as Individuals with Disabilities Education Improvement Act (IDEIA) of 2004. Programs and services for infants and toddlers are outlined under Part C of the IDEIA whereas Part B, Section 619 specifies programs for preschool children with disabilities. An Individualized Education Plan (IEP) is developed for eligible preschoolers with disabilities, which describes annual learning goals developed by a team of professionals and family members to help the child reach their maximum potential. IDEIA requires that any services that a child's IEP lists must be carried out in the least restrictive environments (LRE). Further the law specifically defines LRE as follows:

to the maximum extent appropriate, children with disabilities, including children in public school or private institutions or other care facilities, are educated with children who are not disabled, and special classes, separate schooling, or other removal of children with disabilities from the general education environment occurs only when the nature of severity of the disability is such that the child cannot achieve academically in general education classes with the use of supplementary aids and services (20 U.S.C. 1412 9(a) (5) (A))

The National Association for the Education of Young Children (NAEYC)

The National Association for the Education of Young Children (NAEYC) is the professional organization that sets guidelines and definitions for developmentally appropriate and inappropriate educational practices for children from age two to eight. Introduced by Bredekamp in 1987, the National Association Education of Young Children (NAEYC) generated a set of principles to inform the profession about the importance of Developmentally Appropriate Practices (DAP) in early childhood classrooms. Those DAP principles advocate for a constructivist approach in early childhood teaching and learning, emphasizing children's initiation in exploring learning activities and interactions with materials, teachers, and peers to motivate learning (Dunn & Kontos, 1997).

The DAP does not explicitly guide teachers in what, when, how, and where to teach, instead they invite teachers to be able to identify: (a) how children learn and develop; (b) the relationship between learning experiences and subsequent development; and (c) children's developmental status and what experiences are needed to support their optimal development (Bredekamp & Copple, 1997). Moreover, teachers are encouraged to constantly adapt curriculum, materials, and activities to ensure instructional practices are both reflecting "age appropriateness

(typical development within a particular age group) and individual appropriateness (uniqueness of the individual)” (Burts et al., 1993, p. 23).

This constructivist approach, based on Piaget’s and Vygosky’s work, also supports that children learn through interacting with the environment and construct their learning based on their understanding of experiences (Bredekamp & Copple, 1997). It is through children’s interaction with their environment that they learn best (Fox, 2005). Therefore, in a developmentally appropriate classroom, children must be provided many opportunities to initiate and lead their own learning through exploring pre-arranged materials in learning centers, interacting with peers and adults, and being involved in numerous learning experiences that take place in a variety of settings throughout the day (Bredekeamp & Copple, 1997). Choices of what and who to play with, as well as where to play, are provided throughout the day. Constructivists believe that children’s motivation is increased when they are provided choices and challenged in achievable learning tasks (Stacey, 2006).

A developmentally appropriate early childhood program constitutes a high quality program which is a desirable outcome for all children, including children with disabilities (Bailey et al., 1998). A sufficient amount of evidence since the early 1980s consistently support that a high quality program produces better child outcome in cognitive, language, and social development (Bailey et al.; Early et al., 2007; Mashburn et al., 2008; Shim, Hestenes, & Cassidy, 2004). A developmentally appropriate program extends to children with disabilities in inclusive settings. However, early interventionists and early childhood special educators questioned the appropriateness and level of sufficiency of DAP in planning instruction for children with disabilities (Carta & Schwartz, 1991). They argued whether or not quality indicators advocated

by the NAEYC were also relevant to children with disabilities. A strong point was made that without adequate implementation of child-focused individualized intervention, the DAP fails to meet the needs of all children in inclusive settings (McLean & Odom, 1993; Wolery & Bredekamp, 1994). As a result, the revision of guidelines for developmental appropriate programs by the NAEYC (1997) was focused on cultural appropriateness (Bredekamp & Copple, 1997). The purpose of the revision was to address the increasing needs of all children such as children from culturally linguistically diverse backgrounds and children with disabilities (Grisham-Brown, Hemmeter, & Pretti-Frontczak, 2005). The revision set a higher standard of the quality of an inclusive early childhood program.

The third revision of DAP guidelines was recently completed and it emphasized closing the learning gaps among all children, particularly children (a) from culturally and linguistically diverse background, (b) from low socioeconomic families, and (c) with varying abilities (Copple & Bredekamp, 2009). In order to close the achievement gap, the third revision expanded how to consider developmentally appropriate practices while applying new knowledge in child development, curriculum, and effective teaching practices related to academic learning (Copple & Bredekamp).

The Council for Exceptional Children's Division for Early Childhood (DEC)

Another instrumental professional organization in serving young children is The Council for Exceptional Children's Division for Early Childhood (DEC). Since 1991, DEC has been working on identifying evidence-based effective practices for Early Intervention (EI) and Early Childhood Special Education (ECSE). In the past, efforts have been made by DEC to synthesize



the knowledge base in the EI/ECSE. More rigorous methods were employed (Sandall, McLean, & Smith, 2000) and the following eight strands were identified: (a) child-focused interventions, (b) family-based practice, policies, procedures, and system changes, (c) assessment, (d) personnel preparation, (e) technology application, (f) interdisciplinary models, and (g) policies, procedures, and systems change. Within the child-focused intervention strand, the following practices were identified based on the analysis of the best available evidence: individualized intervention, consequence-support play, engagement and learning, naturalistic teaching approaches, peer-mediated strategies, prompting and fading, functional assessment and positive behavior support.

DEC recommended practices were “meant to build on the NAEYC DAP guidelines” (Grisham-Brown et al., 2005, p. 7). The DEC recommended practices provide suggestions on how to make adaptations and modifications based on developmentally appropriate materials, activities, and instructions to meet the needs of children with disabilities. For many children with disabilities, an individualized intervention is appropriate and necessary and should be carried out in naturally occurring normal routines (Horn, Liber, Li, Sandall, & Schwartz, 2000; Pretti-Frontczak, Barr, Macy, & Carter, 2003).

As a result of the joint research effort of the professionals in NAEYC and DEC, more and more children are receiving better education in general education settings (Bruns & Mogharreban, 2007). This is also shaping world trends in early intervention and early childhood special education. The field is calling for international research on early childhood inclusion which rarely exists in many developing countries such as China where an overwhelmingly large population of children reside (Gargiulo & Piao, 1995; Liu & Zeng, 2007). Thus, there is a

compelling case for research regarding factors that relate to early childhood inclusion in China.

### International Movement on Inclusive Education

The United Nations, particularly the United Nations Educational, Scientific and Cultural Organization (UNESCO) has been actively advocating for inclusive education for all children around the world since the 1990s. In 1990, the UNESCO declared that every child is entitled to a basic education and the right to participate in the community. In 1994, the world conference on special education was held by the UNESCO and it called on all member countries to review educational policies and activate inclusive education. Furthermore, in 2000, these member countries committed to serving vulnerable and disadvantaged children by signing the Daker Framework for Action (UNESCO, 2000). As a result, many countries started to initiate and implement national education regulations regarding special education and inclusive education. For instance, in Cyprus, the government intensified its efforts to include children with disabilities by passing the “*Education Act for Children with Special Needs*” (Angelides, & Michailidou, 2007, p. 86). In Botswana, the government revised its National Policy for Education in 1994 to ensure children with special needs have access to equal educational opportunities (Dart, 2007). In 1996, the Malaysian Ministry of Education required that students who had visual impairments, hearing impairments, and learning disabilities are qualified for educational services (Ali, Mustapha, & Jelas, 2006). Inclusive education was “conducted in regular classes as part of the service continuum for students with disabilities” (p. 37). In Thailand, it has been mandated since 1999 that all schools should provide opportunities for children with disabilities to be included in

regular classes (Carter, 2006). In Finland, there are an increasing number of children with special needs attending regular preschools (Takala & Aunio, 2005).

Influenced by the global movement in inclusive education reform, China didn't hesitate to place more and more school age children with mild disabilities (1<sup>st</sup> grade to 9<sup>th</sup> grade) in regular education classrooms. Inclusion is called Learning in Regular Classrooms in Chinese (Lei & Deng, 2007). However, compulsory education law in China does not involve children ages 3-7 which means that a free and appropriate education is not available for them. This has largely hindered the development of inclusive services in early childhood in China. It is critical that we raise the issue of educational services for millions of young children with disabilities in inclusive settings in China.

#### Background on Chinese Early Childhood Inclusion

Since 1999, China's population exceeded 1.3 billion and it was estimated that approximately 6.34% of the population have disabilities (National Bureau of Statistics of China, 2007). This means that 82.4 million children and adults are in need for special education and related services in China. Stratford and Ng (2000) reported that two thousand infants were born with disabilities every day in China. Clearly, China has the largest number of young children with disabilities compared to any other country in the world. The Compulsory Education law (Minister of Education of the People's Republic of China, 1986) mandated the establishment of self-contained special education schools or special classes in regular elementary and junior high schools to serve children with the following disabilities: visual impairment, hearing impairment, and mental retardation. Yet, this number is a fairly low estimate because learning disabilities,

emotional disorders, and communication disorders are not yet included in the disability categories. There are many children under-identified due to a lack of educational and psychological assessment instruments and qualified personnel for diagnosing students with learning disabilities, autism spectrum disorders, and complex language disorders (McLoughlin, Zhou, & Clark, 2005). The Chinese government is strongly committed to building a harmonious society and it cannot be done without taking caring of the needs of children with disabilities and their families (Zhu, 2005). The national laws and regulations continuously respond to the great national need for early intervention and early childhood special education services.

### Legislation

Traditionally, caring for young children with disabilities has always been perceived as the responsibility of society (Chen, 1996; Deng et al., 2001). When UNESCO declared that each child is entitled to a basic education and participation in the community in 1990, China immediately responded by passing *The People's Republic of China on Protection of Disabled Persons Act* in 1991. It was the first national law that was dedicated to the rights of people with disabilities and it recognized the need for early intervention (EI) and early childhood special education (ECSE) services for young children with disabilities (Gargiulo & Piao, 1995). Specifically, this law advocated early childhood inclusion as the main avenue to serve young children with disabilities (Chen, 1996; Yang & Wang, 1994). The concepts of EI, ECSE, and inclusion were further supported in the *Educational Guidelines for People with Disabilities Bill* (1994). It suggested that the role of public agencies is to provide not only care and rehabilitation, but also education for children with disabilities. These agencies include self-contained

kindergartens, regular kindergartens, rehabilitation institutions, welfare institution for the disabled, preschool classes affiliated with self-contained special schools (grade 1-9), and pre-Kindergarten and Kindergarten classes administered by elementary schools. However, the primary focus of the law was on developing compulsory education for students with disabilities from 1<sup>st</sup> through 9<sup>th</sup> grade, and vocational education (post 9<sup>th</sup> grade). The law failed to provide guidelines regarding: (1) Who is eligible for EI and ECSE services? (2) What are the appropriate assessment instruments or procedures for eligibility and programming decisions? (3) What is the governmental role in financing the program? (4) How will the teachers be prepared for EI and ECSE service provision? and (5) What constitutes a high quality curriculum and instruction in EI and ECSE?

The concept of including children with disabilities in preschools and Kindergarten classes affiliated with elementary schools was further supported during the *Ninth Five-Year Plan* (1996-2000). Universalizing education for children with disabilities became a target objective for the Chinese government during the *Tenth Five-Year Plan* period. The *Tenth Five-Year Plan* attempted to extend the services to young children with disabilities in rural China ages birth to three. In 2001, the Vice-Minister of Education suggested during the Third National Conference on Special Education: “Developing Preschool education for children with disabilities is [significant] for the life-long development of people with disabilities and an important breakthrough point for enhancing the quality of special education” (Cited in Lei & Deng, 2007, p. 35). Currently, we are in the *Eleventh Five-Year Plan* (2006-2010), which is focused on increasing the enrollment of children with disabilities in kindergartens. The goal of the

government is to have as many children with disabilities as possible to receive three years of early childhood education (ages 3 to 6).

It appears that the Chinese government is working toward the goal of providing opportunities in preschool education for young children with disabilities (Li, 2007). The proposed plan of universalizing preschool for children with disabilities is ideal, but it cannot be done without the cooperation of community-based preschools (Lei & Deng, 2007). Unfortunately, very few community-based preschools are willing to consider enrolling children with disabilities unless the parents hide the truth. A study conducted in the Hebei province revealed that none of the preschools had enrolled any children with disabilities (Jiao, Tang, He, Wu, & An, 2004). Presently, any public school that serves children from 2 to 7 years old in China can and often does reject a child with a disability to attend their school (Zhou, 2006). A review of the historical background of the development of EI and ECSE can help gain insight as to what is hindering the development of early childhood inclusion in China.

### Historical Background

There are economic and cultural reasons why millions of children with disabilities are kept out of preschools (Deng, et al., 2001). First, as a developing country, the Chinese government has very limited funding for early childhood education. For example, according to the statistical report of the Education Expenditure Year Book 2005, out of the total education expenditure, only 1.28% was spent toward early child education as compared to 25.48% for primary education (Department of Development and Planning, Ministry of Education, 2006). The majority of the 1.28% funding went toward kindergartens in urban areas, irrespective of the

fact that more than half of the children actually reside in rural China. This ill-balanced allocation of limited funding has intensified critical shortages of resources in rural areas in order to provide opportunities for early childhood education for typical children (Zhao & Hu, 2008). As a result, many children in rural areas only receive one year of early childhood education called Kindergarten Classes which are administrated by elementary schools (Zhao & Hu, 2008). Due to the lack of funding, preschools in rural China are unlikely to provide education for children with disabilities. In reality, these programs are still struggling to provide quality care for typical children.

Chinese culture also has had far reaching impact on people's educational beliefs and practices. Confucius's teaching on how one should value opportunities for education is deeply rooted in Chinese culture. Confucians have taught Chinese people to value collectivism while special education requires us to carefully observe individual differences and teach to those differences. In addition, when China was under the leadership of Chairman Mao, the concept of individualism was not acceptable in any types of education (Deng et al., 2001). Therefore, individual differences in curricula, teaching, and learning activities have not been taken into consideration. This is problematic when children with disabilities are included in preschool because teachers are not used to, nor are they prepared in, teaching to individual differences. In fact, many preschool teachers reported that they are not at all prepared to teach children with disabilities, even those with mild disabilities, although teachers tend to agree on the philosophy of inclusion (Li, 2007; Zhou, 2006).

### Problem Statement

The aforementioned facts reveal the desperate need for, and the barriers to, implementing early childhood inclusive education in the Chinese context. People's perceptions toward children with disabilities are the first barrier in integrating young children with disabilities in early childhood settings (Gargiulo & Piao, 1995). Stereotypically, many Chinese people think that it is a waste of time and money to educate children with disabilities. This belief is often shared, not only by parents, but also general education teachers and administrators (Chen, 1996; McLoughlin et al., 2005).

Another significant barrier that hinders the development of early childhood inclusion is the curriculum used in most preschools overly emphasizes moral education and basic academic subjects (McMullen et al., 2005). As mentioned above, the compulsory education system in China only serves children from Grades 1 to 9, which means that each child has to compete in order to get admission to one of the limited number of high schools. The most intensive competition that measures academic achievement is the highly competitive college entrance examination. Pressures caused by such academic competitions make parents anxious about academic achievement as soon as their children reach preschool age. As a result, Chinese parents are more in favor of drilling the memorization of many verses of songs and poems and obedience to the elderly rather than creativity or learning through play (Zhu & Zhang, 2008). Unaware of the benefits of developmentally appropriate curriculum and child-oriented education theory, many parents request kindergartens to focus on academic subjects like math and reading. On the other hand, Chinese early childhood teachers, who are encouraged by the national curriculum guidelines to implement age appropriate and individually appropriate activities, struggle in daily



practices since they are more accustomed to a direct instructional method of teaching (Zhu & Zhang). Learning activities are usually teacher led, and the children learn to obey and follow the teachers' direction. There is very little or no free play. This is problematic because the philosophy of inclusion favors developmentally appropriate practices (Bailey et al., 1998). How Chinese teachers perceive developmentally appropriate curriculum and their understanding of DAP was one of the foci of this study.

The third barrier is teachers' knowledge and skills in working with young children with disabilities. There is a critical shortage of early childhood special education teachers and related service professionals, including speech therapists, physical therapists, and occupational therapists (Liu & Zeng, 2007). This has largely discouraged regular preschools to initiate inclusive education. On the other hand, teacher preparation institutions are not preparing teachers to teach young children with disabilities in inclusive settings. The lack of resources and preparation programs for regular early childhood teachers keeps them from developing strategies to facilitate inclusion (Gargiulo & Piao, 1995; Liu & Zeng). Such practices include building a high quality program for inclusive settings, writing IEPs, embedding learning goals in routine activities, and using instructional strategies appropriate for inclusive environments (Sandall & Schwartz, 2002).

The last barrier is logistical which is why this research will be important in providing strong evidence for policy formulation regarding educational services for young children with disabilities. The Chinese government is calling for the development of inclusive schools in the community (Chen, 1996; Yang & Wang, 1994). The purpose of this research project directly ties to this mission. This study advocates for the educational rights of young children with disabilities and their families by urging the Chinese government to consider including early

intervention/early childhood special education services as part of the compulsory education law. The result of this research was anticipated to provide invaluable information on how to prepare teachers so they are more willing and successful in including children with disabilities in early childhood centers. It also should provide many insights regarding influential factors to consider when building inclusive early childhood preschools.

#### Purpose of the Study

The purpose of this study had two dimensions. First, it explored the global quality of early childhood programs within the Chinese socio-cultural context. Second, it examined the effects of years of teaching experience, degree, major, and class size on teachers' perceptions of developmentally appropriate practices, inclusion, and training needs.

#### Significance of the Study

The present study was designed to contribute to the knowledge base regarding early childhood inclusion in China. Inclusion, as a world trend in serving children with special needs, is receiving more research attention internationally (Kugelmass & Ainscow, 2004). This study in the Chinese context was long overdue. The results will make significant contributions by providing guidelines in the formulation of educational policies for serving young children with disabilities and impacting teacher preparation in China.

In addition to establishing and improving early childhood inclusion programs in China, this study had the potential for improving early childhood education quality in the U.S. As more Chinese families immigrate to the U.S, or orphan children are adopted by U.S. citizens (Tan,

Marfo, & Dedrick, 2007), early childhood teachers are encouraged to be knowledgeable about how to work with immigrant children of different cultural and linguistic backgrounds (Copple & Bredekamp, 2009). The findings of this study can help both researchers and practitioners in the U.S. understand the perceptions of Chinese early childhood teachers about inclusion and developmentally appropriate practices.

### Research Questions

1. What is the general program quality among “Level 1 Category 1 kindergartens” or “Cities’ Model kindergartens” in Beijing, China?
2. Are there differences among Chinese early childhood teachers understanding and use of developmentally appropriate practices based on degree, major, years of teaching experience, and class size?
3. Are there differences among Chinese early childhood teachers’ beliefs of inclusion based on degree, major, years of teaching experience, and class size?
4. Are there differences among Chinese early childhood teachers’ perceived training needs for inclusive practices based on degree, years of teaching experience, and class size?

### Limitations of the Study

This study dthe following limitations:

1. Teachers who choose to participate in the study might have different perceptions, beliefs, and understanding compared to teachers that didn’t choose to participate.

2. The sample of teachers might not be representative of the population of Chinese teachers—especially teachers in rural areas where the requirements for early childhood teachers might be slightly different from large urban cities.
3. Data collected rely on teachers' degree of honesty on the following instruments: teachers' (a) self-assessment of training needs; (b) perceptions of inclusion; and (c) beliefs of developmental appropriate practices.
4. Participants of this study represent top level quality preschools in Beijing, China, therefore the results cannot be generalized to other cities, especially schools in less developed areas.
5. Participating schools were all public kindergartens at the federal or city level; therefore, results cannot be generalized to private kindergartens.
6. Participants in this study tend to have higher levels of education compared to early childhood teachers in other settings nationally. Thus, results can only be generalized to teachers who have similar levels of education.

### Operational Definitions

Inclusion: Children with disabilities and normal developing children are placed together in the same settings (Odom, 2004).

Children with Disabilities: The definition of children with disabilities in this study apply to any child who show developmental delays in one or more of the following areas: (a) motor development, including vision and hearing, (b) communication development, (c) social or emotional development, and (d) cognitive development.

Developmentally Appropriate Practices: According to Bredekamp and Copple, developmentally appropriate practices can be defined as “the outcome of a process of teacher decision making that draws on at least three critical, interrelated bodies of knowledge: 1) what teachers know about how children develop and learn; 2) what teachers know about the individual children in their group; and 3) knowledge of the social and cultural context in which those children live and learn” (1997, pvii)

Early Childhood Program: Early childhood programs in China are called kindergartens and they are full-day operating facilities to serve children ages 3 to 6.

Guidelines for Kindergarten Education (trial version): Issued by the Ministry of Education in People’s Republic of China in 2001, the Guidelines for Kindergarten Education (trial version) service as a mandatory national curriculum guideline. It reinforces the importance of early childhood education and describes goals and content in early childhood education in the five subject areas: health, science, social, language, and art.

Structural Quality: Structural components are variables that are changeable or are able to be regulated, such as teacher to child ratios, class size and teacher characteristics, including years of experiences, highest level of education, and professional training.

Process Quality: According to Love, Schochet , and Mechstrom (1996) there are five universal dimensions for measuring high quality program environment are as follows: (a) classroom dynamics (e.g., teacher-child interactions, caregiver behavior, instructional practice); (b) classroom structure (e.g., physical space, health and safety features, enrollment, child-size furnishings); (c) classroom staff characteristics (e.g., teacher training, experience, salaries and benefits); (d) administration and support service (e.g., staff development opportunities, revenue

sources, health care services, license and accreditation status); and (e) parent involvement (e.g., parent-teacher relationship, parent support, parent education, classroom and home visits) (Buissee, Wesley, Bryant, & Gardner, 1999, p.2).

Global Quality: In this study global quality refers to the quality of a learning environment based on the ECERS-R measurement.

## CHAPTER 2 LITERATURE REVIEW

This chapter provides a brief overview of the theoretical basis of the study. It also contains a comprehensive review of the literature on the quality of early childhood classrooms, teachers' beliefs and use of developmentally appropriate practices, teachers' views of preschool inclusion, as well as their perceived training needs.

### Theoretical Basis of the Study

In the past decade, research in early childhood inclusion has moved from simply asking questions regarding efficacy of inclusion to “asking questions that permit systematic examination of which interventions are most effective for which children and families under what circumstances” (Hopwood, 2007, p. 262). Odom and his colleagues carried out a comprehensive research review on the current state of knowledge about early childhood inclusion from 1990 to 2002 using Bronfenbrenner's bio-ecological systems as their conceptual framework (2004). This review focused on the biosystem, microsystem, mesosystem, exosystem, macrosystem, and chronosystem which represent the following elements: child characteristics, classroom practices, family perspectives, social policies, culture, and changes in variables across time, respectively. These elements create a series of nested systems in which a child's development occurs. An example is the early childhood classroom in which a child participant (microsystem) is influenced by societal values (macrosystem) and educational policies (exosystem). A child's type and severity of disability has a direct impact on his or her development, as much as the child is indirectly influenced by classroom practice, family perspective, social policies, culture, and

interactions of those factors. Bronfenbrenner's (1979) influential theory on children's development has provided early interventionists and early childhood special educators a framework for initiating and implementing inclusive services for children with disabilities. The significance of Bronfenbrenner's theory is that he discusses the complexity of a model in support of the needs of each and every individual child who interacts with different people and materials within different classroom, school, social, and cultural environments.

Based on Bronfenbrenner's bio-ecological conceptual framework, this research is mainly focused on the microsystem which represents factors related to classroom practices such as learning environment, teacher characteristics, and teacher training. Influences of societal values (macrosystem) and educational policies (exosystem) on service delivery for children with disabilities will also be examined. The aforementioned variables were chosen because they provided the strongest support for answering the following main research questions: (1) What is the quality of learning environment? (2) What is the relationship between structural features, i.e., years of experience, education, and class size, and teachers' beliefs about developmentally appropriate practices, inclusion, and training needs? All of these research questions relate to program quality which is an essential element that requires definition.

#### Research on Early Childhood Program Quality

The quality of early childhood programs is usually measured both by the quality of the classroom environment and children's experiences in those environments (Love, Schochet, & Mechstrom, 1996). Also, the quality of the program can be measured by both structural and process variables (Howes, Phillips, & Whitebook, 1992; La Paro, Sexton, & Snyder, 1998).



Structural components are variables that are changeable or are able to be regulated, such as teacher to child ratios, class size and teacher characteristics, including years of experience, highest level of education, and professional training. On the other hand, teacher behaviors and children's experiences in inclusive programs such as developmentally appropriate curriculum and activities are process components because those are harder to control and measure. Based on a comprehensive literature review, Love et al. (1996) also concluded that five universal dimensions for measuring high quality program environment are as follows:

(a) classroom dynamics (e.g., teacher-child interactions, caregiver behavior, instructional practice); (b) classroom structure (e.g., physical space, health and safety features, enrollment, child-size furnishings); (c) classroom staff characteristics (e.g., teacher training, experience, salaries and benefits); (d) administration and support service (e.g., staff development opportunities, revenue sources, health care services, license and accreditation status); and (e) parent involvement (e.g., parent-teacher relationship, parent support, parent education, classroom and home visits) (as cited in Buysse et al., 1999, p.2).

Literature in the U.S. widely supports the belief that high quality early childhood programs set a solid foundation for successful inclusive practices (Bailey et al., 1998; Buysse, Wesley, & Keyes, 1998; Cross, Traub, Hutter-Pishgahi, & Shelton, 2004; Diamond & Carpenter, 2000; Lieber et al., 2000; Odom, 2000; Odom & Diamond, 1998; Odom et al., 2004; Odom, 2002; Pasche, Gorrill, & Strom, 2004).

Sandall and Schwarts (2002) proposed a "building blocks" model to address the needs of young children with disabilities in inclusive settings. They emphasized that a high quality early childhood learning environment is the foundation for successful inclusion. Based on this foundation, teachers can accommodate children's needs through modifying and adapting the curriculum. In addition, embedding learning opportunities is an effective intervention technique

teachers can use throughout daily routines in terms of addressing IEP goals and objectives (Daugherty et al., 2001; Horn et al., 2000). Finally, individualized instruction using evidence-based practices, such as naturalistic teaching (Odom et al., 2004) and positive behavior support (Duda, Dunlap, Fox, Lentini, & Clarke, 2004), are necessary to teach individuals that require a more intensive level of instructional support.

One cross-cultural study examined the consistency of relationships between structural and process variables of early childhood programs in Germany, Portugal, Spain, and the U.S. (Cryer, Tietze, Burchinal, Leal, & Palacios, 1999). Both ECERS-R and the Caregiver Interaction Scales (CIS) (Arnett, 1989) were used to measure the process quality. Structural variables including teachers' level of education, years of experiences, adult child ratios, and class size were examined. In examining differences among countries, the MANOVA results showed that there was a statistically significant difference in process quality and structural variables. Second, there was no single powerful predictor of process quality. Instead, many variables contributed to predicting quality simultaneously.

### General Findings on Early Childhood Program Quality

In the U.S., numerous research studies (Bailey et al., 1998; Buysse, Skinner, & Grant, 2001; Buysse et al., 1999; Cassidy, Hestenes, Hegde, Hestenes, & Mims, 2005; Jalongo, Fennimore, & Pattnaik, 2004; La Paro et al., 1998; Palsha & Wesley, 1998) examined variables related to the quality of early childhood programs. Global quality measures of early childhood programs, whether inclusive or not, often used the Early Childhood Environment Rating Scales-Revised (ECERS-R) (Harms, Clifford, & Cryer, 1998) for children two and one-half to five

years of age, or the Infant/Toddler Environment Rating Scale (ITERS) (Harms & Clifford, 1989) for children ages below two and a half. The Caregiver Involvement Scale (CIS) (Arnett, 1989) and the Classroom Assessment Scoring System (CLASS) (La Paro, Pianta, & Suthlman, 2004), on the other hand, were frequently used to measure teacher behaviors (i.e., instructional and emotional support) and the process variables of early childhood classrooms. Within this line of research, professionals first devoted their attention to the effects of structural features, including program (teacher salary, parent fee schedules), classroom (e.g., group size, adult-child ratio), and teacher variables (e.g., degree, major, and years of experiences) on program quality (e.g., Arnett, 1989; Howes et al., 1992; Howes, 1997; NICHD ECCRN, 1999,2000a, 2000b; Phillipsen, Burchinal, Howes, & Cryer, 1997; Scarr, Eisenberg, & Deater-Deckard, 1994). Second, research focused on the relationships between program quality and child outcomes in social, language and cognitive development (Burchinal, Roberts, Nabors, & Bryant, 1996; NICHD ECCRN, 1999, 2000b; Peisner-Feinberg & Burchinal, 1997; Peisner-Feinberg et al., 1999).

In general, the aforementioned correlational studies supported the findings that structural features such as low adult-child ratio, small group size, more teacher education, and specialized training positively contribute to program quality. In addition, a high quality program was likely to lead to better child outcome in social, language, and cognitive development. Recently, educational researchers and national legislations (i.e., NCLB, 2001) started to advocate for evidence-based practices and employing rigorous research designs (Dunst, Trivette, and Cutspec, 2002; Shavelson, Phillips, Towne, & Fruer, 2003). Therefore, recent research on the relationships between structural features, process variables, and child outcomes started to show a different trend in their findings.

Phillips, Mekos, Scarr, McCartney, and Abbott-Shim (2000) purposefully selected samples to examine the potential influences of regulatory quality in addition to structural quality, on global quality measured by ECERS-R and ITERS in center-based settings. Regulatory quality (e.g., highest teacher salary and parent fee schedule) represent “factors of the broader community and policy context within which child care operates” (p. 493), which has been ignored in previous research. Results confirmed that adult-child ratio, teacher training and group size were predictors of global quality. More importantly, the study revealed that both teacher salary and a parent fee schedule made significant contributions to global quality.

Burchinal, Howes, and Kontos (2002) attempted to identify structural characteristics that predict process quality in child care home settings using samples from two major studies: The California Licensing Study and The Family Child Care Study. The Family Day Care Environment Rating Scale (Harms & Clifford, 1989) was used to measure the global program quality. Variables such as child-adult ratios, caregiver educational level, and caregiver years of experience were structural predictors used in the study. Results from a regression analysis indicated that caregiver training was the strongest predictor of observed global quality. However, all other structural characteristics resulted in no statistically significant correlation with the global program quality. In addition, none of the structural characteristics were found as predictors of sensitivity of the care giver measured by the Caregiver Involvement Scale (Arnett, 1989).

Using an ecological model, Ghazvini and Mullis (2002) examined variables that predicted the process quality of center-based settings using a sample of 13 early care sites in North Florida. The Infant/Toddler Environment Rating Scale (ITERS) (Harms, Cryer, & Clifford,

1990) was used to measure global quality of care. The Child-Rearing Practices Report (Richel & Biasatti, 1982) and the Caregiver Interaction Scale (Arnett, 1989) were used to measure process quality of care or caregiver behaviors. The following variables that represented conditions of care-giving were used to predict both global and process quality: specialized training, adult-child ratio, caregiver stress, teachers' planned activities, and parent-caregiver communication. The results suggested that variables representing conditions of care-giving (years of teaching experience, highest degree, etc) were predictor of global and process quality, with specialized training being the strongest predictor. In addition, the results confirmed that structural quality and process quality were highly correlated with global quality.

Shim, Hestenes and Cassidy (2004) examined the relationship between teacher structure (co-teacher classroom, hierarchical two-teacher, and single-teacher classroom), teacher behaviors, and global quality of 72 preschool teachers from 44 classrooms. The ECERS-R was used to measure global quality of classroom while the TCI was used to measure teacher behavior. Results showed that teacher structure (co-teacher classroom, hierarchical two-teacher, and single-teacher classroom), and the total number of teachers are predictors of global quality and teacher behavior. Co-teacher classrooms tended to have higher quality as well as more positive teacher behaviors than hierarchical two-teacher classrooms or single teacher classrooms. Moreover, classrooms with two teachers tended to have a higher quality than single teacher classrooms. Teachers' level of education proved to be statistically significant in relation to global quality. However, teacher behavior was found non-significant in predicting global quality.

Pianta et al. (2005) examined the relationship between features of programs, classrooms, and teachers and classroom quality (measured by the ECERS-R) and quality of adult child

interactions (measure by the CLASS) using a sample of 238 Pre-K classrooms in 6 states. The MANOVA results revealed that location (i.e., states) contributed most robustly in terms of successfully predicting classroom quality followed by teacher characteristics (education-training and years of teaching experience). In addition, teachers' psychological characteristics, such as their self-reported depression and teaching philosophies, also significantly predicted classroom quality. However, teachers' salary did not significantly predict classroom quality.

Early, Bryant et al. (2006) investigated associations between teacher variables (i.e., years of experience, degree, (Bachelor's versus no Bachelor's), major, state teaching certificate, and Child Development Associate), classroom quality (measured through ECERS), and children's academic gains (measured through standardized and non-standardized tests). Though results did not suggest that teacher education is consistently correlated to program quality or student outcomes, the study did confirm that teachers' education is linked to children's mathematics gains while CDA training is only linked to children's basic skill gains. Early, Bryant et al. (2006) suggested that structural variables of teacher education and credentials might be necessary to attain high quality programs, yet the results were not sufficient enough to ensure program quality and positive child outcomes.

Early, Maxwell et al. (2007) examined the impact of teacher quality (levels of education and major) on child development and classroom quality using data from seven recent national studies of preschool programs such as the Head Start Family and Child Experiences Survey (FACE) study. Results from hierarchical linear models revealed a null relationship suggesting that neither teachers' level of education nor their major made a statistically significant impact on global quality measured by the ECERS-R and child outcomes measured by standardized

achievement tests. The researchers suggested that professional development targeting the quality of interactions between teachers and children might be a more appropriate way to improve the effectiveness of early childhood education in addition to increasing the requirement for teachers' level of education and majors.

LoCasale-Crouch et al. (2007) explored classroom quality using data from 692 classrooms in 11 states as well as the relationship between quality (measured by the ECERS-R and CLASS) and teacher, program, and classroom characteristics. Results from the three-stage cluster analysis indicated that approximately 15% of the classrooms demonstrated a high level of social and instructional support. In terms of teacher qualifications and process quality, the researchers were hesitant to make a definite conclusion. Instead, they suggested that the results were unclear. The most significant finding from this study was the fact that programs which have the poorest quality tend to hire teachers that struggle the most in delivering high quality instruction.

Mashburn et al. (2008) conducted a national study to examine the impact of program infrastructure and design, global quality (measured by ECERS-R), and process quality (measured by the CLASS) on developmental outcomes in academic, language, and social skills. The following measures were used to collect data on developmental outcomes: The Peabody Picture Vocabulary Test-Third Edition, the Oral Expression Scale from the Oral and Written Language Scale (OWLS), the Woodcock-Johnson-III Test of Achievement, Sound Awareness, Rhyming Subscale, Applied Problem Subscale, and the Teacher-Child Rating Scale. After controlling for pretest scores, states, and child and family characteristics, the results indicated a positive relationship between ECERS-R total score and expressive language skills. A statistically

significant relationship was found between social interaction, academic and language skills, and the quality of instruction. The quality of emotional interaction was positively related to children's social competency. However, none of the structural indicators were positively related to developmental outcomes.

In conclusion, research studies utilizing more rigorous designs, e.g., hierarchical linear modeling, and controlling for more variation among participants, e.g., pre-test scores and economic status, found that a positive correlation between both global and process quality, structural features, and student outcome disappeared. In fact, researchers were hesitant in making a conclusive statement. Instead, they stated that results were unclear, yet they all supported that teachers' level of education is important to program quality and child outcome.

As a result of the research funding, though lacking consistency, policy makers and national professional organizations agreed that structural characteristics of early child care facilities including adult-child ratio, class size, and teacher qualifications need to be regulated. For example, according to the NAEYC (2005), "for classes serving 3-year-olds, the maximum class size is 18 children and the maximum child-to-teacher ratio is 9:1, and for classes serving 4-year-olds, the maximum class size is 20 children and the maximum child-to teacher ratio is 10:1" (Mashburn et al., 2008, p. 734). In addition, NAEYC requires all teacher assistants to be General Educational Development (GED) certified and participate in professional development.

Policy makers are currently challenged to raise teacher qualifications (Spodek & Saracho, 2006). In the United States, if a teacher works for any early childhood program not funded by the state, he or she may be required to meet only the minimal standards (Spodek & Saracho). In many cases the requirements can be as low as passing the criminal background check and having



a high school diploma (Spodek & Saracho). There are some states that require childcare personnel to take some college level courses, yet the requirement is far below the equivalence of an associate degree in early childhood education (Azer, LeMoine, Morgan, Clifford, & Crawford, 2002). Teacher qualifications for state-financed prekindergarten programs vary from state to state (Spodek & Saracho). According to Barnett's (2003) finding, one state requires completion of 24 credit hours, 11 states require a Child Development Associate (CDA), and 20 states require a Bachelor's degree. In Head Start programs, which are publicly funded inclusive prekindergarten programs, teachers, in general, have less qualification than K-12 public school teachers. Though Head Start is a national program, teacher qualifications also vary from state to state (Barnett, 2003). According to the National Institute for Early Education Research (2003), 64% of Head Start teachers in New York State have a Bachelor's or higher degree compared to as low as 12% in Alabama and Alaska.

Teacher qualifications are believed to be a critical factor that contributes to the successful initiation and implementation of inclusive programs for young children (Buysse et al., 1999; Odom et al., 2004). Successful inclusion requires high quality teachers because teacher qualifications make a difference in children's learning outcomes (Darling-Hammond, 2000). Therefore, researchers also looked at the relationship between process features and program quality in inclusive settings. However, compared to the large body of research on general early childhood education, limited studies have examined program quality in inclusive environments.

## Early Childhood Program Quality in Inclusive Settings

La Paro, Sexton, and Snyder (1998) used both survey instruments and observational tools (ECERS and the Classroom Practice Inventory) to examine the relationship between teachers' education, demographic variables, years of experience and their program quality in 58 community-based early childhood centers. No statistically significant relationships were found among any of the above variables in predicting global program quality. In addition, La Paro et al. compared and measured the quality of 29 inclusive preschool programs and 29 segregated preschool programs. They discovered that 52% of the inclusive programs, as compared to 48% of the segregated programs, received good quality ratings on the ECERS. In general, both settings showed similar results of moderately good in terms of quality rating.

Buyse, Wesley, Bryant, and Gardner (1999) selected 180 community-based centers from 12 regions in North Carolina using both randomized and convenient samples. Each classroom was evaluated on the ECERS, and each teacher completed a self-assessment of knowledge and skills in working with all children. Buyse et al. (1999) compared the quality of 62 inclusive preschools with 118 regular preschools using the ECERS. Their results indicated statistically significant differences between inclusive programs (26% rated high quality) and regular preschools (8% rated high quality). Those two studies showed some evidence that inclusive practices were likely to maintain and improve the overall quality of an existing early childhood program. The Analysis of Covariance results indicated (a) inclusive program ( $n = 62$ ) scored significantly higher on the overall ECERS than non-inclusive programs ( $n = 118$ ) and (b) the following three factors are predictors of global high quality programs: teacher education, years of teaching experience, and teachers' self-ratings of knowledge and skill. In addition, they found

that teachers from inclusive classrooms, who had a higher level of education and more years of teaching experience, had classrooms that were rated significantly higher on the ECERS.

Hestenes, Cassidy, Hedge, and Lower (2007) compared quality of care for infant and toddler in inclusive ( $n = 64$ ) and noninclusive classrooms ( $n = 400$ ). Results of one-way ANOVA indicated that inclusive classrooms scored significantly higher on the ITERS-R than noninclusive classrooms. Moreover, teacher education and adult-child ratio significantly predicted program quality. However, neither the number of children with disabilities per classroom nor the severity of disabilities impacted the program quality.

Hestenes, Cassidy, Shim, and Hegde (2008) examined (a) the differences between inclusive and noninclusive preschool classrooms in program quality based on a large sample of 1,313 classrooms, and (b) the relationship between structural features and the quality of teacher-child interaction. Results from the one-way ANOVA showed that inclusive classrooms ( $n = 459$ ) scored higher on ECERS-R factors (Activity/Material factor and Language/Interaction factor) and subscale scores compared to noninclusive classrooms ( $n = 854$ ). Also, there was a statistically significant difference in teachers' level of education, training in special education, and years of teaching experience between teachers in inclusive and noninclusive classrooms, suggesting the former with better ECERS-R factor scores.

In addition, Hestenes et al. (2008) conducted a second study with a significantly smaller sample ( $n = 44$ ), but more diverse in terms of the type and severity of children with disabilities. First, results indicated that global quality (ECERS-R score) did not significantly predict process quality (Teacher Child Interaction scores). Second, they found that inclusive classrooms did not differ from noninclusive classrooms in their global quality and process quality. Third, child to

teacher ratios and group size were negatively related to global quality. In addition, teachers' years of experience did not predict either global or process quality.

Essa et al. (2008) tried to identify structural predictors for early childhood inclusion in both center and home based programs. The sample consisted of directors (354), teachers (1,577), and licensed family care providers (408). The following variables were identified as potential predictors from an ANOVA analysis: "total number of children, average group size, average student-teacher ratio, years of experience, highest level of early childhood education completed, disability-specific education, and salary" (pp.174-175). Results from three models of logistic regression analysis consistently showed that directors', teachers' and family providers' previous courses in working with children with disabilities was the most robust predictor of providing inclusive services, followed by the group size or the number of children per class. None of the other variables were significant in predicting inclusive services.

The aforementioned inclusion study provided insights on the dimension of inclusive early childhood programs in terms of global program quality. Further studies are warranted to provide more evidence on the relationship between teacher characteristics (education, years of experiences, and salary) and program quality in inclusive settings. Odom et al. (2004) noted that the quality of most early childhood classrooms, whether inclusive or not, is at a mediocre or lower level. He suggested that future research must address factors that influence quality of inclusive programs as well as how to improve the overall quality of early childhood programs through avenues such as professional development. Therefore, research related to professional development was considered relative to its impact on program quality.

## Professional Development and Program Quality

Professional development has been cited as the key to building a high quality early childhood program (Fukkink & Lont, 2007; Riley & Roach, 2006). Both formal teacher preparation programs and in-service training contribute to the improvement of program quality (Burchinal, Howes, & Kontos, 2002). The efficacy of professional development on the quality of early childhood programs has mostly asked questions regarding training content. Results showed that professional development contributes to teachers' (a) sensitivity to child needs (Burchinal, Cryer, & Clifford, 2002; Ghazvini & Mullis, 2002; Honig & Hirallal, 1998; Howes, 1997; Howes, Philips, & Whitebook, 1992), (b) attitudinal change toward developmentally appropriate practices (Snider & Fu, 1990), (c) increased provision of language stimulation (Howes, James, & Ritchie, 2003), and (d) increased provision of physical and social skill stimulation (Honig & Hirallal, 1998). Most importantly, researchers have linked formal training with program quality as measured by either the ITERS or the ECERS (e.g., Burchinal, Cryer, & Clifford, 2002; Philipsen et al., 1997).

## Professional Development and Quality of Inclusive Programs

Professional development is an important and effective avenue to improve the quality of early childhood programs and also applies to inclusive settings (Campbell & Milbourne, 2005; Lang & Fox, 2004). However, much less has been done in inclusive settings to find out how to enhance professional development activities to improve and maintain program quality. In a qualitative study, 92 professionals and parents were interviewed and concluded that teacher training, program philosophy, administrative support, and teacher dedication contributed

significantly to high quality inclusive early childhood programs (Buysse , Skinner, & Grant, 2001).

Consultation, as an alternative avenue in professional development, has been suggested as an innovative and effective option to provide teachers support in inclusive settings (Buysee & Wesley, 1993). One particular study specifically examined the impact of on-site consultation on the quality of inclusive early childhood programs (Palsha & Wesley, 1998). Palsha and Wesley provided a two-day intensive training for 40 consultants who later provided on-site consultation for 75 classroom teachers. These corresponding classrooms were observed pre-and post-consultation to measure the effectiveness of the consultation. In addition, they were offered follow-up observations. Participants consisted of 7 infant-toddler centers, 14 classrooms serving children from 2 ½ - 5 years of age, and 4 family care homes. T-tests were used to measure the mean difference in total mean scores of the ITERS, the ECERS, and the FDCRS. All subjects across the ITERS and ECERS showed statistically significant differences on all seven subscales for both concluding and follow-up observations. However, three of the four family childcare homes declined in their total mean score during follow-up observations. No effect sizes were reported by the authors. One limitation of this study, besides sample size pointed out by Odom et al. (2004), was the lack of a control group used.

Campbell and Milbourne (2005) delivered a 15-hour course over 5 sessions to 160 participants from 48 different classrooms. Then they provided on-sight consultation to 77% of the participants in 70 classrooms. The rest of the group did not receive consultation. The ECERS-R was administered in each participant's classroom to measure the effect of the training. A two-way repeated measure analysis of variance was employed to measure program quality

with time as the within-group factor between ITERS total mean score and the consultation group as the between-group factor. There was no main effect for either time,  $F(1, 94) = 2.179; p > .05$ , or consultation group,  $F(1, 94) = .6, p > .05$ . However, there was a statistically significant interaction between time and group,  $F(1, 94) = 6.92, p < .05$ . This relationship also yielded a moderate effect size ( $\eta^2 = .06$ ). Descriptive statistics showed that the ITERS total mean score of the consultation group ( $M = 3.2; SD = .779$ ) was slightly lower than the non-consultation group ( $M = 3.43; SD = .772$ ). The consultation group's total mean score exceeded the non-consultation group after the training. However, the non-consultation group showed a decrease in their total mean score, which led the authors to discover that both levels of education and years of experience approached statistical significance. Hence, the authors claimed that they failed to verify that consultation made a true difference in participants' scores. As a result, researchers suggested more rigorous methodology to be used in examining the impact of specific professional development activities.

In summary, research related to structural quality, process quality, and student outcome in early childhood education has provided practitioners and policy makers many insights in terms of how to improve program quality for every child. Future research employing rigorous designs are warranted in order to identify predictors of process quality and student outcome in inclusive settings due to the lack of consistency in previous research findings. Nevertheless, this line of research has set a foundation for early childhood inclusion, which recognizes high quality programs as tier one intervention in its service delivery hierarchy.

In order to facilitate early childhood inclusion in China, it is inevitable that research on early childhood program quality be extended into the Chinese context. Moreover, it is important

to understand the development of the early childhood education system, including underlying factors that have shaped its development, quality rating system, and research conducted on examining the relationship between structural and global quality in programs.

### Early Childhood Program Quality in China

#### Introduction to the Early Education System

The population in China exceeds 1.3 billion people representing 56 national tribes from 23 provinces, 5 autonomous regions, and 4 municipalities (National Bureau of Statistics of China, 2006). Beijing, as the capital city and municipality, has over 13 million people, which is more than the residents of New York City. In order to reduce the overwhelming population density, China has enforced a one child per-family policy throughout the nation since 1979. Being the only child, a Chinese child faces great parental expectations regarding academic achievement beginning in the early years. The limited years of compulsory education provided by the Chinese government affect children from grades 1 to 9 in both urban and rural areas. Prior to first grade, children usually attend early childhood programs called kindergartens, which are full day programs serving children ages 3 to 6. Facilities for children before age 3 are considered nursery schools.

#### Public Kindergartens

Public kindergarten means the government—whether at the federal, province, city, or local town level—has full ownership of the school. There are generally three types of public



kindergartens: (a) department of education related, (b) state organizations or corporation related, and (c) local town or county related (Pang, Liu, & Hu, 2008). More than half of the Chinese people reside in rural areas where there might be public kindergarten classes administered by the primary schools to prepare children for first grade (Zhao & Hu, 2008). These programs, however, are only one-year-long programs. According to the Department of Education and Planning of the Ministry of Education (2006), since the 1980s, 58% of early childhood education in rural areas has been implemented through these types of kindergarten classes.

#### Measuring the Quality of Public Kindergartens in China

The Department of Education (DOE) periodically monitors the quality of all types of public kindergartens in China through a mandatory rating system. First, there are national legal requirements that apply to all kindergartens seeking licensure. When qualified, settings can apply for a level and category rating according to standards established by each province. Based on national laws and regulations, each state proposes a detailed document that lists performance indicators for each level and category of quality. For example, in Beijing the top quality kindergarten rated by the DOE is called the “city’s model kindergarten.” Below that is the “city’s level one category one kindergarten,” and then “level one category two,” “level two category one,” “level two category two,” “level three category one,” and “level three category three.” There are a total of three levels and three categories. The DOE in Beijing also identifies the tuition rate per each level and category. All public schools must participate in the rating system set forth by the DOE in each province or city that is a municipality directly under the federal government.

## Early Childhood Program Quality in China

A few researchers in the past have looked at the early childhood teacher qualification, cost, and structural features of programs (Pang, Liu, & Hu, 2008). However, none of them are linked to global program, process quality, or student outcomes. Pang, Liu, and Hu (2008) first examined the relationship between structural quality and quality of learning environments measured using a scale developed by the researchers themselves (Kindergarten Learning Environment Rating Scale). Data were collected from 50 classrooms and 26 kindergartens in one province. Research results from a step-wise multiple regression analysis indicated that teacher education, followed by adult-child ratio, group size, and parent fee schedules significantly predicted the total score as well as subscale scores generated from the learning environment measures. Another significant finding of this study was that local town and county public kindergartens associated with the local town or county received the lowest scores on environmental quality. They also tended to have the largest group sizes, low adult-child ratios, and many teachers who graduated from intermediate level teachers' schools instead of three or four year colleges. In addition, these kindergartens charged the lowest parent fees. Public kindergartens associated with the Department of Education received the highest rating in quality, followed by the ones associated with state organizations or corporations. It is noteworthy that this study did not involve kindergartens in rural areas, although, more than half of children reside in rural China.

In order to further understand the field of early childhood and its quality in China, the following influences should also be considered: cultural beliefs, international influences, and educational policies.

## Cultural Beliefs

One of the most far reaching impacts on Chinese culture is Confucius's teaching on the importance of education as well as role of teachers and parents in children's learning (Luo & Gillard, 2006). A Chinese family, no matter if it is poor or rich, always places education as a priority. As mentioned above, the compulsory education system in China only serves children from Grades 1 to 9, which means that each child has to compete in order to get admission to one of the limited number of high schools. The biggest and most intensive competition that measures academic achievement is the highly competitive college entrance examination. Pressures caused by such academic competitions make parents anxious about academic achievement as soon as their children reach preschool age (Luo & Gillard, 2006). As a result of this, Chinese parents are more in favor of drilling the memorization of many verses of songs and poems and the obedience of the elderly rather than creativity or learning through play (Zhu & Zhang, 2008). Unaware of the benefits of developmentally appropriate curriculum and child oriented education theory, many parents request kindergartens to focus on academic subjects like math and reading. On the other hand, Chinese early childhood teachers are encouraged by the national curriculum guidelines to implement age appropriate and individually appropriate activities. The teachers struggle in daily practices since they were more accustomed to a direct instructional method of teaching (Zhu & Zhang, 2008).

Another influence that conflicts with child-oriented educational theory is Chairman Mao's philosophy. In 1949, when the People's Republic of China was founded, China was under the leadership of Chairman Mao, who mandated a curriculum of socialism from the elementary grades to the universities and expected "all children would perform at high levels and in similar

ways” (Deng et al., 2001, p. 290). The concept of individualism was not acceptable even in early childhood education. Therefore, individual differences in curricula, teaching, and learning activities were not taken into consideration. The cultural revolutionary war which took place from 1966 to 1976 adversely affected the development of early childhood education, and many preschools were closed during that time (Shi, 1999). The enactment of Reform and Open-up Policy that took place in China in 1978 has benefited the development of early childhood education tremendously as Western philosophies started to be gradually introduced and implemented (Zhu & Zhang, 2008).

### Foreign Influence

In 1898, an English Presbyterian opened the very first nursery school in Xiamen, China (Tang & Kou, 2003). When the People’s Republic of China was founded in 1949, Russian theories and practices of early childhood education started to be systematically and extensively implemented all over China. When China reopened her door to the world in 1979, philosophies written by Dewey, Piaget, and Vygotsky were becoming popular and widely introduced among early childhood education practitioners (Zhu & Zhang, 2008). Curriculum approaches such as High Scope, Integrated Theme-based Curriculum, Project Approach, Reggio Emilia, and Montessori are now also being widely integrated into both public and private kindergartens (Zhu & Zhang). However, some examples of implementing Reggio Emilia and Montessori curriculum have proven unsuccessful in the Chinese socio-cultural context (Zhu & Zhang). Jiang and Deng (2008) argue that Chinese early childhood education lack the “China taste” and more emphasis

should be paid on how to resolve practical problems in the kindergartens within domestic socio-cultural contexts before adopting foreign philosophies and curriculums. Educational anthropologist Tobin advocated for the integration of the western approaches into Chinese culture but also cautioned the aforementioned integration because of the unique Chinese culture (Zhu & Zhang).

### Educational Policies

There are two legal documents that have had a major impact on program quality in the Chinese early childhood education and are currently affecting early childhood teacher education. First, the *Kindergarten Work Regulations and Procedures* was issued by the National Education Committee of the People's Republic of China in 1989 as an effort to promote and measure the curriculum reform in Early Childhood Education (Zhu & Zhang, 2008). It emphasized the following aspects: (a) child initiated activities, (b) individual differences, (c) the importance of play, (d) an integrated curriculum, and (e) the process of activities (Zhu & Zhang). This child-oriented curriculum encouraged individualism and teachers relating to children in a more facilitating role. This conflicts with traditional Chinese cultural practices of obeying the elderly and authorities. Practitioners expressed frustrations in implementing the regulations due to a lack of practical guidelines. Parents also challenged the child-oriented curriculum as they placed a greater value on collectivism and subject-based curriculum.

In order to address growing concerns for the gap between theory and practice, the Ministry of Education issued the latest document of the *Guidelines for Kindergarten Education (trial version)* (Ministry of Education in People's Republic of China, 2001). These national

curriculum guidelines reinforce the importance of early childhood education and describe goals and content in early childhood education in the five subject areas: health, science, social, language, and art. The trial guidelines relate well to the DAP guidelines advocated by the NAEYC in the United States. These guidelines both value age and individual appropriateness in curricula and provide teachers with guidelines regarding the appropriate practices in daily teaching. Each kindergarten in China, regardless of its level, category, and funding sources, must follow the federal regulations and the national curriculum guide to maintain quality standards and licensure. In terms of quality rating, each state's rating system might be slightly different, but they all reflect upon the *Guidelines for Kindergarten Education (trial version)* (Ministry of Education in People's Republic of China). These educational policies also indicate that the DOE is trying to develop the early childhood education system by infusing western philosophies into Chinese educational theory and practices. As a result, the concept of DAP is valued and used as a criterion in program quality ratings. The curriculum movement in Chinese early childhood education provides a good foundation for inclusive practices as it require high quality program. Developmentally appropriate practices establish the criteria for a high quality early childhood program. Therefore, it is critical that we examine the role of DAP in Chinese early childhood teachers' beliefs and daily practices.

#### Research on Developmentally Appropriate Practices (DAP)

Since 1987 various research focusing in the DAP in the United States was conducted involving teachers (Adcock & Patton, 2001; Burts, Hart, Fleege, Mosley, & Thomason, 1992; Burts et al.,1993; Charlesworth, Hart, Burts, & Hewrnandes, 1991; Charlesworth, Hart, Burts,

Mosley, & Fleege, 1993; Goldstein, 2008; Hatch & Freeman, 1988; Hoot, Parmer, Hujala-Huttunen, Cao, & Chacon, 1996; Jones & Gullo, 1999; Nespor, 1987; Smith & Shepard, 1988; Zambo, 2008) and parents (Bartkowiak & Goupil, 1992; Knudsen-Lindauer, & Harris, 1989; Stipek & Byler, 1992). Compared to the literature regarding DAP in the U.S., studies in developing countries are limited regarding how teachers perceive DAP and to what extent their practices reflect these guidelines. Researchers have also been interested to find DAP perspectives from administrators, parents, and teachers all over the world including Greece (Doliopoulou, 1996), Korea (Park, 1996), and P.R. China (Hoot et al., 1996). Findings suggested these practitioners in different countries were supportive of developmentally appropriate practices. This body of research provided helpful insight in order to address the increasing needs of children from culturally and linguistically diverse backgrounds in the U.S. As a result, the DAP guidelines were revised in 1997 (Bredekamp & Copple, 1997) to include the concept of cultural appropriateness. Since then, more and more interest in DAP has been shown by educators outside the U.S. to “find out if the guidelines might fit the current thinking of their teachers, either in whole or in part” (Charlesworth, 1998, p. 298). DAP, as a philosophy and guidelines, has influenced early childhood educational policies and practices all over the world (Szente, Hoot, & Ernest, 2002) including countries in Asia (Jambunathan & Caulfield, 2008).

The DAP concepts have been introduced in many Asian countries in the past two decades and infused into teacher preparation programs as well as classroom practices. The progressive development of early childhood education in some Asian countries, such as India, Korea, and China, have attracted many educational researchers to investigate the application of DAP in the Asian context.

In India, “the basic premises of developmentally appropriate practices have been in place at the policy level” for quite some time (Jambunathan & Caulfield, 2008, p. 253). Educational researchers strongly advocated for “a fusion of the western developmental theories, societal needs and the cultural heritage” in creating a quality learning environment (p. 257). Jambunathan and Caulfield (2008) attempted to examine the use of DAP in 21 preschool classes in south India. The study results indicated that Indian early childhood teachers did not incorporate a lot of developmentally appropriate activities in the classroom since the average mean score was between 2 and 3 on a 5-point Likert scale with 1 being the lowest.

In Korea, early childhood teachers started to learn about DAP in the early 1990s, and later DAP was adopted as the theoretical base of their national kindergarten curriculum (Kim, Kim & Maslak, 2005). Several studies were conducted on understanding concepts behind DAP as well as its applications on math and science learning using small and convenient samples (Kim et al., 2005). Kim, Kim, and Maslak (2005) conducted a further study to find out how Korean early childhood teachers understood and used DAP. The results suggested that both Korean kindergarten and child-center teachers, who have lower levels of education and less experience, have relatively strong beliefs ( $M = 3.86$ ) and reported using DAP activities ( $M = 3.87$ ). The MANOVA results indicated that there were significant differences in teachers’ appropriate beliefs ( $P < .05$ ,  $F = 5.26$ ) and inappropriate beliefs ( $P < .01$ ;  $F = 16.01$ ) among center types. Similar results applied to appropriate activities ( $P < .05$ ;  $F = 6.28$ ) and inappropriate activities ( $P < .01$ ;  $F = 33.27$ ). Interestingly, the standardized Canonical coefficients showed that inappropriate beliefs and activities were the scales that contributed most to the differences between the two groups.



Measured by the same instrument, Lee, Baik, and Charlesworth (2006) surveyed 242 kindergarten teachers in Korea and identified them as either developmentally appropriate (DAP) teachers or developmentally inappropriate (DIP) teachers based on their total belief scale scores. Then, the researcher selected 40 DIP teachers and 40 DAP teachers to participate in the pre-intervention. Teachers' use of scaffolding strategies of both groups was measured and compared. The study results showed no statistically significant difference in scaffolding skills between DAP and DIP teachers. During the intervention, 30 DIP teachers and 30 DAP teachers participated in a month-long in-service training on the use of scaffolding strategies before the post study was conducted. This time, the results indicated that DAP teachers scored statistically higher on their use of scaffolding skills compared to the DIP teachers. This study suggested that professional development programs on similar topics are more effective when delivered to DAP teachers than to DIP teachers.

#### Chinese Teachers' Perceptions of Developmentally Appropriate Practices

McMullen et al. (2005) measured teachers' beliefs (Teacher Belief Scale) and practices (Instructional Activity Scale) of DAP across five countries including China, Taiwan, Turkey, Korea and the United States. A one-way ANOVA was conducted to compare the mean difference in both the TBA scale scores and the IAS scores. The results showed a statistically significant difference ( $P < .01$ ) with Chinese teachers ( $n = 244$ ) scoring lowest among five countries on both scales. Pearson's Product Moment correlational tests were conducted to investigate the relationship between the teacher belief scale and the instructional activities scales within each country. Again, Chinese teachers showed the lowest correlation between the two

scales ( $r = .31, p < .01$ ) as compared to the U.S. ( $r = .69, p < .01$ ), Taiwan ( $r = .61, p < .01$ ), Korea ( $r = .47, p < .01$ ), and Turkey ( $r = .47, p < .01$ ). The authors explained that in China, though, efforts to implement kindergarten regulations that reflect some of the U.S. DAP statements are being made; however, “the applications of new regulations are inconsistent.” (p. 461). Challenges could be (a) the large class size with 20-40 children per class, (b) the influence of Confucius’ teaching which emphasizes collectivism instead of individualism (which is valued by the DAP principles), and (c) the overall educational level of early childhood teachers, which is lower than other countries in the study. Though they utilized a large sample size, the researcher cautioned readers to interpret the results as preliminary findings due to a lack of randomized sampling. Furthermore, they suggested that more studies should be conducted to investigate Chinese early childhood teachers’ beliefs and use in DAP in various regions of China.

Wang, Elicker, McMullen, and Mao (2008) examined preschool teachers’ beliefs in curriculum and instructional practices using the Mandarin version of the Teacher Belief Scale and the Instructional Activity Scale. Factor analysis revealed good validity of both scales from samples collected in the U.S. and China. Results from MANOVA tests indicated that Chinese teachers’ specialized training, levels of education, years of teaching experience, class size, and school location all made significant differences in the multivariate scores. In comparison, only levels of education contributed to American teachers’ curriculum beliefs. During interviews, Chinese teachers reported practical limitations in resources as the number one considering factor in activity planning whereas American teachers reported for children’s interests. Additionally, Chinese teachers reported government regulations as the strongest influence on teaching whereas American teachers reported for children’s characteristics.

Previous studies regarding Chinese kindergarten teachers' beliefs in DAP provided insights into factors that influence their DAP beliefs and activities; however, repetition of such studies is necessary to confirm scientific findings. Additionally, no study has addressed teachers' DAP beliefs and activities based on their years of teaching according to the curriculum movement. Furthermore, the recent initiation of inclusive services among public kindergartens demands investigations on its impact on teachers' understanding and use of DAP to improve the quality of service for all children. No studies have ever looked into Chinese teachers' beliefs and use of DAP in inclusive settings. Based on the above, this study attempts to measure Chinese early childhood teachers' understanding and use of DAP in inclusive kindergartens considering their years of teaching experiences and class size.

Exploring program quality and teachers' beliefs and use of developmentally appropriate practices are essential in identifying successful factors that support early childhood inclusion. On the foundation of a high-quality program, Chinese early childhood teachers' perceptions toward inclusion are an important factor in relation to the successful facilitation of inclusive practices. Researchers need to investigate the impact of the Chinese kindergarten context on teachers' views of inclusion.

#### Research on Perceptions of Inclusion

Research utilizing both qualitative (case study, interview, focus group) and quantitative (survey) methods in the U.S. have been conducted to explore (a) teachers' general attitudes toward inclusion and their perceptions of the benefits and drawbacks of inclusion for children with and without disabilities (Eiserman, Shisler, & Healey, 1995; Gemmell-Crosby & Hanzlik,

1994; Hadadian & Hargrove, 2001; Seery, Davis, & Johnson, 2000; Smith & Smith, 2000); (b) factors that were perceived either as barriers or necessary support factors for successful inclusion (Buysse, Wesley, Keyes, & Bailey, 1996; Dinnebeil, McInerney, Fox, & Juchartz-Pendry, 1998; Kucuker, Acarlar, & Kapci, 2006; McConkey & Bhlirgri, 2003; Smith & Smith, 2000); and (c) the relationship between teachers' perceptions of inclusion and factors -including class size, type and severity of disabilities, teacher's level of education, previous experiences with disabilities, years of teaching, and their sense of teaching efficacy (Nutbrown & Clough, 2004; Smith & Smith, 2000).

In China, research results also indicated that the majority of teachers agree with the philosophy of inclusion. For instance, Chen, Chen, and Peng (1994) found 56% of teachers believed that disadvantages exceed benefits when including students with mental retardation in regular classrooms. Zhang (2006) surveyed teachers' attitudes toward inclusion in three types of preschools: semi-inclusive, special preschool, and regular preschool. The study results indicated that preschool teachers who were most likely to show positive attitudes toward inclusion were those in semi-inclusive settings. In another study involving preschool teachers in Hong Kong, teachers felt that it should be a special education teacher's job to teach Individualized Education Plan (IEP) goals (Cheuk & Hatch, 2007). Furthermore, Zhang and Chen (2002) found that approximately 67% of teachers indicated positive peer interactions between children with and without disabilities during school time except time for learning activities.

In addition, researchers have attempted to explore factors that were perceived by teachers either as barriers or necessary support factors for successful inclusion. Results suggested that (a) knowledge and skills of teachers (Buysse et al., 1996; Dinnebeil et al., 1998; Kucuker et al.,

2006; Smith & Smith, 2000), (b) adequate staffing (Kucuker et al.; McConkey & Bhlirgri, 2003), (c) administrative support (Kucuker et al.; Marchant, 1995; Smith & Smith; Proctor & Niemeyer, 2001), and (d) time for planning (Marchant; Proctor & Niemeyer; Smith & Smith) are vital in facilitating successful inclusion. Although the majority of teachers showed interest in inclusion, they felt unprepared to provide adequate support to students with disabilities in the classroom (Dinnebeil et al.; Kucuker et al.; McConkey & Bhlirgri,; Smith & Smith).

In China, study results were similar in terms of teachers' perceived barriers of inclusion. These barriers are lack of knowledge and skills, class size, administrative support and time (Chen et al., 1994; Wei and Yuen, 2000). In addition to administrative support and teaching methods, Liu, Du, and Yao (2000) suggested that consultation services by special educators, adequate resources, and equipment were important to successful inclusion of kindergarten children with disabilities. The same study also indicated that 82% of teachers suggested that they were not adequately trained to provide a high quality education for children with disabilities.

Various studies conducted in the United States through surveys, interviews, and focus groups also examined the relationship between teachers' perceptions of inclusion and variables, including class size, type and severity of disabilities, teacher's level of education, previous experiences with disabilities, years of teaching, and their sense of teaching efficacy. Research results indicated that teachers who have a positive attitude toward inclusion generally had a higher level of education (Stoiber, Gettinger, & Goetz, 1998), they tended to have more years of teaching experience (Stoiber et al.), and they also had a higher sense of teaching efficacy (Soodak et al., 1998; Stanovich & Jordon, 1998). What's more, results suggested that teachers preferred teaching in a smaller class (Smith & Smith, 2000; Wesley, Buysse, & Tyndall, 1997)

and teaching students who have mild disabilities and whose type of disability does not interfere with others' learning in the classroom (Nutbrown & Clough, 2004; Smith & Smith). The majority of teachers from these studies reported that they were less prepared or less comfortable to include children with more severe disabilities, particularly those with severe autism (Nutbrown & Clough; Smith & Smith).

Research results were similar in China in terms of the relationship between inclusion attitudes and variables such as class size, type and severity of disabilities, teacher's level of education, previous experiences with disabilities, years of teaching, and their sense of teaching efficacy. Zhang and Chen (2002) discovered that at least half of the teachers agreed that inclusion should be based on both type and severity of disability. Liu, Du, and Yao (2000) found that primary teachers in China were more willing to include children with visual impairments and physical disabilities compared to students with learning disabilities, severe hearing disabilities, and mental retardation. Peng (1999) reported that teachers who had special education training and who had two or more years of college experience had showed positive attitudes toward inclusion. Similarly, Wei and Yuen's study (2000) showed that more special education teachers (67%) than primary school teachers (33%) had positive attitudes toward inclusion. In comparison, teachers from Hong Kong who integrated kindergarteners indicated that their negative attitudes toward including children with disabilities resulted from their lack of training and experience (Cheuk & Hatch, 2007). Moreover, Peng (2000) found that teachers over the age of 40 showed less willingness toward including children with disabilities compared to those who were below 40.

According to Li's study (2007) on preschool inclusion in North China, parents and teachers perceived inclusion positively for all children regardless of their previous experiences with disabilities, parental social economic status levels, teacher's age and education, and types of disabilities. Also, Li found that "inadequate special help, less attention from teachers, inadequate special services, rejection by teachers and peers, unqualified teachers, and negative impact on their emotional development" were perceived as disadvantages for children with disabilities (p. 96). The following were listed as negative impacts on typical children: "being injured or frightened by children with disabilities, learning undesirable behaviors, receiving less attention from teachers, and slowing their learning down" (Li, p. 96). In addition, Li suggested that a positive relationship exists between teachers with prior experiences with disabilities and their attitudes, expectations of students' performance, and student outcomes. Teachers' beliefs about inclusion were also positively influenced by their levels of education and their senses of teaching efficacy.

Research on teachers' perceptions of inclusion in early childhood has consistently shown teachers' positive philosophy of inclusion and benefits for children with and without disabilities. Specifically, results from various studies utilizing various research methodologies suggested that factors such as class size, administrative support, and training are barriers to inclusion (Chen et al., 1994; Wei and Yuen, 2000). On the other hand, these factors are perceived as necessary in order to facilitate and continue successful inclusion of children with disabilities. Furthermore, teacher characteristics (years of teaching, age, previous experiences of teaching, sense of teaching efficacy) and student characteristics (type and severity of disability) influenced their view toward inclusion (Li, 2007; Peng, 1999; Wei & Yuen). However, fewer studies were

conducted in Chinese schools (mostly primary regular schools and special schools) and only two of them related to preschool settings (Li; Zhang, 2006). Considering the fact that early childhood inclusion is in its infancy in China and very few preschools in developed urban cities initiated pilot projects (e.g., Shanghai and Beijing), more research is warranted to examine preschool teachers' views and examine related factors.

In summary, there have been limited surveys (Li, 2007; Zhou, 2006) conducted in the Chinese kindergarten settings which investigate teachers' attitudes toward inclusion and their perceived challenges. However, it has been consistently reported that Chinese teachers' lack of knowledge and skills prevented them from initiating and continuing services for this population. Moreover, currently very few or none of the bachelor level teacher preparation programs in China are preparing early childhood special education teachers. Therefore, the need for early childhood special education teachers is critical (Liu & Zeng, 2007). In order to implement national laws to deliver services for millions of eligible kindergarten age children with disabilities, it is imperative to prepare both pre-service and in-service early childhood teachers to deliver services in inclusive settings. Thus it is vital that this study investigate the training needs of early childhood teachers, particularly teachers from those 18 pilot inclusion kindergartens who already have had some experiences in serving children with disabilities.

### Conclusion

Research findings on the improved outcomes for young children with disabilities in the U.S. provide evidence of: (a) structural predictors of global and process program quality, (b) program quality in inclusive settings, (c) teachers' understanding and use of developmentally



appropriate practices, and (d) factors that influence teachers' perceptions toward inclusion of children with disabilities. The direction of future early childhood inclusion research may best be established by empirical investigations regarding factors which influence program quality in inclusive settings. The aforementioned research findings, combined with the philosophical, legal, and educational rationale for early childhood inclusion in China, created a compelling case for the researcher to investigate similar issues within the Chinese context. More specifically, there is a need to explore (a) early childhood program quality, including structural and process features, (b) Chinese early childhood teachers' understanding and use of developmentally appropriate practices, (c) Chinese early childhood teachers' perceptions of inclusion, and (d) their self ratings of knowledge and skills for delivering services for children with disabilities in inclusive settings.

## CHAPTER 3 METHODOLOGY AND PROCEDURES

### Introduction

This chapter describes the methodology that was used to explore the general quality of the early childhood programs in China, early childhood teachers' understanding and use of developmentally appropriate practices, their beliefs of inclusion, and their self assessment of training needs and information regarding early childhood inclusion. This section includes a description of the setting of this study, subjects, instruments, the research procedure, and a description of the data collection and analysis in order to answer the following research questions:

1. What is the general program quality among “Level 1 Category 1 kindergartens” or “Cities’ Model kindergartens” in Beijing, China?
2. Are there differences among Chinese early childhood teachers understanding and use of developmentally appropriate practices based on degree, major, years of teaching experience, and class size?
3. Are there differences among Chinese early childhood teachers’ beliefs of inclusion based on degree, major, years of teaching experience, and class size?
4. Are there differences among Chinese early childhood teachers’ perceived training needs for inclusive practices based on degree, years of teaching experience, and class size?

### Setting

In order to help children with disabilities receive an appropriate early childhood education, the Beijing Municipal Commission of Education (BMCC) decided to initiate inclusion

of students with disabilities in kindergartens in 2004. Four public kindergartens were identified as pilot preschools. The number of pilot inclusion preschools increased to 18 in 2007 and has recently reached over 30. During 2006-2007, there were 18 public kindergartens geographically representing 18 school districts in Beijing that were identified by the BMCC to continue the piloting inclusive services for children with disabilities. The preschools involved in this initiative were designated as either “city’s model kindergartens” or “category 1 level 1 kindergartens” identifying them as top-quality public preschools in Beijing. The ultimate goal of these pilot schools was to become demonstration inclusive preschools for the rest of the preschools in each district so that staff at each preschool could learn the process of initiating inclusive services. It was hoped that in the near future, Beijing could become the model city for early childhood inclusion and other preschools in China. It was anticipated that millions of children with disabilities might be provided the opportunity of learning in a regular kindergarten from urban areas to underdeveloped villages in rural areas.

The researcher was invited to conduct a research project to improve the quality of services for young children with disabilities in Beijing during Summer 2008. The population of this study consisted of teachers from these 18 inclusion pilot kindergartens. Given permission by the Beijing Department of Education Early Childhood Division, administrators of all the 18 inclusive pilot kindergartens were contacted to participate in this study. Unfortunately, due to the breakout of the “hand, mouth, and foot” disease among the children in the kindergartens, some schools were closed and some were prohibited to be visited as mandated by local school authorities. Thus, teachers from 12 out of the 18 kindergartens participated in this study. Table 1 illustrates the quality rating of each kindergarten as well as number of teachers by kindergartens.

Table 1  
Description of Each Kindergarten

Kindergarten ID	Quality Rating	Number of Teachers
1	City's Level 1 Category 1	54
2	City's Level 1 Category 1	18
3	City's Level 1 Category 1	28
4	City's Level 1 Category 1	28
5	City's Level 1 Category 1	24
6	City's Level 1 Category 1	2
7	City's Model	18
8	City's Level 1 Category 1	20
9	City's Level 1 Category 1	15
10	City's Level 1 Category 1	25
11	City's Model	17
12	City's Model	17

### Participants

Of the 12 participating kindergartens, 7 of the directors gave permission to allow the researcher to conduct the Early Childhood Environmental Rating Scales –Revised (ECERS-R) in individual classrooms. As a result, observations were conducted in 40 classrooms from 7 kindergartens.

A total of 276 public kindergarten teachers from Beijing participated in this study. Of the teachers, 77% had majored in early childhood education and 12.3% had a background in elementary education. Table 2 illustrates demographic information about the participating teachers, including their degree, number of student in the classroom, and years of teaching experience.

Table 2  
Teacher Demographics

Demographic Characteristics	Percentage of teachers	Number of teachers
Degree		
Bachelor's	41.3%	114
Two to three-year college degrees	42.8%	118
Teachers' training schools	12.3%	34
High school diploma or equivalent	3.6%	10
Teaching Experiences		
More than 19 years	21.4%	59
Between 7 and 19	39.9%	110
Less than 7 years	36.2%	100
Not reported	2.5%	7
Class Size		
Less than 25 students	10.9%	30
Between 25 and 30 students	26.4%	73
Between 30 and 35 students	34.4%	95
35 students and more	22.5%	62
Not reported	6.3%	16

### Instruments

The following instruments were used in this study: (a) The Early Childhood Environment Rating Scale Revised (ECERS-R) (Harms, Clifford, & Cryer, 1998) , (b) Measure of Developmentally Appropriate Practices: the Teacher Belief Scale (See Appendix A) and the Instructional Activity Scale (See Appendix B) (Charlesworth et al., 1993), (c) Benefits and Drawbacks of Early Childhood Inclusion (adapted from Bailey & Winton, 1987) (See Appendix C), and (d) Self-Assessment of Training and Information Needs-Adapted (Buysse et al., 1999)

(See Appendix D). The researcher purchased five copies of the ECERS-R scales in Chinese from the Taiwan Psychological publishing company to use in this study. The researcher also emailed authors of the survey instruments and obtained permission to use their measures.

All surveys were translated into Chinese. Two doctoral students who were majoring in instructional technology at the University of Central Florida reviewed the translation and provided feedback to the researcher. The researcher made changes in the translation based on feedback. The surveys were given to the instructional director at the PKUECC for feedback to make sure the translation of professional terms in the surveys was accurate. Again, changes were made based on feedback.

Table 3 lists Cronbach's alpha for each instrument based on the data collected from the current study.

Table 3  
Cronbach's Alpha for each Measure and Each of the Subscales

Measures and Subscales	Number of Items	Cronbach's Alpha
Overall Scale- ECERS-R	37	.81
Overall Scale- Teachers Belief Scale (TBS)	36	.86
Developmentally Appropriate Beliefs	20	.86
Developmentally Inappropriate Beliefs	16	.81
Overall Scale- Instructional Activity Scale (IAS)	34	.86
Developmentally Appropriate Practices	18	.84
Developmentally Inappropriate Practices	16	.79
Overall Scale – Inclusion Benefits and Drawbacks	28	.88
Benefits	14	.88
Drawbacks	14	.92
Overall Scale – <i>SATIN-Adapted</i>	31	.92
Curriculum and Learning	7	.8
Developmentally Appropriate Practices	5	.8
Children with Special Needs	10	.87
Professional Resources	5	.8

## The Early Childhood Environment Rating Scale Revised (ECERS-R)

The ECERS-R addresses seven quality areas: (a) Personal Care Routines, (b) Space and Furnishing, (c) Language Reasoning, d) Activities, (e) Interactions, (f) Program Structure, and (g) Parents and Staff. A 7-point Likert scale ranging from inadequate (1) to excellent (7) is used to rate each item. Classrooms are individually observed using this rating scale. An observation averages four hours to complete. The observation is followed by a brief interview with the teacher. The ECERS-R scoring system generates mean scores for each of the 7 subscales and a total mean score.

The original and revised version of ECERS has been used in many studies to measure program quality (Burchinal et al., 2002; Buysse et al., 1999; Early et al., 2006; La Paro et al., 1998; Lambert, Abbott-Shim, & McCarty, 2002; Lambert, Abbott-Shim, Sibley, Spodek, & Saracho, 2006; Phillips et al., 2000; Phillipsen et al., 1997; Scarr et al., 1994). In addition, ECERS has been used to measure the effectiveness of professional development (Campbell & Milbourne, 2004; Fukkink & Lont, 2007; Mathers, Linskey, Seddon, & Sylva, 2007).

Revised in 1998, the newest version of ECERS-R includes additional indicators to measure program quality in inclusive settings (Harms et al., 1998). Moderate (.71) to good (.88) reliability has been reported consistently by the authors of the instrument (Harms, et al., 1980, 1998). In examining the psychometric properties of the revised scale, Holloway, Kagan, Fuller, Tsou, and Carroll (2001) found one factor indicating the global quality instead of seven distinctive quality areas. Perlman, Zellman, and Le (2004) identified 3 factors based on the Kaiser criterion. Specifically, factor one (child activities, program structure, and space and furnishings), factor two (staff-child interactions), and factor three (provisions for parents and

staff) explained 71%, 10%, and 6% of the common variance respectively. Sakai, Whitebook, Wishard, and Howes (2003) reported two factors as constructs of quality being measured by the scale: teaching/interactions and provision for learning. Cassidy, et al. (2005) examined the psychometric properties of the ECERS-R with a large sample of 1313 classrooms in order to “determine what constructs of quality were being measured with the revised version of the scale and if a reliable shortened-version of the scale could be confirmed” (p. 347). Both exploratory and confirmatory factor analysis were conducted and two distinct factors were found: activities/materials and language/interaction. These two factors accounted for a total of 69% of the variance. Cronbach’s alpha for the two factors were .87 and .81. A moderate correlation ( $r=.46$ ) between the two factor-related scales was found which suggests two clear constructs (activities/materials and language/interaction).

### Questionnaires for Developmentally Appropriate Practices

The questionnaire for Developmentally Appropriate Practice (Charlesworth et al., 1993) consists of two subscales: Teacher Beliefs Scale (TBS) and the Instructional Activity Scale (IAS). The TBS Scale contained 37 items regarding teacher beliefs, and the IAS contained 34 items regarding teachers’ self-reported use of classroom activities. The items on both scales are measured by a five point Likert scale. The five points of the TBS range from Not at All Important (1) to Extremely Important (5). Each item represents a statement of either developmentally appropriate or inappropriate beliefs. The five points of the IAS items range from Never or Almost Never (1) to Very Often (5). Each item represents a statement of either developmentally appropriate or inappropriate practices.



The Questionnaire for DAP was first developed in 1991, based on the NAEYC guidelines (NAEYC, 1986) by Charlesworth and her colleagues. Factor analysis was conducted on the TBS based on a sample of 114 teachers from four states (Charlesworth et al., 1991). The results revealed four factors with two representing developmentally appropriate beliefs and two representing developmentally inappropriate beliefs. Reliability assessed by Cronbach's alpha for the above four factors was .85, .80, .68, and .74 respectively. This indicated moderate internal consistency. A similar analysis was conducted on the IAS which identified six reliable factors indicating a low to moderate level of internal consistency as Cronbach's alpha ranged from .60 to .75. In another study using 204 kindergarten teachers, Charlesworth et al. (1993) found similar results in terms of validity and reliability of the questionnaire. Furthermore, Wang et al. (2008) administered both TBS and IAS scales to 296 Chinese and 146 American teachers. A principal component analysis computed three reliable factors (accounting for 27.5% of the total variance) whereas five factors were identified in the IAS scale (32.3% of the total variance).

### Benefits & Drawbacks of Early Childhood Inclusion

The *Benefits & Drawbacks of Early Childhood Inclusion* instrument, adapted from Bailey and Winton (1987) from the Frank Porter Graham Child Development Center, was developed to measure beliefs on both the benefits and drawbacks of inclusion from four subthemes: for children with special needs, for families of children with special needs, for typical developing children, and for families of typical developing children. The questionnaire consists of two subscales: Benefits of Early Childhood Inclusion and Drawbacks of Early Childhood Inclusion. The items on the first scale are measured on a 5-point Likert scale ranging from 1 (definitely not

a benefit) to 5 (definitely a benefit). The second scale items are measured on a 5-point Likert scale ranging from 1 (definitely not a drawback) to 5 (definitely a drawback). Cronbach's alpha indicated an excellent reliability of .9 for both scales.

### Self-Assessment of Training and Information Needs-Adapted

The Self-Assessment of Training and Information Needs-Adapted was developed as an effective way of identifying general early childhood teachers' needs for training and information in terms of implementing inclusive practices (Buysse & Wesley, 1998). This instrument was based on a comprehensive review of the literature as well as three sets of professional competencies: the Division of Early Childhood (DEC), the National Association for the Education of Young Children (NAEYC), and North Carolina Early Childhood and Early Intervention Professional Competencies. The instrument was administered to 164 teachers. Cronbach's alpha reliability scores for each subscale were as follows: (a) knowledge of special needs (.82), (b) training related to special needs (.90), (c) knowledge of typical child development (.96), and (d) training related to typical child development (.98). The items on the first scale are measured on a 5-point Likert scale ranging from 1 (very little confidence/great need) to 5 (great confidence/very little need). The instrument was reviewed and evaluated by 72 early childhood education and early childhood of special education professionals. Revisions were made based on their evaluations and suggestions. The adapted version of this instrument resulted in a 21 item rating scale assessing knowledge, skills, and training needs in the areas of: curriculum and learning, professional knowledge, and children with special needs. Because the adapted version did not address questions related to developmentally appropriate practices, the

researcher added one more subscale which consists of 5 questions addressing developmentally appropriate practices.

### Research Procedures

The Peking University Early Childhood Center (PKUECC) was the lead school among 18 pilot inclusion kindergartens. The research coordinator of the PKUECC assisted the researcher in recruiting study participants from all the pilot kindergartens. The research coordinator called each pilot school and asked for their consent to distribute surveys, conduct ECERS-R assessment, and conduct interviews with teachers. In addition, the research coordinator explained that the researcher would offer on-site consultations during her visit to each school. Unfortunately, due to the breakout of the hand, mouth, and foot disease among kindergartens in China, some of those 18 schools were closed and some were under quarantine. A total of 12 kindergartens responded and agreed to participate in the study. The researcher made appointments with each school prior to conducting the assessments, distributing surveys and completing interviews. The study was conducted during May and June, 2008.

The researcher conducted the ECERS-R in 40 classrooms representing 7 kindergarten programs. When the researcher visited each school she distributed the surveys to the teachers at the time she conducted the ECERS-R. A total of 350 surveys were distributed to the teachers while administering the ECERS-R in the classrooms. Most surveys were collected after completing the ECERS-R, although some surveys were mailed to the researcher later. All surveys were in paper and pencil format. Teachers were not provided with any incentives to complete the survey. Teachers were asked to write their names on the survey. A total of 276

surveys were returned for a 79% response rate by the time the author left Beijing in July 2008. Once all surveys were collected, each teacher's name was erased and coded with a number before data was entered in SPSS for statistical analysis.

The researcher attended ECERS-R training held by the authors of this instrument at the University of North Carolina Chapel Hill in April 2008. The training consisted of one full day lecture led by the authors of the instrument and two days of field observation with an ECERS-R certified rater. During the two day field observations the researcher's score reached an inter-rater reliability of above .85 with the ECERS-R trainer in Chapel Hill.

In China, the researcher trained three Chinese research assistants who had master's degrees in psychology, education, or equivalent experiences on ECERS-R. The Chinese version of the ECERS-R manual was purchased for the research assistants. The training consisted of two days of lectures and two days of field testing until all research assistants reached an inter-rater reliability of at least .85 with the researcher. The three research assistants were involved in rating 16 kindergarten classrooms while the researcher rated the other 24 classrooms. All ECERS-R assessments were completed in May and June of 2008.

#### Description and Analysis of Research Questions

Table 4 summarizes the research questions, the instruments selected to address the questions, and the statistical analysis used to explore the findings.

Table 4  
Summary of Research Questions, Instruments and Statistical Analysis

Number	Research Question	Instruments	Statistical Analysis
1	What is the general program quality among “Level 1 Category 1 kindergartens” or “Cities’ Model kindergartens” in Beijing, China?	ECERS-R	Descriptive Statistics
2	Are there differences among Chinese early childhood teachers’ understanding and use of developmentally appropriate practices based on degree, major, years of teaching experience, and class size?	Teacher Beliefs Scale (TBS) Instructional Activity Scale (IAS)	MANOVA Discriminant Analysis
3	Are there differences among Chinese early childhood teachers’ beliefs of inclusion based on degree, major, years of teaching experience, and class size?	Benefits and Drawbacks of Early Childhood Inclusion	MANOVA Discriminant Analysis
4	Are there differences among Chinese early childhood teachers’ perceived training needs for inclusive practices based on degree, years of teaching experience, and class size?	Self-Assessment of Training and Information Needs-Adapted	MANOVA Discriminant Analysis

Following is a discussion of each research question, the instruments used, and the analysis.

#### Research Question 1

What is the general program quality among “Level 1 Category 1 kindergartens” or “Cities’ Model kindergartens” in Beijing, China?

The research question was to explore the quality of early childhood programs among the eighteen inclusion initiative kindergartens in Beijing, China. Specifically based on the ECERS-R, the researcher examined the general quality of 40 kindergarten classes including the following

six areas: (a) space and furnishing, (b) furniture for play, routine care, and learning, (c) language and reasoning, (d) activities, (e) interactions, and (f) program structure. A total mean score for the overall rating was generated as well as a total mean score for each area.

### Research Question 2

Are there differences among Chinese early childhood teachers understanding and use of developmentally appropriate practices based on degree, major, years of teaching experience, and class size?

This research question considered a possible difference in teachers' understanding and use of developmentally appropriate practices based on degree, major, years of teaching experience, and class size. The Teacher Beliefs Scale (TBS) was further divided by developmentally appropriate and inappropriate beliefs subscales. The Instructional Activity Scale (IAS) was further divided by developmentally appropriate and inappropriate practices subscales. Four Multivariate Analysis of Variance (MANOVA) tests were used to explore the differences. Total scores generated from the four subscales were dependent variables in two MANOVA tests. Degree, major, years of teaching experience, and class size was used separately as independent variables for each MANOVA.

### Research Question 3

Are there differences among Chinese early childhood teachers' beliefs of inclusion based on degree, major, years of teaching experience, and class size?

This research question attempted to examine the differences among Chinese early childhood teachers' inclusion belief based on degree, major, years of teaching experience, and class size. The Benefits and Drawbacks of Early Childhood Inclusion is divided by benefits and drawbacks scales. Total scores generated from these two scales were used as the dependent variables while the following were independent variables: degree, major, years of teaching experience, and class size. Four Multivariate Analysis of Variance (MANOVA) tests were used to explore the differences.

#### Research Question 4

Are there differences among Chinese early childhood teachers' perceived training needs for inclusive practices based on degree, years of teaching experience, and class size?

The research question attempted to examine the differences among teachers in terms of their perceived training needs for inclusion based on the following variables: degree, years of teaching, and class size. The Self-Assessment of Training and Information Needs-Adapted was divided into four subscales: Curriculum and Learning, Developmentally Appropriate Practices, Children with Special Needs, and Professional Resources. Three Multivariate Analysis of Variance (MANOVA) tests were used to explore the differences. Total scores generated from the four subscales were dependent variables in all MANOVA tests. Class size, teachers' years of teaching, and degree were used separately as independent variables for each MANOVA.

## CHAPTER 4 RESULTS

### Introduction

The purpose of this study was to examine the global quality of early childhood classrooms and structural variables in order to provide services for young children with disabilities in inclusive environments in the Chinese sociocultural context. This chapter addresses the following research questions: (1) What is the general program quality among “Level 1 Category 1 kindergartens” or “Cities’ Model kindergartens” in Beijing, China? (2) Are there any differences in Chinese early childhood teachers’ understanding and use of developmentally appropriate practices based on degree, major, years of teaching experience, and class size? (3) Are there any differences in Chinese early childhood teachers’ beliefs of inclusion based on degree, major, years of teaching experience, and class size? and (4) Are there any differences in Chinese early childhood teachers’ perceived training needs regarding early childhood inclusive practices based on degree, years of teaching experience, and class size?

### Research Question 1

The first research question was used to explore the general quality of the “Level 1 Category 1 kindergartens” or “Cities’ Model kindergartens” in Beijing, China using the Early Childhood Environment Rating Scales-Revised. Data collected from 40 classrooms among the 18 pilot inclusion kindergartens were entered into SPSS version 16. Each classroom was observed individually for three to four hours. The observation was followed by a brief interview with the teacher. For the purpose of data analysis, a total average score from the ECERS-R rating



and average scores from 6 subscales were used. Descriptive statistics are reported for each item in Appendix H.

The total mean score of the 40 kindergarten classrooms observed was 4.32 out of 7.0. The average for each subscale is: space and furnishing (3.75), personal care routines (5.1), language-reasoning (4.66), activities (3.29), interactions (5.6), and program structure (3.55). Cronbach's alpha of .81 indicates a moderate reliability.

### Descriptive Analysis

Appendix H illustrates the mean and mode for each item on the ECERS-R. According to assessment results for space and furnishing, the majority of classrooms received a score of 4 for indoor space. The item that received highest mean score is "child-related display ( $M = 5$ )" while the item "space for privacy" received the lowest mean score ( $M = 2.07$ ). Under personal care and routine, overall, there is a large variation between the lowest and highest rated item from the item "health practice" ( $M = 7$ ) to the item "nap/rest" ( $M = 3.3$ ). In terms of language and reasoning, overall, most items were rated between minimum and good. Item "informal use of language ( $M = 5.23$ )" received the highest mean score whereas "books and pictures" ( $M = 3.9$ ) received the lowest mean score. Under activities, overall, there is a large variation between the lowest rated item and the highest rated item. Both items "fine motor" and "art" received the highest mean score ( $M = 4.18$ ) whereas the item "promoting individual differences" received lowest mean score ( $M = 1.25$ ). In terms of interactions, all items rated above good. Item "interactions among children" received highest mean score ( $M = 6.2$ ) whereas the item "supervision of gross motor activities" received the lowest mean score ( $M = 5.03$ ). Under program structure, most items

received rating between minimum and good. The item “group time” received the highest mean score whereas the item “schedule” received the lowest mean score ( $M = 2.48$ ).

In summary, assessment results show that the global quality of early childhood learning environments is between minimum and good ( $M = 4.32$ ). Overall, the strongest area is interaction ( $M = 5.6$ ) while activities received lowest overall rating ( $M = 3.29$ ).

### Research Question 2

Data to answer the second research question “Are there any differences among Chinese early childhood teachers’ understanding and use of developmentally appropriate practices based on degree, major, years of teaching experience, and class size” were collected from a total of 276 returned surveys. The survey data were entered into SPSS version 16.0. Preliminary analysis of the data showed a normal distribution of the data. Table 5 shows these teachers’ score on the following scales: developmentally appropriate beliefs, developmentally inappropriate beliefs, developmentally appropriate activities, and developmentally inappropriate activities.

#### Mean, Standard Deviation, and Correlation Statistics

According to Table 5, Chinese early childhood teachers demonstrated appropriate beliefs ( $M = 3.54$ ,  $SD = .46$ ) and activities ( $M = 3.56$ ,  $SD = .54$ ). The teachers reported high agreement with appropriate beliefs ( $M = 4.06$ ,  $SD = .41$ ), and neutral agreement with inappropriate beliefs ( $M = 3.03$ ,  $SD = .5$ ). However, teachers reported less frequent use of appropriate activities ( $M = 3.993$ ,  $SD = .52$ ) than inappropriate activities ( $M = 3.18$ ,  $SD = .56$ ).

Table 5  
Means and Standard Deviations on Developmentally Appropriate Beliefs and Practice Scores

Descriptors		Appropriate Beliefs	Inappropriate Beliefs	Appropriate Activities	Inappropriate Activities
Years of teaching	0-7	4.09(.38)	3.09(.45)	3.83(.57)	3.23(.58)
	7-19	4.11(.41)	3.00(.49)	4.02(.44)	3.13(.57)
	>19	3.95(.36)	2.88(.44)	3.86(.61)	3.15(.5)
	Total	4.07(.39)	3.01(.47)	3.92(.53)	3.17(.56)
Number of students	<35	4.02(.37)	3.04(.47)	3.93(.54)	3.13(.59)
	≤35	4.15(.41)	2.96(.49)	3.92(.54)	3.25(.52)
	Total	4.07(.39)	3.01(.48)	3.92(.54)	3.17(.57)
Total		4.07(.39)	3.01(.47)	3.92(.53)	3.17(.56)

Note. N = 276; Numbers in parentheses are standard deviations

In terms of differences among groups based on years of teaching, teachers who taught less than 7 years showed second highest agreement with appropriate beliefs ( $M = 4.09$ ,  $SD = .38$ ) and highest utilization of inappropriate activities ( $M = 3.23$ ,  $SD = .58$ ). Teachers who taught more than 7 years and less than 19 years showed highest agreement with appropriate beliefs ( $M = 4.11$ ,  $SD = .41$ ), most frequent utilization of appropriate activities ( $M = 4.02$ ,  $SD = .44$ ) and least frequent utilization of inappropriate activities ( $M = 3.13$ ,  $SD = .57$ ). Teachers who had more than 19 years of experiences showed the lowest agreement with inappropriate beliefs ( $M = 3.95$ ,  $SD = .36$ ) and second highest utilization of appropriate activities ( $M = 3.86$ ,  $SD = .61$ ) and inappropriate activities ( $M = 3.15$ ,  $SD = .5$ ).

In terms of group differences based on number of students, teachers who had more than 35 students reported the highest agreement with appropriate beliefs ( $M = 4.15$ ,  $SD = .41$ ), lowest

agreement with inappropriate beliefs ( $M = 2.96, SD = .49$ ), and indicated that they most frequently utilized appropriate activities ( $M = 3.93, SD = .54$ ). However, teachers who had 35 or less students indicated that they utilized least frequently inappropriate activities ( $M = 3.13, SD = .59$ ).

Pearson correlation analysis was used to examine how self-reported beliefs (TBS score) related to self-reported practices (LAS scores). The analysis revealed that there is a statistically significant small positive correlation between self-reported beliefs (TBS score) and self-reported practices (LAS scores) ( $r = .31, p < .01$ ). Further, the correlation between developmentally appropriate belief and activities scales and developmentally inappropriate belief and activities scales showed the same result ( $r = .281, p < .01$ ).

### MANOVA and Discriminant Function Analysis

In order to determine the difference among teachers in their developmentally appropriate beliefs and activities four Multivariate Analysis of Variance (MANOVA) procedures were used on assessing: (a) years of teaching experiences, (b) class size, (c) degree, and (d) major.

Discriminant Analysis (DA) was conducted as a follow-up procedure of the four MANOVA procedures when significance was found.

#### Years of Teaching Experience

MANOVA tests revealed no statistically significant differences or practical group differences for degree ( $F_{16, 721} = .851, p > .05$ ) and major ( $F_{12, 614} = .688, p > .05$ ). When examining the effects of years of teaching experience, a significant difference was found in teachers' beliefs

about developmentally appropriate practices ( $F_{8, 508} = 2.89, p < .01$ ). The differences among teachers based on their years of teaching experiences accounted for 5% of the variance in the multivariate scores (see Table 6).

According to Table 7, a review of the squared canonical correlations from the first Discriminant Analysis suggested that function 1 contributed somewhat to successful classification, explaining 6% of the variation in group membership. The result was statistically significant (Wilk's Lambda = .91, Chi-square = 22.71,  $p < .01$ ). The results for function 2 was also statistically significant (Wilk's lambda = .96, Chi-square = 9.26,  $p < .05$ ). Function 2 explained 3.9% of the variance in group membership.

Table 6  
Summary of Multivariate Test of Significance

MANOVA Model	Dependent Variable	Independent Variable	F	Partial Eta Square	Observed Power
1	DAP_B	Years of teaching	2.89**	.05	.95
2	DIP?B DAP_A DIP_A	Number of students	3.53**	.06	.86

Note. DAP\_B = developmentally appropriate beliefs; DIP\_B = developmentally inappropriate beliefs; DAP\_A = developmentally appropriate activities; DIP\_A = developmentally inappropriate activities.

\*\*  $p < .01$ ; \*  $p < .05$

Table 7  
Developmentally Appropriate Practices: Summary of Canonical Discriminant Function

Discriminant Analysis	Function	Wilks' Lambda	Chi square	Df	Canonical
1	1	.908	22.712**	8.000	.236
	2	.961	9.264*	3.000	.197
2	1	.941	13.75**	4.000	.242

\*  $p < .01$ ; \*  $p < .05$

Classification results from the first Discriminant Analysis reveal that for years of teaching experience, teachers who taught less than 7 years were correctly classified 43% of the time ( $n = 86$ ), teachers who taught between 7 and 19 years were correctly classified 27% of the time ( $n = 103$ ). The overall correct classification was 45%. Because fitting the function to the original data tends to overestimate the success of the function, a cross validation of the results was conducted in which as many functions are derived as there are people in the study. Each function was derived with one case omitted so that the omitted case can be subsequently classified. The classification results for this strategy were slightly lower with 41% of the cases correctly classified. The fact that the discrepancy between the two classification rates was so small suggests there would be little advantage to removing any variables from the analysis to improve the classification function. Nonetheless, it was still informative to evaluate the contribution of each variable to the function in question.

The standardized discriminant function weights from Discriminant Analysis 1 were used to determine which of the independent variables contributed most to group differences based on years of teaching. The standardized canonical discriminative function weights suggested that responses to the developmentally appropriate activities contributed most to the function (see Table 8).

Table 8  
 Developmentally Appropriate Practices: Standardized Canonical Discriminant Function and Structure Matrix

Variable	Standardized Canonical Discriminant Function			Structure Matrix		
	Years of teaching		Student number	Years of Teaching		Student number
	1	2	1	1	2	1
B_DAP	.041	.685	.853	.133	.809	.655
B_DIP	.299	.622	-.657	-.316	.734	.39
A_DAP	1.011	.055	-.420	.675	.259	-.31
A_DIP	-.684	-.215	.626	-.318	.111	.016

In order to determine how much variation each dependent variable shared with each underlying composite variable that maximized group classification based on years of teaching, the structure coefficients were examined. The structure coefficients suggested that developmentally appropriate activities items accounted for 46% of function 1 variance followed by developmentally inappropriate activities (10%) and developmentally inappropriate beliefs (10%). Developmentally appropriate beliefs (1.8%) contributed least to function 1. For function 2, developmentally appropriate beliefs accounted for the most variance (65%), followed by developmentally inappropriate beliefs (54%), and developmentally appropriate activities (7%). Developmentally inappropriate activities contributed least (1.2%) to function 2.

#### Class Size

A statistically significant difference was also detected for class size (Wilks' lambda = .94,  $F_{4, 226} = 3.5, p < .01$ ). This difference accounted for 6% of the variance in the multivariate scores. Observed power was .86 (see Table 6).

Discriminant function 1 contributed to successful classification, explaining 6% of the variation in group membership. The result was statistically significant, Wilk's Lamb = .94, Chi-square = 13.75,  $p < .01$ . The results for function 2 were not statistically significant ( $p > .05$ ). Therefore, no further statistics were reported based on function 2 (see Table 7).

For class size, the classification results revealed that teachers who had less than 35 students were correctly classified 65% of the time ( $n = 150$ ) whereas teachers who had students of 35 and more were correctly classified 36% of the time ( $n = 81$ ). The overall correct classification was 65%. A cross validation of the results showed 62% of the cases turned out to be correctly classified indicating a very small discrepancy between the original classification.

The standardized discriminant function weights were examined to determine which of the independent variables contributed most to group differences based on number of students. The standardized canonical discriminative function weights suggested that responses to the developmentally appropriate beliefs contributed most to the function (see Table 8).

Further, structure coefficients were consulted in order to determine how much variation each dependent variable shared with each underlying composite variable that maximized group classification based on number of students (see Table 8). The structure coefficients suggested that developmentally appropriate beliefs accounted for the most variance (42.9%) in function 1, followed by developmentally inappropriate activities (15.2%), and then developmentally inappropriate beliefs (10%). Developmentally appropriate activities contributed least (.03%).

In summary, results from teachers' understanding and use of developmentally appropriate practices showed a large gap between teachers' beliefs and practices. This is also indicated by descriptive statistics as well as the low correlation reported between their belief score and self-



reported activity score. Teachers that had less than 7 years of teaching experience showed the largest gap in their use of developmentally appropriate and inappropriate activities whereas teachers who taught between 7 and 19 years showed the smallest gap. When examining years of teaching experience, teachers' use of developmentally appropriate activities contributed most robustly in group classification. In addition, teachers who had 35 students or more were more likely to use developmentally appropriate and developmentally inappropriate activities simultaneously compared to teachers with less than 35 students. However, it was their developmentally appropriate beliefs that contributed most robustly in successful classification of classified the teachers into two groups.

### Research Question 3

Are there any differences in Chinese early childhood teachers' beliefs of inclusion based on degree, major, years of teaching experience, and class size?

### Descriptive Analysis

Table 9 provides descriptive statistics for teachers' perceptions of inclusion perceptions in terms of benefits and challenges. Chinese early childhood teachers reported positive attitudes toward the benefits of inclusion ( $M = 4.33$ ,  $SD = .49$ ). Their responses on drawbacks of inclusion were between "not sure" and "probably a drawback" ( $M = 3.29$ ,  $SD = .87$ ). In terms of group differences, teachers whose class size was made up of less than 25 students showed the most positive belief score in relation to the benefits of inclusion ( $M = 4.44$ ,  $SD = .46$ ) while teachers whose class size was made up of more than 35 students showed the least positive belief scores

for inclusion benefits ( $M = 4.26, SD = .5$ ). On the other hand, teachers whose class size ranged between 30 and 35 students reported the most drawbacks ( $M = 3.5, SD = .9$ ), while teachers who had less than 25 students ( $M = 3.07, SD = .88$ ) as well as those had between 25 and 30 students ( $M = 3.12, SD = .8$ ) reported the least drawbacks.

Table 9  
Means and Standard Deviations on Inclusion Benefits and Challenges Score

Variables	Number of Students				Total
	<25	25-30	30-35	>35	
Benefits	4.34(.59)	4.42(.49)	4.31(.52)	4.24(.49)	4.33(.52)
Challenge	3.11(.84)	3.11(.76)	3.51(.89)	3.23(.83)	3.27(.85)

Note.  $N = 276$ ; Numbers in parentheses are standard deviations.

Teachers also rated the item they perceived as greatest benefits or drawbacks of inclusion. Eight-six (31.2%) teachers chose item 1 “Are better prepared for the real world” as greatest benefits of inclusion whereas 35 teachers (12.7%) chose “Are more likely to have teachers with little or no specialized training.” In addition, 29 teachers (11%) chose “are less likely to receive special help or individualized instruction” as the greatest drawbacks of inclusion.

#### MANOVA and Discriminant Function Analysis

In examining the effects of class size, years of teaching experience, major, and highest level of education on Chinese early childhood teachers’ inclusion perceptions four separate MANOVA test procedures were used. MANOVA results indicated that there is no statistically significant differences in teachers’ inclusion perceptions when examining degree ( $F_{4, 490} = 1.5, p > .05$ ), major ( $F_{6, 482} = .245, p < .05$ ), and years of teaching experience ( $F_{8, 498} = .98, p > .05$ ).

In examining class size, a statistically significant difference was found in teachers' inclusion perceptions ( $F_{6, 472} = 2.24, p < .05$ ). This difference accounted for 3% of the variance in the multivariate scores (see Table 10).

Table 10  
MANOVA Results Summary

MANOVA Model	Dependent variable	Independent variable	F	Partial eta Square	Sig.	Observed Power
1	Benefits	Number of students	2.2	.03	<.05	.79
	Obstacles	Students	44			

A Classification Discriminant Analysis (CDA) was computed on both benefits and obstacles of inclusion views to measure group membership. For class size, teachers who had less than 25 students were correctly classified 52% of the time ( $n = 29$ ), teachers who had students between 25 and 30 were correctly classified 48% of the time ( $n = 68$ ), teachers who has students between 30 to 35 were correctly classified .26 of the time ( $n = 87$ ), and teachers who had 35 students or more were correctly classified 33% of the time ( $n = 57$ ). The overall correct classification was .31. A cross validation of the results showed .27 of the cases turned out to be correctly classified indicating a very small discrepancy between the original classification.

According to the results of the squared canonical correlations from Table 11, function 1 contributed to successful classification, explaining 5% of the variation in group membership. This result was statistically significant (Wilks' lambda = .945,  $F_{6, 472} = 13.31, p < .05$ ). The results for function 2 indicated no statistical differences and therefore no further discussion is included (See Table 11).

Table 11  
Beliefs: Summary of Canonical Discriminant Function

Discriminant Analysis	Function	Summary of Canonical Discriminant Function	Chi-square	Df	Sig	Canonical Correlation
1	1	.945	13.312	6	.038	.221

The standardized discriminant function weights suggested that responses to belief items of inclusion drawbacks contributed most to the function (see Table 12). Further, structural coefficients were computed to assess individual contribution of inclusion benefits and obstacles (Huberty, 1984). The structure coefficients suggested that Inclusion obstacle scores accounted for 73% of function 1 variance.

Table 12  
Beliefs: Standardized Canonical Discriminant Function and Structure Matrix

	Standardized Canonical Discriminant Function		Structure Matrix	
	1	2	1	2
Benefits	-.517	.857	.856	.517
Obstacles	.88	.477	-.477	.879

In summary, when examining class size, assessment results from teachers' perceptions of inclusion benefits and drawbacks showed that teachers who had between 30 and 35 students indicated the needed for most support in order to facilitate inclusive practices. Also, class size, contributed most robustly in group classification of teachers' score on drawbacks. Additionally, teachers rated lack of professional trainings as the strongest drawback of inclusion. Neither

teacher's highest level of education nor years of teaching experiences contributed to their inclusion beliefs.

#### Research Question 4

Are there any differences in Chinese early childhood teachers' perceived training needs regarding early childhood inclusive practices based on years of teaching experience, degree, and class size?

#### MANOVA Results

Three separate MANOVA procedures were used as primary data analysis procedures in determining the differences in teachers' perceived training needs based on the following variables: years of teaching experiences, degree, and class size. In examining years of teaching experiences, the MANOVA results indicated that there were no statistically significant differences in areas of training needs ( $F_{8, 474} = 1.57, p > .05$ ). Similar results were found when examining the class size ( $F_{12, 603} = 1.25, p > .05$ ) and degree ( $F_{16, 736} = 1.03, p > .05$ ). Therefore, no further analysis was reported.

#### Descriptive Analysis

Table 13 provides descriptive statistics of training needs in the following areas: curriculum and learning, developmentally appropriate practices (DAP), children with special needs, and professional resources. Training needs for curriculum and learning is highest among all ( $M = 1.97, SD = .63$ ), followed by children with special needs ( $M = 2.11, SD = .61$ ), and DAP

( $M = 2.01$ ,  $SD = .58$ ). In comparison, training need for professional resources showed the least need ( $M = 2.19$ ,  $SD = .61$ ).

The survey specifically asked teachers to choose the item that represents their greatest need under each subscale. The results from the training needs for curriculum and learning showed that 32% teachers chose item 1 for greatest need, “Guide children’s behavior and deal with situations in a way to help them solve their own problems and learn self-control.” A total of 22% of the teachers chose item 5 “Use play as one way of teaching and create opportunities for play throughout the day.” Only 13% of teachers chose “Change the way I teach to meet the special learning needs of each child,” while 12% chose “Use different ways to encourage children, including those with special needs, to talk to and play with each other.”

Under training needs for “developmentally appropriate practices”, 23% of the teachers chose item 11 as the greatest need, “Understand the impact of delay in one developmental area on other areas.” Of those responding, 20% chose item 10 “Know how to assess the quality of an early childhood classroom based of the DAP guidelines. There were 13.5% teachers who chose “Know about developmentally appropriate practices guidelines for children from age 0 to 8,” while 14.1% chose “Understand characteristics of children from age 0 to 8 in developmental areas.”

Under training needs for “children with special needs”, 21% of teachers reported item 16 of greatest need, “Embedding IEP into daily normal routines.” Fourteen percent teachers indicated that “How to encourage communication and friendships between children with disabilities and their peers” is the area they would like to learn about most. Equally two groups of teachers (10% each) indicated that their greatest need were item 17 “Teaching skills that work

well for children with and without disabilities” and item 18 “The strategies of fostering language development in the classroom.”

When asked about teachers greatest training need for “professional resources”, 45% reported item 25 “Know how to communicate effectively with families.” Thirty three percent of teachers indicated item 27 “Know how to communicate clearly and deal with disagreements among adults in a professional way” as their perceived greatest need.

In terms of group differences based on years of teaching, teachers who taught less than 7 years showed greatest needs in training for learning and curriculum ( $M = 1.9, SD = .67$ ), developmentally appropriate practices ( $M = 2.02, SD = .6$ ), Children with special needs ( $M = 1.94, SD = .55$ ), and resources ( $M = 2.13, SD = .65$ ). Teachers who taught more than 19 years showed the least need for training in curriculum and learning ( $M = 2.08, SD = .68$ ), developmentally appropriate practices ( $M = 2.23, SD = .6$ ) and resources ( $M = 2.31, SD = .56$ ). However, teachers who taught between 7 and 19 years indicated the least need for training about children with disabilities ( $M = 2.07, SD = .69$ ).

In terms of group differences based on class size, teachers who had students less than 35 reported great need in training in all areas, including curriculum and learning ( $M = 1.95, SD = .63$ ), DAP ( $M = 2.07, SD = .6$ ), disability knowledge ( $M = 1.97, SD = .53$ ), and resources ( $M = 2.16, SD = .59$ ) compared to teachers who had more than 35 students.

Teachers’ level of education also contributed to group differences. Interestingly, Teachers who had a bachelor’s degree indicated more training needs than those with associate degrees in every area except DAP. Teachers who received mid-tech level training reported highest need for disability knowledge ( $M = 1.9, SD = .51$ ); however, they reported the least training need for

curriculum and learning ( $M = 2.2, SD = .9$ ) and DAP ( $M = 2.15, SD = .58$ ). Teachers who had the highest degree of a high school diploma indicates the least training need for disability knowledge ( $M = 2.1, SD = .75$ ) and professional resources ( $M = 2.4, SD = .54$ ).

Table 13  
Means and Standard Deviations on Training Needs Scores

Variables		Curriculum and Learning	DAP	Disability Knowledge	Resources
Years of Teaching	0-7	1.9 (.67)	2.02(.6)	1.94(.55)	2.13(.65)
	7-19	1.95 (.6)	2.14(.65)	2.07(.65)	2.14(.6)
	>19	2.08 (.68)	2.23(.6)	2.04(.48)	2.31(.56)
	Total	1.96(.64)	2.11(.62)	2.01(.58)	2.17(.61)
Number of Students	<35	1.95(.63)	2.07(.6)	1.97(.53)	2.16(.59)
	>35	2.07(.64)	2.16(.63)	2.08(.67)	2.22(.65)
	Total	1.99(.64)	2.11(.62)	2(.58)	2.18(.6)
Degree	Bachelor	1.92(.62)	2.14(.65)	2.01(.58)	2.16 (.6)
	Associate	1.94(.58)	2.07(.61)	2.04(.59)	2.19(.64)
	Mid tech	2.2(.9)	2.15(.58)	1.9(.51)	2.13(.53)
	High School	1.98(.46)	2.2(.57)	2.1(.75)	2.4(.54)
	Total	1.96(.64)	2.11(.62)	2.01(.58)	2.18(.61)
Total		1.98(.63)	2.11(.61)	2.02(.58)	2.18(.61)

Note: N = 276; numbers in parentheses are standard deviations

In summary, survey results from training needs analysis showed that when examining teachers' years of experience, degree, and class size, there were no statistically significant differences in teachers' training needs in all sub domains. Overall, teachers reported need for various knowledge and skills to facilitate early childhood inclusion. However, work with parents



and other professionals were most consistently reported by teacher as their strongest training need.

## CHAPTER 5 DISCUSSION

### Introduction

The twofold purpose of the current study was to explore the quality of the early childhood learning environments among inclusion pilot kindergartens and to examine structural variables that influence the facilitation of early childhood inclusion in the Chinese social-cultural context. Specifically, this study explored (a) early childhood program quality, including structural and process features; (b) Chinese early childhood teachers' understanding and use of developmentally appropriate practices; (c) Chinese early childhood teachers' perceptions of inclusion; and (d) teachers' self rating of training needs of knowledge and skills for inclusive settings. This chapter provides a summary of findings, a discussion of findings from the data analysis related to each research question, implications, and recommendations for practitioners, teacher preparation institutions, educational researchers, and policy makers.

### Discussion of Research Question 1

Research question 1: What is the general program quality among “Level 1 Category 1 kindergartens” or “Cities’ Model kindergartens” in Beijing, China?

This study examined the general quality of early childhood programs in “cities’ model” or “level 1 category 1” public kindergarten settings in Beijing, China. This was the first study that implemented ECERS-R in China and provides a Chinese perspective to the international knowledge base regarding early childhood program quality. In general, the total average score of 4.32 out of 7.00 on the ECERS-R scale suggested that the quality of the early childhood learning

environments among top level public schools in Beijing was between minimum and good. Considering the national average quality of early childhood care in the United States being mediocre (Odom et al., 2004), the quality of learning environments among these top-level public kindergartens in Beijing is comparable. Also, the outcomes of this study were similar to Cheng's (1998) finding in Taiwan, which also found a total mean score of between minimum and good.

In terms of structural features of the 18 inclusion pilot kindergartens, it is noteworthy that they represented top quality schools in the Beijing region. Therefore, teachers tended to have higher levels of education. In fact, teachers must have at least three years of college education or higher in order to become the lead teacher. Teacher assistants, on the other hand, are likely to have completed a three year intermediate level teacher preparation program, which is equivalent to a high school degree. The class sizes in the pilot kindergartens were large, 25, 30, 35, and 40 students, which was the maximum number of children for ages 2-3, 3-4, 4-5, and 5-6. In some classrooms, the total number of students exceeded the maximum number. It is common that the group size could be much larger in kindergartens that were rated below "Cities' Model" or "Category One level One", particularly kindergartens in rural areas in China. In addition, kindergartens in rural areas tend to have teachers with much lower levels of education. This poses great challenges for the facilitation of early childhood inclusion in rural China, where more than half of Chinese children reside.

## Discussion of ECERS-R Subscales

### Space and Furnishing

The mean score for the subscale “space and furnishing” was 3.75, which was between minimum and good, signifying the need for improvement. For instance, none of the classroom had wheelchair accessible bathrooms. It is understandable since most kindergartens in China have never enrolled children with disabilities, consequently wheelchair accessible doors, bathrooms, and stairs, were never considered when designing early care facilities. Most classrooms had sufficient space, even though they all have large class sizes (e.g., 25 for 3 year old, 30 for 4 year old, 35 for 5 year old, and 40 for 6 year old). In fact, many classrooms have two rooms -where one is a classroom and the other is called a bedroom that can also be turned into play centers when not being used for nap time. In comparison to schools in the United States, furniture for care, play, and learning was much less diverse in style and quantity. For example, there were no sand/water tables, woodwork benches, or a complete set of furniture for dramatic play in many classrooms. Furnishings for relaxation and comfort (e.g., beanbags, cushions, or stuffed animals) were also lacking. A lot of times children sit in the block area reading or chatting instead of playing with blocks because the floor is covered with comfortable plastic pads unlike other parts of the floor, which were mostly wood or tile.

Use of learning centers is being widely implemented in China. However, teachers seemed to lack understanding of the principles that apply to the arrangements of learning centers in classrooms. For instance, active areas like block and dramatic play were placed right next to quiet areas such as reading. Centers were not clearly defined through arrangement of furniture. In

some classrooms, centers were arranged along four sides of the classroom wall while all the desks and chairs were in the middle of the room for the purpose of group teaching. As a result, children were often doing the same activity (e.g., art or manipulative) in different areas during free time rather than being given choices of centers. Classroom materials were neatly displayed on appropriately labeled shelves. Most teachers reported that they did not have extra materials in the storage room, which meant that they did not periodically change materials to maintain children's interest level throughout the year. Space for privacy was a new concept to most teachers and they did not provide opportunities for children to be alone. It was impressive to see child-related displays and amazing art work by children. They were in a variety of forms and media and were displayed at children's eye level reflecting individual differences.

Many playgrounds were covered entirely with plastic padding to increase safety. However, the depth of padding under climbing equipment did not meet the ECERS-R standards. Playground surfaces did not allow for different types of activities. There were not a variety of gross motor materials or equipment to support multi-level skills, for instance, bikes with and without pedals.

In summary, teachers need to be familiar with fundamental principles of (a) classroom arrangement in order to set up a learning environment that is developmentally appropriate for all children—including inviting, well-planned learning centers, (b) making adaptations of the furniture and learning materials so children with disabilities can participate, (c) providing softness and privacy in the classroom to promote self-regulation skills of young children, and (d) increasing the levels of skills stimulated by gross motor equipment to meet children's diverse learning needs.

### Personal Care Routines

The mean score for “Personal Care Routines” was 5.1. Based on descriptive results, teachers were good at making parents feel welcome at the kindergarten and communicated effectively with them. During lunch and snack time all children were discouraged from interacting with each other. During rest time, children’s beds were designed in such a way that they were connected with one another, in order to create enough spaces for all the beds. However, ECERS-R recommended space between mats for health reasons, therefore, classrooms scored low on the item. All toilets and sinks, however, were child-sized. Due to the high number of children, every classroom had squat toilets (a type of toilet that does not have a seat) instead of regular toilets so they did not need to be cleaned as frequently. In many classrooms for 2 to 3-year olds, training potties are used on a regular basis. This posed a health concern since it requires specific cleaning after being used. Attention is paid to health and safety practices by employing a separate assistant who is responsible for routine care like cleaning tables before and after lunch, toileting children, and monitoring hand washing. In summary, data from subscale “Personal Care Routine” indicated that attention need to be given to (a) encouraging social interactions during lunch and snack times, and (b) using beds that can be conveniently moved and stored together.

### Language-Reasoning

The total mean score for “Language-Reasoning” was 4.66. More time was needed for free reading in order to be scored “good” and above. There were not enough books, different

types of books, and additional materials to enhance reading (e.g., story board, picture cards). Many classrooms had no science or nature books, books about different races, abilities, cultures, and books with factual information. There were no connections between the books to enhance children's learning and understanding on display and the classroom themes. Further, reading areas lacked rugs and cushions to provide a comfortable space for children for pleasure reading. There were very few materials to encourage children to communicate (e.g., puppets, dress-up clothes) throughout the centers. For instance, there were not enough materials in the dramatic play area for 2 to 3 children to play on one theme. In terms of facilitating children's reasoning skills, teachers stressed teaching basic concepts and logical relationships during group instruction. However, teachers did not take full advantages of incidental teaching opportunities to foster higher order thinking and problem solving skills. Teachers' informal use of language in the classroom focused more on behavior management and routines than exchanging information with children. Interactions between teachers and children were generally positive. Only a few teachers used criticism frequently.

In summary, teachers should be aware of how to (a) select children's books to integrate them into thematic teaching, (b) use visual aids, puppets, and other learning materials to encourage communication at already existing centers, and (c) utilize spontaneous teachable moments during the day. In addition, teachers should learn a variety of ways to foster reasoning skills not only during group instruction time but also during free play time. Teachers' usage of language in the classroom should be geared toward information exchange, scaffolding, and social interactions rather than lecturing.

## Activities

The total mean score for the subscale “Activities” was 3.29. None of the classes scored 7 on any activity items due to failure to meet requirements for “substantial amount of time.” Most classrooms have free time of 1 hour to 90 minutes in a 9-hour-long day program. This is considered to be standard throughout public kindergartens in China and it is far less than what ECERS-R considers to be a substantial amount of time (2 hours and 30 minutes for a 9-hour-long day program). Less time spent on free time means more time on group instruction and care routines.

Materials for fine motor skills and art were adequate across classrooms. Chinese kindergartens, especially those with top level quality, have a strong emphasis on fostering children’s appreciation for art and developing talents in this area. Each school provides extra-curricular activities in playing musical instruments, art, gymnastics, dance, etc. Children’s work were displayed everywhere on campus as if having an art exhibit. Every morning, children were lined up by their age groups to perform group exercises or dances following the teachers’ lead. Almost every classroom had a piano but there were not enough other musical instruments for children to play. It is interesting to note that Chinese early childhood teachers are required to pass competency tests in areas of dancing, singing, and playing musical instruments to become certified teachers. These skills are critical for teachers to find jobs. However, over emphasizing these skills and deemphasizing developmentally appropriate methods can have a negative impact on meeting children’s needs. The lowest scoring item on this scale was acceptance of diversity. Though China has 56 national tribes, none of their culture or traditions were reflected in the classrooms. Ironically, all dolls used in dramatic play had blue eyes and blond hair. When the



researcher questioned teachers why they did not use Chinese dolls, they seemed to believe that all dolls were supposed to be that way. Seldom do teachers use books and pictures to enhance children's dramatic play.

Science was another weak area in both materials and activities. Collections of natural objects lacked variety; they tended to be items such as goldfish, turtles, and green onions across classrooms. Books, materials, and toys related to science were lacking. Children were seldom engaged in science activities. There were no science related books displayed in the science center. Similarly, mathematics was frequently delivered through paper pencil rather than hands on activities with concrete or manipulative objects.

In summary, data on items relating to the area of "Activities" have a number of implications for future improvement in terms of program quality. First, teachers should be more familiar with basic principles of how to select, display, utilize, and rotate a variety of materials for each learning center in order to actively engage children throughout the school year. Subject areas should be integrated rather than taught separately. Teachers also need to practice how to offer children more choices regarding the types of materials to play with and when/how in the classroom. It is especially important during free time that the learning centers are arranged in a way that each of them is inviting to children. In addition, teachers must gain the sense of incorporating individual and cultural diversity including national tribes, social status, gender, and abilities in the classroom. Similarly, having an expensive piano in each classroom seems to be unnecessary when basic materials for children's play are insufficient.

## Interaction

The total mean score for the subscale “Interactions” was 5.6. In general, both teacher-child interaction and interactions among children were very positive. Teachers have great rapport with children, however, they are perceived more likely as the authority by children rather than their friend, helper, or playmate. It was difficult for teachers to encourage active participation in gross motor activities to enhance children’s play as well as in supervising such a large class at the same time. Teachers needed to keep a balance between children’s independent discovery and teacher directed learning (e.g., learning how to teach problem solving skills by allowing children to make mistakes and allowing children to see the problem themselves before being corrected or given the right answers). What appears to be exceptional is that children in China are well trained to sit in their chairs quietly for a much longer period of time than one would expect of children in the United States. Children also quickly learn to read the teacher’s facial expressions for cues and they are good at following directions, probably appearing a little bit too obedient for such a young age. This represents another debatable issue of cultural relevance versus developmentally appropriate practices.

In summary, assessment results of “interactions” suggest that Chinese teachers are accustomed to direct and didactic instruction in their grade schools and teacher preparation programs before western philosophies were introduced. Teachers need to keep a balance between the children’s independent discovery and teacher directed learning. As a result of more developmentally appropriate training, teachers could be perceived as less of an authority figure by children. For instance, teachers can show respect for children by listening to them more attentively and talking to them at their eye level to diminish their role as the authority. Teachers

also need to become more comfortable with having children engage in much longer periods of free play and less time sitting at their desks

### Program Structure

The total mean score for subscale “Program Structure” was 3.55. Schedules across kindergartens showed a balance of large, small group, outdoor and indoor play. Again, materials for free play lacked quantity and variety, and rotation. There was not a substantial amount of free time offered to children and not enough choices for them to play independently. Provision for children with disabilities was one of the items added in the revised version of the ECERS-R. It was one of the most problematic areas across kindergartens in this sample. The kindergartens the researcher visited happened to be pilot schools in the Beijing region to initiate inclusive practices. Teachers and directors from these pilot schools shared that they lacked the knowledge and skills in (a) assessing children with special needs, (b) determining their educational needs, (c) developing individualized IEPs, (d) dealing with problem behaviors, and (e) promoting language development among children who demonstrated significant delays. In summary, provisions for children with disabilities must be addressed during the teacher preparation programs. Teachers ought to be equipped with knowledge and skills to work with this population in inclusive settings. Offering courses regarding disability categories such as developmental delays and resources on effective strategies to work with special needs children would be a start.

## Discussion on Research Question 2

Research question 2: Are there differences among Chinese early childhood teachers' understanding and use of developmentally appropriate practices based on degree, major, years of teaching experience, and class size?

The purpose of this research question was to investigate differences among Chinese early childhood teachers' understanding and use of developmentally appropriate practices. A total of 276 teachers from 12 "Level One Category One" and 3 "City's Model" kindergartens completed the Measure of Developmentally Appropriate Practices (Charlesworth et al., 1993) survey. Based on the results from the descriptive statistics, Chinese early childhood teachers reported positive developmentally appropriate beliefs ( $M = 3.61$ ,  $SD = .36$ ) and self-reported use of developmentally appropriate activities ( $M = 3.58$ ,  $SD = .48$ ). These findings were slightly higher than McMullen's (2005) findings of developmentally appropriate beliefs ( $M = 3.38$ ) and activities ( $M = 3.26$ ). Results from this current study supported the limited literature on early childhood teachers' understanding and use of DAP in Asia, including Wang et al.'s (2008) finding in Jiangsu, China, McMullen et al.'s (2005) findings in China, Kim et al.'s (2005) findings in Korea, and Jambunathan and Caulfield's (2008) findings in India. Though a different scale was used in Jambunathan and Caulfield's study, in general, all these findings suggested that early childhood teachers' use of developmentally appropriate activities lack abundance in Asia. Variables that contributed to the differences among teachers included class size, teachers' professional training, education level, school location, and years of teaching experience.

Overall, Chinese early childhood teachers' agreement with developmentally appropriate beliefs was between "fairly important" and "very important." There were different patterns of

results among developmentally appropriate beliefs ( $M = 4.06$ ,  $SD = .39$ ) and inappropriate beliefs ( $M = 3.02$ ,  $SD = .47$ ). However, Kim et al.'s (2005) findings of Korean teachers' developmentally appropriate beliefs were slightly higher ( $M = 4.14$ ) but work lower regarding developmentally inappropriate beliefs ( $M = 2.43$ ). It seems like the low total score in developmentally appropriate beliefs ( $M = 3.02$ ) resulted from Chinese early childhood teachers' beliefs in developmentally appropriate and inappropriate beliefs cancelling each other out. This may indicate that Chinese early childhood teachers were not very clear about distinctions between appropriate and inappropriate beliefs.

Chinese early childhood teachers' responses to their implementation of developmentally appropriate activities fell between "sometimes" and "regularly" ( $M = 3.58$ ). This finding is similar to those of Korean teachers ( $M = 3.75$ ). However, there was not a clear distinction shown between their responses to developmentally appropriate ( $M = 3.91$ ) and inappropriate ( $M = 3.18$ ) activities. This indicates that Chinese early childhood teachers have difficulty in distinguishing between developmentally appropriate and inappropriate activities. Evidently, there is a discrepancy between teachers' agreement with developmentally appropriate beliefs and activities according to the descriptive results from this study. In comparison, Korean teachers showed a much clearer distinction between developmentally appropriate activities ( $M = 3.7$ ) and inappropriate activities ( $M = 2.19$ ). This indicates that although teachers believe in DAP, they do not necessarily report using developmentally appropriate activities frequently.

The Pearson Correlation Analysis showed a statistically significant small positive correlation ( $r = .31$ ,  $p < .01$ ,  $N = 276$ ) between the two scales. This correlation was fairly low compared to correlations found among teachers from the U.S. ( $r = .68$ ), Taiwan ( $r = .61$ ,  $p < .01$ ),

Korea ( $r = .47$ ), and Turkey ( $r = .47$ ) in McMullen et al.'s study (2005). However, this finding was identical to McMullen et al.'s (2005) findings ( $r = .31, p < .01, N = 276$ ) regarding Chinese early child teachers' developmentally appropriate beliefs and activities. This result further confirmed that there is a gap between teachers' beliefs and practices.

Wang et al. (2008) also conducted a Pearson correlation analysis between subscale scores of the TBS and the IAS based on factors and their results area as follows: (1) child initiated/creative/manipulative activities and child-initiated learning belief ( $r = .4, p < .01$ ), child initiated/creative/manipulative activities and integrated/social-cultural curriculum beliefs ( $r = .4, p < .001$ ); (3) basic school skills practices and teacher directed/social-cultural curriculum beliefs ( $r = .2, p < .001$ ); (4) broad integrated curriculum practices and integrated/social-cultural curriculum beliefs ( $r = .18, p < .001$ ); and (5) broad integrated curriculum practices and child initiated learning beliefs ( $r = .16, p < .01$ ). Wang et al., (2008) did not report such correlational results with their teacher sample; however, overall the results indicated a gap between Chinese kindergarten teachers' beliefs and practices.

MANOVA results showed that as Chinese early childhood teachers' years of teaching experience varied, their understanding and use of DAP differed. Partial eta squared indicated a small effect size. A number of reasons might have contributed to the small effect size such as a relatively small sample size and use of a nonrandomized sampling procedure. Discriminant function analysis further revealed that developmentally appropriate activities were the most robust variable in determining group differences, explaining 47.1% of the discriminant function variance. In other words, the differences among teachers who taught more than 19 years, between 7 and 19 years, and less than 7 years were mainly the result of their frequent utilization

of developmentally appropriate activities. This result differed from Kim et al.'s (2005) findings. Kim et al. found a statistically significant difference among Korean early childhood teachers by center type (kindergarten vs. child care) and the fact that inappropriate activities scale contributed most in separating the two groups.

### Years of Teaching

In terms of mean differences for years of teaching experience, teachers who taught less than 7 years reported the most frequent utilization of inappropriate activities ( $M = 3.21$ ) and the least frequent use of developmentally appropriate activities ( $M = 3.8$ ). This implies that teachers who had less than 7 years of teaching experience were most likely to be exposed to developmentally appropriate beliefs due to the implementation of the *Guidelines for Kindergarten Education (trial version)* (Ministry of Education in People's Republic of China, 2001). Since 2001, developmentally appropriate beliefs and activities have been emphasized during teacher preparation courses and professional development activities. However, as relatively young professionals, teachers still struggle to manage the daily routines of a large class size. Therefore, they tended to do what was easier based on their familiarity (e.g., group instruction or teacher directed activities) rather than what they believed as developmentally appropriate (free play or child-centered activities).

Teachers who taught between 7 and 19 years reported the most frequent utilization of appropriate activities ( $M = 4.02$ ), the least frequent utilization of inappropriate activities ( $M = 3.84$ ), and the highest agreement of appropriate beliefs ( $M = 4.1$ ). This indicated that the implementation of the *Kindergarten Work Regulations and Procedures* (1989) has positively

influenced Chinese early childhood teachers developmentally appropriate beliefs and activities and they have a good understanding of DAP. Teachers with 7 to 19 years of experiences seemed to be most confident in practicing what they believed. In other words, their classroom behaviors were most likely to reflect their teaching beliefs. This group of teachers might be the best candidates for initiating inclusive practices in classrooms because they are the most likely to provide a high quality early education for all children.

Teachers who had taught over 19 years reported the lowest agreement with developmentally appropriate beliefs ( $M = 3.96$ ) and inappropriate beliefs ( $M = 2.89$ ). It seems that teachers who received professional preparation prior to the initiation of the curriculum movement (1989) were less in alignment with developmentally appropriate beliefs. Interestingly, they also reported the lowest score in terms of developmentally inappropriate beliefs. This group of teachers was also aware of developmentally appropriate beliefs since they had experienced the whole process of the curriculum movement; however, they are less supportive of developmentally appropriate beliefs.

MANOVA results confirmed a statistically significant difference that Chinese early childhood teachers' understanding and use of DAP varies according to class size. Results from discriminant function analysis further revealed that developmentally appropriate beliefs contributed most to group differences, accounting for 49% of the discriminant function variance. Similarly, this result differed from Kim et al.'s (2005) finding in which developmentally inappropriate activities contributed most to group differences when examining school type (kindergarten vs. child care).



## Class Size

In terms of mean differences for class size, teachers who had 35 or more students reported the highest developmentally appropriate beliefs ( $M = 4.15$ ), the lowest inappropriate beliefs ( $M = 2.97$ ), represented the most frequent utilization of DAP activities ( $M = 3.91$ ). However, they represented the highest use of developmentally inappropriate activities as well ( $M = 3.25$ ). Teachers who had less than 35 students showed less agreement with appropriate beliefs, however, their appropriate activities scores ( $M = 3.9$ ) were much closer to their appropriate belief score ( $M = 4.01$ ). Descriptive results suggested that a discrepancy existed between teachers' beliefs and activities regardless of their class size. Teachers reported difficulties in implementing developmentally appropriate activities consistent with what they believed. Teachers who had more than 35 students were most likely to utilize both developmentally appropriate and inappropriate activities at the same time, even though they reported the highest developmentally appropriate beliefs ( $M = 4.15$ ). This could be explained by the fact that when children move to kindergarten classes (5-6 year old), teachers were mandated by either their school or district curriculum guide to utilize long periods of whole group instruction in order to prepare children for grade school. Group instruction lasts up to 45 minutes during which the children are expected to either listen quietly or complete activities independently. Forty-five minutes of group instruction was not developmentally appropriate for 5-year-old children. However, group instruction is viewed necessary since this is the type of instruction children will have to adjust to when they move into primary school. Teachers who had less than 35 students showed high agreement between developmentally appropriate beliefs ( $M = 4.01$ ) and activities ( $M = 3.9$ ). This indicates that without the requirement for grade school readiness preparation, as well as smaller

class size, teachers have more freedom to explore and implement activities based on their beliefs. Similarly, Wang et al. (2008) also found class size significantly influenced TBS scores. Teachers who had between 50 and 70 students were the least likely to endorse child-initiated learning and integrated curriculum compared to teachers with less than 50 students.

However, Wang, et al. (2008) found that not only years of teaching experience and class size, but also major, location of school, and degree significantly contributed to teachers' DAP beliefs. There was no significance found when examining degree and major in the current study. This could be explained by the following facts: (1) Participants of this study represented top quality public kindergartens in urban cities, (2) participants tended to have similar level of education (bachelors' or associates degree), and (3) the majority of participants were early childhood (77%) or elementary education majors (12.3%).

### Summary

Findings provide insight into Chinese early childhood teachers' belief and use of DAP influenced by the national curriculum movement as well as inclusion initiatives. It is critical to identify and therefore increase teachers' utilization of developmentally appropriate activities in the classroom to successfully facilitate inclusive services. Chinese early childhood teachers share similarities with Korean teachers in their lack of "autonomy to develop curriculum and select instructional strategies to use in their classrooms" (Kim et al., 2005, p. 55). The strong influence of communist culture is reflected on structure and routines in early childhood programs (schedules, preschool rules) as indicated by Wang et al. (2008). Results from Wang et al.'s recent study further confirmed that government regulation was the most important factor in the

teacher's consideration of teaching and planning of activities. The strong influence of western culture is reflected in the national curriculum movement, as well as program quality ratings as a result of the curriculum movement. The strong influence of traditional culture is reflected by teachers' teaching styles, their relationship with students in the classroom, and parental expectations and demands for academic focus. Teachers' decision making processes are driven by cultural, communist, and western influences. As a result, Chinese early childhood teachers report utilization of developmentally appropriate and inappropriate activities at the same time. This also explains the gap in their DAP beliefs and activities.

Teachers in different groups showed different responses to DAP beliefs and activities. Teachers who taught less than 7 years as well as teachers who had more than 35 students reported the highest agreement with developmentally appropriate beliefs, yet at the same time, they reported the use of inappropriate activities most frequently. This could be explained by a lack of teaching experiences as well as the on academic focus in kindergarten classes. Young teachers were undoubtedly taught DAP in their teacher preparation programs. This explains why they might have scored higher in developmentally appropriate beliefs than teachers with more experience. Teachers who taught between 7 and 19 years as well as those who had less than 35 students most frequently reported the use of appropriate activities. Teachers who had taught between 7 and 19 years might have been strongly influenced by the DAP as a result of the first curriculum movement after the enactment of the reform and open up policy in China. Their years of experience also helped them to be able to practice their belief more freely. Teachers that had less than 35 students were less likely to use inappropriate activities. This echoes Wang et al.'s (2008) findings that the larger the class size, the less likely that teachers will endorse child

initiated learning and integrated curriculum. It makes sense that those teachers that were regulated by the government to implement long periods of group direct instruction for primary school preparation, had less freedom in utilizing DAP.

The results provided many insights for implementing national curriculum guidelines (trial version) which incorporates DAP. The survey results showed that teachers, regardless of years of teaching experiences and class size, showed positive support for DAP beliefs and activities. Teachers were supportive of the educational philosophy of DAP being emphasized in the new curriculum guidelines, which constitute the ideological and practical structure for early childhood education in China. Based on study results, we can surmise that Chinese early childhood teachers experience challenges distinguishing developmentally appropriate and inappropriate beliefs and activities. These results show a need for providing professional development on DAP. Professional development leaders needs to model DAP in order to help teachers close the gap between their beliefs and practices (Riley & Roach, 2006). However, teachers' mixed use of both developmentally appropriate and inappropriate activities might result from government regulations. If following DAP guidelines is determined to be culturally relevant, a need for revision of regulations might be warranted. Further, teachers need practical tools in implementing curriculum guidelines as they indicated utilizing both developmentally appropriate and inappropriate activities.

In conclusion, this study makes a contribution to the growing body of literature of teachers' understanding and use of DAP in Asian countries. Specifically, this study helps to understand Chinese early childhood teachers' developmentally appropriate beliefs and practices.

### Discussion on Research Question 3

Research question 3: Are there differences among Chinese early childhood teachers' beliefs about inclusion based on degree, major, years of teaching experience, and class size?

The purpose of this research question was to investigate kindergarten teachers' beliefs of the benefits and drawbacks of inclusion among 12 pilot preschools in Beijing, China. Two hundred and seventy-six teachers in the 12 pilot kindergartens were given the Benefits and Drawbacks of Inclusion survey. The overall finding suggested that kindergarten teachers showed positive beliefs about inclusion, including benefits for both children with and without disabilities. This remained true when taking into consideration their years of teaching experience and highest level of education. This finding was consistent with Li's (2007) study involving preschool teachers in North China. The results also agreed with similar studies conducted in the U.S. Buysse (1996) and Rafferty and Griffin (2005) found that teachers had positive beliefs about inclusion for children with and without disabilities. Descriptive statistics from this survey showed that teachers rated "Are more likely to have teachers with little or no specialized training" as the greatest drawback of inclusion, which echoed previous findings in U.S. (Buysse et al., 1996; Dinnebeil, McInerney, Fox, & Juchartz-Pendry, 1998; Kucuker et al., 2006; McConkey & Bhlirgri, 2003; Smith & Smith, 2000) and in China (Cheng, Chen, & Peng; 1994; Wei and Yues, 2000).

This study revealed that no statistically significant differences existed among teachers' perceptions about inclusion when examining the effects of years of teaching experience, degree, and major. This is inconsistent with previous findings suggesting teachers' degree (Li, 2007; Peng, 1999; Stoiber, Gettinger, & Goets, 1998) and years of teaching experience (Stoiber,

Gettinger, & Goets, 1998) significantly influenced their beliefs of inclusion. Previous findings supported teachers' professional training or experience working with disabilities and their inclusion views (Cheuk & Hatch, 2007; Li, 2007).

One reason for different results in this study as compared to previous studies could be the fact that there was very little variation among teachers' educational level since the majority of participating teachers came from top level kindergartens in China and were required to have a college degree to start or maintain their teaching position. In addition, these teachers taught in pilot inclusion schools therefore they have either learned about or had experiences with inclusion.

Previous studies did not examine whether class size had significant influence on teachers' attitudes about inclusion. In this study significant differences were found among teachers who had a class size of less than 25, 25-30, 30-35, and more than 35 in terms of their belief scores regarding the benefits and drawbacks of inclusion. Interestingly, it was the group that had 30-35 students that perceived the greatest drawbacks of inclusion. This could be explained by the fact that the group of 30-35 tended to be classes for 4 to 5 year old. These teachers were dealing with younger children, yet in a class with a large number of students. In a way it was more demanding than teaching 5-6 year old, who were more mature. Also, all kindergartens, except one, indicated that they tended to place children with special needs based on their developmental level instead of their biological age. In other words, very few children with special needs were placed in classes for 5 to 6 year olds since it focused heavily on academic preparation for primary school.

The results on the survey regarding the benefits of inclusion for children with disabilities support Buysse et al (1996)'s and Lieber et al.'s (1998) findings, which included preparing them for the real world, promoting independence, and learning in all developmental domains. Benefits

for typical children identified in this study were also consistent with other studies (Buysse et al.; Li, 2007; Lieber et al.; Peck, Carlson, & Helmstetter, 1992), including increased sense of responsibility, learning to tolerate individual differences, and showing sympathy for those who need help.

The greatest drawback of inclusion for children with disabilities were “are more likely to have teachers with little or no specialized training” ( $M = 3.63, SD = .06$ ) followed by “are more likely to be rejected or left out by other children” ( $M = 3.45, SD = .08$ ). The greatest drawbacks for typical developing children was “may copy negative behaviors of children with special needs” ( $M = 3.39, SD = .08$ ) followed by “do not receive their fair share of materials and equipment” ( $M = 3.08, SD = .08$ ). Li (2007) also identified these as teacher perceived negative impacts on children with disabilities. The number of negative impacts on typically developing children identified from this study and Li’s were also consistent, including learning undesirable behaviors, receiving less attention from teachers, and slowing down instruction due to disruptive behaviors frequently exhibited by children with disabilities.

In summary, results from the teachers’ perceived benefits of inclusion and drawbacks indicated that those who had between 30 and 35 students appeared to need the strongest support in facilitating inclusive practices. The most significant challenge rated by teachers related to their lack of professional trainings in including children with disabilities.

#### Discussion on Research Question 4

Research question 4: Are there differences among Chinese early childhood teachers' perceived training needs for inclusive practices based on degree, years of teaching experience, and class size?

The purpose of this research question was to investigate kindergarten teachers' perceived training needs for facilitating inclusive services among 12 pilot inclusive preschools in Beijing, China. The Self-Assessment of Training and Information Needs-Adapted (Buysse et al., 1999) survey was given to 276 teachers in the 12 pilot kindergartens in Beijing, China. The instrument uses a Likert scale of 1 (little knowledge and skill/much training needed), 3 (some knowledge and skill/some training needed), and 5 (much knowledge and skill/little training needed). Overall, the findings suggested that the sampled early childhood teachers reported the most need for training in the areas of behavior management, communicating with parents and families, and the IEP process.

Chinese early childhood teachers reported moderate training needs (little confidence) for curriculum and learning ( $M = 1.97$ ,  $SD = .63$ ), developmentally appropriate practices ( $M = 2.01$ ,  $SD = .58$ ), children with special needs ( $M = 2.11$ ,  $SD = .61$ ), and professional resources ( $M = 2.19$ ,  $SD = .61$ ). In Buysse et al.'s (1999) study in North Carolina, both teachers from inclusive ( $M = .56$ ,  $SD = .5$ ) and non-inclusive ( $M = 3.4$ ,  $SD = .76$ ) settings reported the same need to learn about children with special needs. In general, Chinese early childhood teachers indicated slightly greater need for knowledge of children with special needs than Buysse's study participants.

Interestingly, teachers perceived "Know how to communicate effectively with families" (45%) and "Know how to communicate clearly and deal with disagreements among adults in a



professional way” (33%) as the greatest need for training in terms of “professional resources.” Meeting the training needs of teachers in early childhood inclusive classrooms in China presents unique challenges. In this study, educators identified that their predominant need was to learn how to work with parents and collaborate with other professionals. This acknowledgment of the parental role presents a challenge for promoting inclusion in the Chinese socio-cultural context. As discussed earlier, Chinese parents traditionally assume the primary role in caring for a child with disabilities. Moreover, a social stigma toward disabilities still exists in modern China. Therefore, parents may be hesitant about shifting some of their responsibilities to the school. Children with disabilities have not previously been welcomed in early childhood programs therefore parents’ feelings toward school may be a mixture of appreciation, distrust, and criticism.

Findings from this study indicated that, regardless of the teachers’ level of education, class size, and years of teaching experience, everyone is in need of professional development in order to facilitate the inclusion of young children with disabilities. Teachers identified many areas to facilitate the inclusion of young children with disabilities. Through tiers of training and collaborative problem solving models, Chinese early childhood teachers will become confident and prepared to serve children with special needs in inclusive environments as well as provide a high quality program for all children.

### Summary of Findings

Results from this study provided descriptive information on the global quality of early childhood learning environments as a foundation for successful inclusive practices. The effects

of teachers' years of teaching experience, class size, degree, and major on teachers' developmentally appropriate beliefs and activities, inclusion perceptions, and training needs in order to support the process of early childhood inclusion in Chinese social-cultural context were revealed.

First, results from ECERS-R indicated that there is a need for improvement in global program quality. The focus of improvement should be to set a solid foundation for serving young children with disabilities in inclusive settings.

Second, survey results of teachers' understanding and use of developmentally appropriate practices revealed that a large gap existed between teachers' self-reported beliefs and practices. Teachers that had less than 7 years of teaching experience showed the largest gap in their use of appropriate and inappropriate activities whereas teachers who taught between 7 and 19 years showed the smallest gap. When examining years of teaching experiences, teachers' use of developmentally appropriate activities contributed most robustly to group classification. In addition, teachers who had 35 students or more were more likely to use developmentally appropriate and inappropriate activities simultaneously compared to teachers with less than 35 students. However, it was their developmentally appropriate beliefs that contributed most robustly in successfully classifying them into the two groups.

Third, when examining class size, survey results from teachers' perceptions of inclusion benefits and drawbacks indicated that those who had between 30 and 35 students needed the strongest support in facilitating inclusive practices. Also, when examining class size, teachers' responses to drawback items of inclusion contributed most robustly in group classification.

Additionally, teachers rated the lack of professional training as the strongest drawback of inclusion.

Last, results from the training needs survey showed that, regardless of teachers' years of experience, degree, and class size, there were no statistically significant differences in teachers' training needs in curriculum and learning, developmentally appropriate practices, disability knowledge, and resources. Overall, teachers reported a need for various knowledge and skills to facilitate early childhood inclusion. However, teachers indicated their greatest need was to learn how to work with parents and other professionals.

### Conclusions

The following conclusions are drawn based on the study findings:

1. Results from ECERS-R assessments showed that there are many areas for improvement in terms of the global quality of early childhood programs among the 18 inclusion pilot schools. Early childhood programs across China need to work on global and process quality variables in order to successfully facilitate inclusive practices. Areas for improvement include space and furnishing, language and reasoning, and provisions for children with disabilities. Resources are needed to improve furnishings and to increase materials for activities.
2. Results from the DAP surveys illustrated the current state of and challenges for early childhood teacher preparation programs in China. Chinese kindergarten teachers struggle in daily practices to implement developmentally appropriate activities due to

- their lack of experience, lack of practical tools, and the emphasis on mandatory school readiness preparation especially during the kindergarten year (ages 5 to 6).
3. Chinese early childhood teachers are supportive of the educational philosophy of DAP being emphasized in the new curriculum guidelines, which constitutes the ideological and practical structure for early childhood education in China. Based on the study results, it appears that Chinese early childhood teachers are working hard to achieve the goal of new early childhood services by utilizing the philosophies and practices of DAP. However, Chinese early childhood teachers experience challenges in terms of distinguishing developmentally appropriate and inappropriate beliefs and activities. There is a need for professional development focused in teaching DAP beliefs and activities.
  4. Chinese early childhood teachers, regardless of their level of education, class size, and years of teaching, reported the need to receive training in the area of curriculum and learning, developmentally appropriate practices, knowledge of children with disabilities, and professional resources in order to facilitate early childhood inclusion. Teachers reported the following areas as most needed for more training based on descriptive analysis: communicating with families, understanding the impact of delays, behavior management, and the IEP process.
  5. Chinese early childhood teachers identified that their primary need is to learn how to work with parents and collaborate with other professionals. This finding revealed a need for developing a model to facilitate collaborative work with parents, teachers, and other professionals for delivering inclusive services in the Chinese context. This

- also indicates that trainings for parents might also be necessary and important to facilitate successful inclusion.
6. There were statistically significant differences between groups of Chinese early childhood teachers based on class size and their inclusion beliefs. Interestingly it was the group that had between 30-35 students which identified the greatest drawbacks of inclusion. This suggests that more support and professional development is needed for these teachers.
  7. The ECERS-R scores suggest that the area of provision for children with disabilities needs to be improved. One approach is to infuse criteria related to provisions for children with disabilities into the public kindergartens program quality rating system. Once provisions for children with disabilities are part of the evaluation criterion, teachers and directors are more likely to receive support and incentives when considering and performing their job responsibilities. Another approach is to include knowledge related to provisions for children with disabilities in teachers' and directors' certification exams.

### Recommendations and Implications

#### Recommendations for Teacher Preparations and Professional Development

The research targeting the global quality of kindergarten programs as measured by the ECERS-R resulted in a number of implications for teacher education. Early childhood inclusion is in its infancy in China. There is a critical shortage of qualified professionals to work with

children with disabilities (Liu & Zeng, 2007). Early childhood teachers tend to have a negative attitude towards the inclusion of children with disabilities when the teachers lack the knowledge and skills in working with this population (Cheuk & Hatch, 2007). It is necessary that current early childhood teacher education programs include additional coursework related to the education of children with disabilities (e.g., curriculum adaptation and behavior management). Pre-service early childhood teachers should learn basic knowledge regarding children with disabilities. Emphasis should be placed on developmentally appropriate activities during pre-service coursework and field experiences. Furthermore, for in-service teachers, innovative professional development using technologies and methods such as coaching and on-site consultation, in addition to lecture, would be more effective.

Developmentally appropriate practices are recognized by the NAECY and the DEC as a strong indicator of a high quality inclusive early childhood programs (Coppie & Bredekamp, 2009). Literature widely supports the belief that a high quality early childhood program sets a solid foundation for successful inclusive practices (Bailey et al., 1998; Buysse, Wesley, & Keyes, 1998; Cross, Traub, Hutter-Pishgahi, & Shelton, 2004; Diamond & Carpenter, 2000; Pasche, Gorrill, & Strom, 2004). Research findings suggest that preparing Chinese early childhood teachers for inclusive practices should include increasing their understanding and utilization of developmentally appropriate practices in order to create a high quality learning environment.

Based on the foundation of a high quality early childhood program, Sandall (2002) suggests additional training is needed for teachers in accommodating children's needs through modifying and adapting the curriculum. Sandall and Schwartz (2002) list eight types of curriculum modifications: (a) environmental support, (b) material adaptation, (c) simplify the

activity, (d) use child preference, (e) special equipment, (f) adult support, (g) peer support, and (h) invisible support. These simple but carefully planned strategies can solve many minor yet frequently occurring learning and behavioral problems without the interruption of the routine or activities for all children.

Results from this study indicate that teachers rated their need to learn about IEP process as greatest in the area of disability knowledge. Planning and embedding IEP goals is a three step process in which teachers first examine the sequence of daily activities and the IEP goals of individual students in order to see if any of those goals can be met through curriculum modification (Sandall & Schwartz, 2002). Next, teachers need to think about what method of individualized instruction is needed to embed learning opportunities during daily routines. Then, they use an IEP matrix to record how and when each child's IEP goals will be addressed in daily routines.

Finally, individualized instruction using evidence-based practices, such as naturalistic teaching (Odom, 2004) and positive behavior support (Duda et al., 2004), were also reported by teachers as the greatest training needs. Children with disabilities attending the pilot Chinese kindergartens require a more intensive level of instructional and emotional support. Therefore, the inclusion teacher must be familiar with and skilled at using evidence-based individualized intervention strategies on a daily basis (Horn et al., 2000). For example, a teacher might use naturalistic teaching strategies to increase language and cognitive abilities, as well as the positive behavioral support approach to increase children's social emotional competencies.

Professional development should also focus on how to prepare teachers to work with parents and other professionals. Teachers must not only understand the characteristics of the

child, but also the “structural, functional, and external characteristics of the family” to develop the best intervention plans (Johnson & Kastner, 2005, p. 507). In order to provide support to families who have children with disabilities, teachers must understand the stages of emotional adjustment (Vacca & Feinberg, 2000) that parents go through. The stress parents experience is much higher for parents of children with disabilities than parents of typical developing children (Smith, Oliver, & Innocenti, 2001). Therefore, it is important that teachers master skills, such as effective communication, to foster parent-professional partnerships.

### Implications for Research

As advocates for children with disabilities, educational researchers are first and foremost charged with the responsibility to disseminate information on the benefits of inclusion for children with and without disabilities to educators, administrators, policy makers, and the community. This study provides a foundation for future research in the area of providing inclusive services for young children with disabilities in China. Longitudinal studies on the inclusion pilot project and similar projects are strongly recommended to draw conclusions about what factors are in support of successful inclusion at the kindergarten level in the Chinese socio-cultural content. It is also recommended that qualitative studies to be conducted, such as case studies, to learn about how to provide inclusive services at various locations in China.

In addition, educational researchers in China are faced with many challenges that prevent them from serving children with disabilities and their families. First, there is a critical need for assessment instruments for the purposes of screening, eligibility, and programming. Currently, there are very few instruments that are being used in some hospitals to diagnose children with



disabilities, such as Gesell and Amatruda's Developmental Diagnosis (1974). These instruments are not standardized on Chinese children. Thus, great efforts are needed not only to translate assessment tools into Chinese, but also to revise and standardize them based on the Chinese population and to make them culturally relevant before training practitioners to administer assessments in the field. Second, research on curriculum development is warranted in kindergartens to find out what is the best approach in terms of planning educational programs for students with disabilities. Third, further research is needed on validating research-based best practices in teaching different disabilities in inclusive environments in the Chinese contexts.

Next, studies on the application of DAP in kindergarten classes from different perspectives (e.g., parents and administrators) using different research methodologies are crucial to further identify the gap between teachers' DAP beliefs and activities. Research utilizing the ECERS-R (Harms et al., 1998) to investigate the relationship between process quality of the early childhood program and teachers' DAP beliefs and activities are warranted to provide helpful insights into factors related to the gap. Assessment reports generated from the ECERS-R rating can illustrate the discrepancy between teachers' DAP beliefs and activities, thus providing practical guidelines in closing the gap. At the same time efforts can be made toward standardizing the ECERS-R on the Chinese classroom samples and make revisions of the measurement criteria of the instrument if found necessary to make it culturally relevant.

The validity of DAP beliefs and activities scales presents limitations. So far, there has been no study conducted regarding the culturally appropriate ideology of DAP in the Chinese setting. For instance, the revised DAP measures multicultural education, however, one of the concerns is that unlike the U.S., Chinese society is largely homogeneous since 90% of its

population is Han Chinese. Therefore, the cultural appropriateness of the revised DAP in Chinese society warrants investigation. However, the instruments used in this study were created in 1990 before cultural appropriateness was infused into the DAP guidelines, which makes it more relevant for this research.

For future research, studies on the application of DAP in the kindergarten classes from different perspectives (e.g., parents and administrators) using different research methodologies are crucial to further identify the gap between teachers' belief and practice in DAP. Research methods utilizing the ECERS-R (Harms et al., 1998) to investigate the relationship between the process quality of the early childhood programs and teachers' beliefs and use of DAP are warranted to provide helpful insight of the factors related to the gap. Finally, the assessment report generated from the ECERS-R rating can illustrate the discrepancy between teachers' developmentally appropriate beliefs and activities; thus providing a practical guide.

#### Recommendations for Policy Makers

If inclusion of children with disabilities in kindergarten classrooms is going to occur routinely, policies and procedures need to be established. Findings from this study support the policies that will allow public kindergartens to (a) hire early childhood special education teachers as well as additional support staff, (b) reduce class size when child with disabilities are included in a regular classroom, and (c) allocate funding for adequate resources, equipment, and teacher salaries. Results from the data analysis indicated that class size and years of teaching experience were two most important variables to consider. Teachers who taught between 7 and 19 years and who have less than 30 students in the classrooms are best candidates to start including children

with disabilities. In addition, each inclusion kindergarten needs a number of permanent positions available based on the number of children with disabilities enrolled. It is critical that policy makers define eligibility criterion. Specifically, there is a need to articulate who qualifies for early childhood inclusion services and the procedures that are required to determine eligibility. Finally, the evaluation of the services for children with disabilities should be defined as an aspect of the program quality measures that apply to all public kindergartens in Beijing.

In conclusion, it is very exciting to see inclusion taking place in China at the preschool level in big cities like Beijing. Ultimately, the goal is to implement inclusion across China, including the rural areas where the majority of Chinese children reside. There is a long journey ahead for educational researchers, early childhood education practitioners, and policy makers to reach that goal.

APPENDIX A  
SELF ASSESSMENT OF TRAINING AND INFORMATION NEEDS-ADAPTED

**Self-Assessment of Training and Information Needs - Adapted\***

**Please fill out the following personal information**

Your name: \_\_\_\_\_ Sex: \_\_\_\_\_

Your role: Teacher Teaching Assistant Other: \_\_\_\_\_  
(specify)

Your highest degree: Master Bachelor Associate  
 vocational school high school Other: \_\_\_\_\_  
(Specify)

Your major: Early Childhood Elementary other: \_\_\_\_\_  
(Specify)

What's the name of the school you graduated from: \_\_\_\_\_

How long have you taught? \_\_\_\_\_

What's the name of the school you currently work for? \_\_\_\_\_

How long have you worked in the current job? \_\_\_\_\_

Your job contract nature: temporary permanent

Would you like to attend the training? Yes No

**Self-Assessment of Training and Information Needs - Adapted\***

**Directions:** Circle the number that indicates the degree to which **you feel confident about your knowledge and skills and/or need assistance** in the following areas:

	Very little confidence/ Great need 1	Little confidence/ Moderate need 2	Average confidence/ Some need 3	Good confidence/ Little need 4	Great confidence/ Very little need 5
<b>A. Curriculum and Learning. How to:</b>					
1. Guide children's behavior and deal with situations in a way to help them solve their own problems and learn self-control	1	2	3	4	5
2. Change the way I teach to meet the special learning needs of <b>each</b> child	1	2	3	4	5
3. Set up activities ahead of time and give notice before changing activities	1	2	3	4	5
4. Provide many opportunities for children to make choices	1	2	3	4	5
5. Use play as one way of teaching and create opportunities for play throughout the day	1	2	3	4	5
6. Use different ways to encourage children, including those with special needs, to talk to and play with each other	1	2	3	4	5
7. Adapting curriculum, material, activity and learning environment to meet children's special learning needs	1	2	3	4	5

**A.** Of the items in the above section, which one is your **greatest need?** Write the item number:

	Very little confidence/ Great need 1	Little confidence/ Moderate need 2	Average confidence/ Some need 3	Good confidence/ Little need 4	Great confidence/ Very little need 5
<b>B. Developmentally Appropriate Practices:</b>					
8. Know about developmental appropriate practices guidelines for children from age 0 to 8.	1	2	3	4	5
9. Understand characteristics of children from age 0 to 8 in developmental areas.	1	2	3	4	5
10. Know how to assess the quality of an early childhood classroom based of the DAP guidelines.	1	2	3	4	5
11. Understand the impact of delay in one developmental area on other areas	1	2	3	4	5
12. Know the effects of DAP guidelines in teaching children with special needs	1	2	3	4	5

**B.** Of the items in the above section, which one is your **greatest need?** Write the item number:

	Very little confidence/ Great need 1	Little confidence/ Moderate need 2	Average confidence/ Some need 3	Good confidence/ Little need 4	Great confidence/ Very little need 5
<b>C. Children with Special Needs. Know about:</b>					
13. The benefits of including children with disabilities	1	2	3	4	5
14. Specific disabilities	1	2	3	4	5
15. Positive behavior support	1	2	3	4	5
16. Embedding IEP into daily normal routines	1	2	3	4	5
17. Teaching skills that work well for children with and without disabilities	1	2	3	4	5
18. The strategies of fostering language development in the classroom	1	2	3	4	5
19. Integrating techniques that therapists use into daily instruction	1	2	3	4	5
20. How to encourage communication and friendships between children with disabilities and their peers	1	2	3	4	5
21. How to use assistive technology with young children	1	2	3	4	5
22. Write an IEP based on assessment results	1	2	3	4	5

**C.** Of the items in the above section, which one is your **greatest need?** Write the item number:

	Very little confidence/ Great need 1	Little confidence/ Moderate need 2	Average confidence/ Some need 3	Good confidence/ Little need 4	Great confidence/ Very little need 5
<b>D. Professional Resources:</b>					
23. Know about local, regional, and state resources for children who have special needs and their families	1	2	3	4	5
24. Understand what national laws say about children with special needs and their families	1	2	3	4	5
25. Know how to communicate effectively with families	1	2	3	4	5
26. Understand the benefits of encouraging families to be involved in their children's programs	1	2	3	4	5
27. Know how to communicate clearly and deal with disagreements among adults in a professional way	1	2	3	4	5

**D.** Of the items in the above section, which one is your **greatest need?** Write the item number:

\*Adapted from Buysse, V., Wesley, P. W., Bryant, D., & Gardner, D. (1999). Quality of early childhood programs in inclusive and noninclusive settings. *Exceptional Children*, 65(3), 301-314.



APPENDIX B  
BENEFITS AND DRAWBACKS OF EARLY CHILDHOOD INCLUSION SCALE

I.D. #: \_\_\_\_ - \_\_\_\_ / \_\_\_\_ - \_\_\_\_ - \_\_\_\_ / \_\_\_\_  
(Four Initials) / (Date of Birth) / (Program)

Date Completed: \_\_\_\_ / \_\_\_\_ / \_\_\_\_



## Benefits & Drawbacks of Early Childhood Inclusion

(adapted from Bailey and Winton, 1987)

**Frank Porter Graham Child Development Center**  
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*Early childhood inclusion refers to the practice of serving young children with special needs and typically developing children in the same child care or preschool classroom. Listed inside are some of the benefits and drawbacks of early childhood inclusion reported by parents of preschoolers with and without special needs. Circle the number that indicates the degree to which YOU feel each item represents a benefit or drawback of early childhood inclusion BASED ON YOUR OWN EXPERIENCES AND/OR BELIEFS. Please use the space provided on the back cover to describe additional benefits or drawbacks of early childhood inclusion.*

Please enter the last four digits of your Social Security number here: I.D# \_\_\_\_ / \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Circle the number that indicates the degree to which YOU feel each item represents a benefit of early childhood inclusion  
 BASED ON YOUR OWN EXPERIENCES AND/OR BELIEFS

Benefits of Early Childhood Inclusion	Definitely Not a Benefit	Probably Not a Benefit	Not Sure	Probably a Benefit	Definitely a Benefit
<b>FOR CHILDREN WITH SPECIAL NEEDS</b>					
1. Are better prepared for the real world	1	2	3	4	5
2. Develop more independence in self-help skills	1	2	3	4	5
3. Learn more from typically developing children	1	2	3	4	5
4. Are more likely to try harder	1	2	3	4	5
5. Are more likely to feel better about themselves	1	2	3	4	5
6. Have more opportunities to participate in a variety of activities	1	2	3	4	5
7. Are more likely to be accepted by the community	1	2	3	4	5
<b>FOR FAMILIES OF CHILDREN WITH SPECIAL NEEDS</b>					
8. Learn more about typical child development	1	2	3	4	5
9. Have more opportunities to meet and talk with families of typically developing children	1	2	3	4	5
<b>FOR TYPICALLY DEVELOPING CHILDREN</b>					
10. Are better prepared for the real world	1	2	3	4	5
11. Learn more about differences in the way people grow and develop	1	2	3	4	5
12. Are more aware and accepting of their own strengths and weaknesses.	1	2	3	4	5
<b>FOR FAMILIES OF TYPICALLY DEVELOPING CHILDREN</b>					
13. Are more understanding of families who have a child with special needs	1	2	3	4	5
14. Are more understanding of children with special needs.	1	2	3	4	5

Of the benefits listed above, which one is likely to be the greatest benefit of early childhood inclusion? Write the item number.

Circle the number that indicates the degree to which YOU feel each item represents a drawback of early childhood inclusion  
BASED ON YOUR OWN EXPERIENCES AND/OR BELIEFS

### Drawbacks of Early Childhood Inclusion

Definitely Not a Drawback	Probably Not a Drawback	Not Sure	Probably a Drawback	Definitely a Drawback
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#### FOR CHILDREN WITH SPECIAL NEEDS

1. Are less likely to receive special help and individualized instruction	1	2	3	4	5
2. Are less likely to receive special services, such as physical or speech therapy	1	2	3	4	5
3. Are more likely to be rejected or left out by teachers	1	2	3	4	5
4. Are more likely to be rejected or left out by other children	1	2	3	4	5
5. Are more likely to have teachers with little or no specialized training	1	2	3	4	5

#### FOR FAMILIES OF CHILDREN WITH SPECIAL NEEDS

6. May feel left out or ignored by families of typically developing children	1	2	3	4	5
7. May feel that most of the other families do not share or understand their concerns	1	2	3	4	5
8. Are more likely to notice and feel upset by differences between typically developing children and the child with special needs	1	2	3	4	5
9. May observe their child being rejected or teased	1	2	3	4	5

#### FOR TYPICALLY DEVELOPING CHILDREN

10. May not receive enough teacher attention	1	2	3	4	5
11. May copy negative behaviors of children with special needs	1	2	3	4	5
12. Do not receive their fair share of materials and equipment	1	2	3	4	5

#### FOR FAMILIES OF TYPICALLY DEVELOPING CHILDREN

13. Feel uncomfortable around children with special needs	1	2	3	4	5
14. Feel uncomfortable around families of children with special needs	1	2	3	4	5

Of the drawbacks listed above, which one is likely to be the greatest drawback of early childhood inclusion? Write the item number.

APPENDIX C  
TEACHER BELIEF SCALE



<p><b>Teacher Beliefs Scale</b></p> <p>Author: Charlesworth, Rosalind; and others (1993)</p> <p><b>Instructions:</b> please respond to the following items by circling the number that most nearly represents YOUR PERSONAL BELIEFS about the importance of that item in a preschool program</p>	<p>1 = not important at all</p> <p>2 = not very important</p> <p>3 = Fairly important</p> <p>4 = Very important</p> <p>5 = extremely important</p>
--	--

1. As an evaluation technique in the preschool program, standardized group tests are_____.	1	2	3	4	5
2. As an evaluation technique in the preschool program, teacher observation is_____.	1	2	3	4	5
3. As an evaluation technique in the preschool program, performance on worksheets and workbooks is_____.	1	2	3	4	5
4. It is _____ for preschool activities to be responsive to individual difference and interest.	1	2	3	4	5
5. It is _____ for preschool activities to be responsive to individual differences in development.	1	2	3	4	5
6. It is _____ that each curriculum area to be taught as separate subject at separate times.	1	2	3	4	5
7. It is _____ for teacher-pupil interaction in preschool to help develop children's self-esteem and positive feelings toward learning.	1	2	3	4	5
8. It is _____ for children to be allowed to select many of their own activities from a variety of learning areas that the teacher has prepared (blocks, art, housekeeping, etc).	1	2	3	4	5
9. It is _____ for children to be allowed to cut their own shapes, perform their own steps in an experiment, and plan their own creative drama, art, and writing or scribing activities.	1	2	3	4	5
10. It is _____ for preschoolers to learn to work silently and alone on seatwork.	1	2	3	4	5
11. It is _____ for preschoolers to learn through active exploration.	1	2	3	4	5
12. It is _____ for preschoolers to learn through interaction with other children.	1	2	3	4	5

<p><b>Teacher Beliefs Scale</b></p> <p><b>Instructions:</b> please respond to the following items by circling the number that most nearly represents YOUR PERSONAL BELIEFS about the importance of that item in a preschool program</p>	<p>1 = not important at all</p> <p>2 = not very important</p> <p>3 = Fairly important</p> <p>4 = Very important</p> <p>5 = extremely important</p>
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13. Workbooks and/or ditto-sheets are _____ to the preschool program.	1	2	3	4	5
14. Routine group practices on shapes, numbers, letters, months and/or words, etc) using materials such as flashcards and charts is _____ to the preschool program.	1	2	3	4	5
15. A structured reading or pre-reading program is _____ to the preschool program.	1	2	3	4	5
16. In terms of effectiveness, it is _____ for the teacher to talk to the whole group and make sure everyone participates in the same activity.	1	2	3	4	5
17. In terms of effectiveness, it is _____ for the teacher to move along groups and individuals, offering suggestions, asking questions, and facilitating children's involvement with materials and activities.	1	2	3	4	5
18. It is _____ for teachers to use their authority through treats, stickers, and/or stars to encourage appropriate behavior.	1	2	3	4	5
19. It is _____ for the teachers to use their authority through punishments and/or reprimands to encourage appropriate behavior.	1	2	3	4	5
20. It is _____ for children to be involved in establishing rules for the classroom.	1	2	3	4	5
21. It is _____ for children to be instructed in recognizing the single letters of the alphabet, isolated from word.	1	2	3	4	5
22. It is _____ for children to color within predefined lines.	1	2	3	4	5
23. It is _____ for children in preschool to form letters correctly on a printed line.	1	2	3	4	5

<p><b>Teacher Beliefs Scale</b></p> <p><b>Instructions:</b> please respond to the following items by circling the number that most nearly represents YOUR PERSONAL BELIEFS about the importance of that item in a preschool program</p>	<p>1 = not important at all</p> <p>2 = not very important</p> <p>3 = Fairly important</p> <p>4 = Very important</p> <p>5 = extremely important</p>
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24. It is _____ to children to have stories read to them individually and/or on a group basis.	1	2	3	4	5
25. It is _____ to children to dictate stories to the teacher.	1	2	3	4	5
26. It is _____ for children to see and use functional print (telephone book, magazines, etc) and environmental print in the preschool classroom.	1	2	3	4	5
27. It is _____ for children to participate in dramatic play.	1	2	3	4	5
28. It is _____ for children to talk informally with adults.	1	2	3	4	5
29. It is _____ for children to experiment writing through inventing words.	1	2	3	4	5
30. It is _____ to provide many opportunities to develop social skills with peers in the classroom.	1	2	3	4	5
31. It is _____ for preschoolers to learn to read.	1	2	3	4	5
32. In the preschool program, it is _____ that math be integrated with all other curriculum areas.	1	2	3	4	5
33. In teaching health and safety, it is _____ to include a variety of activities throughout the school year.	1	2	3	4	5
34. In the classroom setting, it is _____ for the child to be exposed to multicultural and nonsexist activities.	1	2	3	4	5
35. It is _____ that outdoor times have planned activities.	1	2	3	4	5
36. Input from parents is _____.	1	2	3	4	5

THE END



APPENDIX D  
INSTRUCTIONAL ACTIVITY SCALE

<p align="center"><b>Teacher Beliefs-Instructional Activities Scale</b></p> <p>Author: Charlesworth, Rosalind; and others (1993)</p> <p><b>Instructions:</b> please respond to the following items by circling the number that most nearly represents YOUR PERSONAL BELIEFS about the importance of that item in a preschool program</p>	<p>1 = almost never</p> <p>2 = Rarely (monthly)</p> <p>3 = Sometimes (weekly)</p> <p>4 = Regularly (2-4/weeks)</p> <p>5 = Very often (daily)</p>
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1. Building with blocks	1	2	3	4	5
2. Children selecting centers (home, book, math, science, writing, etc)	1	2	3	4	5
3. Participating in dramatic play	1	2	3	4	5
4. Listening to records and/or tapes	1	2	3	4	5
5. Doing creative writing (combining symbols/invented spelling and drawing)	1	2	3	4	5
6. Playing with games and puzzles	1	2	3	4	5
7. Exploring animals, plants, and/or wheels and gears	1	2	3	4	5
8. Singing and/or listening to music	1	2	3	4	5
9. Creative movement	1	2	3	4	5
10. Cutting their own shapes from paper	1	2	3	4	5
11. Playing with manipulative such as pegboards, puzzles, and/or legos	1	2	3	4	5
12. Coloring and/or cutting teacher or commercial pre-drawn forms	1	2	3	4	5

13. Children reading in ability/age level groups	1	2	3	4	5
14. Circling, underlining, and/or making items on worksheets	1	2	3	4	5
15. Using flashcards/charts with sight words and/or math facts ABC's	1	2	3	4	5
16. Rote counting	1	2	3	4	5
17. Practicing handwriting on lines	1	2	3	4	5

PLEASE GO TO NEXT PAGE

<p><b>Teacher Beliefs-Instructional Activities Scale</b></p> <p><b>Instructions:</b> please respond to the following items by circling the number that most nearly represents YOUR PERSONAL BELIEFS about the importance of that item in a preschool program</p>	<p>1 = almost never</p> <p>2 = Rarely (monthly)</p> <p>3 = Sometimes (weekly)</p> <p>4 = Regularly (2-4/weeks)</p> <p>5 = Very often (daily)</p>
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18. Reciting the alphabet.	1	2	3	4	5
19. Copying from the chalkboard	1	2	3	4	5
20. Sitting for longer than 15 minutes	1	2	3	4	5
21. Waiting for longer than 5 minutes between activities	1	2	3	4	5
22. Large group teacher directed instruction	1	2	3	4	5
23. Children coordinating their own activities in centers	1	2	3	4	5
24. Tangible rewards for appropriate behavior and/or performance	1	2	3	4	5
25. Losing special privileges (trips, recess, free time, parties, etc.) for misbehavior	1	2	3	4	5
26. Social reinforcement (verbal praise, approval, attention, etc.) for appropriate behavior and/or performance	1	2	3	4	5
27. Using isolation standing in the corner or outside of the room) to obtain child compliance	1	2	3	4	5
28. Games/activities directed by or made by parents	1	2	3	4	5
29. Specifically planned outdoor activities.	1	2	3	4	5
30. Multicultural and nonsexist activities	1	2	3	4	5
31. Competitive math activities to learn math facts	1	2	3	4	5
32. Health and safety activities	1	2	3	4	5
33. Drawing, painting, working with playdough, and other art media	1	2	3	4	5
34. Math incorporated with other subject area	1	2	3	4	5

THE END

PLEASE GO TO NEXT PAGE

APPENDIX E  
CONSENT FORM

## *Informed Consent*

Dear Early Childhood Educator:

My name is Bi Ying Hu. I have received a B.S. and M. Ed degree in Exceptional Education in the US; I have worked in early intervention programs, programs for students with moderate to severe disabilities including students with autism for four years. In the school year 2003-2004, I was awarded First Year Teacher of the Year. Currently, I am pursuing my doctorate in Exceptional Education at the University of Central Florida (with a focus on Early Intervention/Early Childhood Special Education).

I am eager to collaborate with Chinese early childhood teachers on what is quality education and how to integrate services for exceptional young children. My doctoral dissertation involves designing high-quality early childhood learning environment. I would like to get feedback from you on the following topics: (1) your belief on developmentally appropriate practices, (2) your perception of inclusion, and (3) your self-assessment of training and information needs. According to these three topics I have developed three surveys which will be sent to you. It will take approximately 30 minutes to fill them out. You can put your completed surveys in the envelope provided and seal it so no one else but I can read your answers. Also, I will offer a two-day training course on how to create a high-quality early childhood classroom. The training will be offered at the Beijing Early Childhood Center at the beginning of May. You will not be provided compensation for participation. After the training, the researcher will come to visit your class and provide one hour consultation. You may ask any questions related to the training. Filling out this survey does not obligate you to participate in the training. You can withdraw at any time or skip any questions you wish.

Only 50 teachers will be randomly selected to attend the training. The researcher also plans to randomly assign 50 teachers from those who agreed to participate into the control group. The control group will be provided training as soon as the study is completed. After the training, the teachers who are chosen to be either in the treatment or control group will be assessed on their classroom quality using an instrument called the Early Childhood Environment Scale-Revised. The assessment result will not be used as any form of staff evaluation, but rather for the director of your early childhood center to learn the criterions used for high quality early childhood education programs in the U.S. The assessment results will also provide invaluable information in terms of how to provide inclusive services in China.

In addition, I plan to conduct open-ended interviews with some administrators and/or teachers on their perceptions toward early childhood inclusion. Please check yes for the item "I would like to participate in the interview" at the bottom of the consent form if you are interested. Only those checked yes will be chosen for interviews.

You have to be at least 18 in order to participate in the study. Your name on the survey will be a number code and only the researcher will be able to link responses to the individuals who made them for research purposes. Your input on survey will provide invaluable information to the designing of future training courses for inclusive practices. Your information will not be disclosed to any third party. Your consent forms, surveys, and ECERS-R score form will be kept

in locked file cabinet at the College of Education, room 315. Survey data and scores from ECERS-R will be entered in a password protected computer. We sincerely thank you for your participation.

If you have any questions about this research project, please contact me at (407) 823-2598 or email [bhu@mail.ucf.edu](mailto:bhu@mail.ucf.edu) My faculty supervisor, Dr. Cross, may be contacted at (407) 823-5477 or by email at [lcross@mail.ucf.edu](mailto:lcross@mail.ucf.edu). Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). Questions or concerns about research participants' rights may be directed to the Institutional Review Board Office, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. The telephone numbers are (407) 823-2901 and (407) 882-2276.

Bi Ying Hu  
Doctoral Student  
Exceptional Education  
University of Central Florida

I have read and understand the document described above

I voluntarily agree to participate in the survey

I would like to participate in the training

I understand that I might be randomly selected to the treatment or control group.

I would like to participate in the interview

\_\_\_\_\_/\_\_\_\_\_  
Participant Date

**Bi Ying Hu** / \_\_\_\_\_  
Principal Investigator Date

APPENDIX F  
IRB APPROVAL LETTER





University of Central Florida Institutional Review Board  
Office of Research & Commercialization  
12201 Research Parkway, Suite 501  
Orlando, Florida 32826-3246  
Telephone: 407-823-2901, 407-882-2901 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

### Notice of Expedited Initial Review and Approval

From : UCF Institutional Review Board  
FWA00000351, Exp. 5/07/10, IRB00001138

To : Biying Hu

Date : April 17, 2008

IRB Number: SBE-08-05427

Study Title: EXPLORING AN EFFECTIVE MODEL OF TRAINING EARLY CHILDHOOD TEACHERS FOR INCLUSIVE PRACTICES- A CHINESE PERSPECTIVE

Dear Researcher:

Your research protocol noted above was approved by **expedited** review by the UCF IRB Chair on 4/17/2008. **The expiration date is 4/16/2009.** Your study was determined to be minimal risk for human subjects and expeditable per federal regulations, 45 CFR 46.110. The category for which this study qualifies as expeditable research is as follows:

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

The IRB has approved a **consent procedure which requires participants to sign consent forms.** Use of the approved, stamped consent document(s) is required. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Subjects or their representatives must receive a copy of the consent form(s).

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

To continue this research beyond the expiration date, a Continuing Review Form must be submitted 2 – 4 weeks prior to the expiration date. Advise the IRB if you receive a subpoena for the release of this information, or if a breach of confidentiality occurs. Also report any unanticipated problems or serious adverse events (within 5 working days). Do not make changes to the protocol methodology or consent form before obtaining IRB approval. Changes can be submitted for IRB review using the Addendum/Modification Request Form. An Addendum/Modification Request Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <http://iris.research.ucf.edu>.

**Failure to provide a continuing review report could lead to study suspension, a loss of funding and/or publication possibilities, or reporting of noncompliance to sponsors or funding agencies.** The IRB maintains the authority under 45 CFR 46.110(c) to observe or have a third party observe the consent process and the research.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 04/17/2008 12:15:36 PM EDT

IRB Coordinator



APPENDIX G  
CORRELATIONS AMONG SUBSCALES

Correlations among Subscales

Subscales	Tr1	Tr2	Tr3	Tr4	IB	ID	DAPB	DIPB	DAPA	DIPA
Tr1	-	.522	.479	.47	-.150	-.114	-.093	.05	-.061	.032
Tr2		-	.621	.586	.258	.002	-.079	-.16	-.08	-.133
Tr3			-	.714	-.406	-.016	-.131	-.149	-.165	-.148
Tr4				-	-.286	-.012	-.028	-.033	-.114	.023
IB					-	.005	.101	.119	.215	.139
ID						-	-.04	-.05	.009	.035
DAPB							-	.212	.272	.171
DIPB								-	.087	.254
DAPA									-	.402
DIPA										-

Note: Tr1= curriculum and learning; Tr2 = developmentally appropriate practices; Tr3 = disability knowledge; Tr4= resources; IB = Inclusion benefits; ID = Inclusion drawbacks; DAPB = developmentally appropriate beliefs; DIPB = developmentally inappropriate beliefs; DAPA=developmentally appropriate activities; DIPA = developmentally inappropriate activities

APPENDIX H  
MEAN AND MODE OF ECERS-R ITEM RATING

## Mean and Mode of ECERS-R Item Rating

<b>Subscale 1: Space and Furnishing</b>											
Item	Indoor space	Furniture for care, play and learning	Furniture for relaxation and comfort	Room arrangement for play	Space for privacy	Child-related display	Space for gross motor play	Gross motor equipment			
Mode	4	6	1	6	1	4	3	4			
Mean	3.7	4.87	3.25	4.62	2.07	5	2.73	3.78			
<b>Subscale 2: Personal Care and Routine</b>											
Item	Greeting/departing		Meals/snacks	Nap/rest	Toileting/diapering			Health practices	Safety practices		
Mode	7		6	4	7			7	7		
Mean	5.3		5.02	3.3	5.68			6.98	4.3		
<b>Subscale 3: Language and Reasoning</b>											
Item	Books and pictures			Encouraging children to communicate	Using language to develop reasoning skills			Informal use of language			
Mode	4			4	4			7			
Mean	3.9			4.7	4.8			5.23			
<b>Subscale 4: Activities</b>											
Item	Fine motor	art	Music/movement	blocks	Sand/water	Dramatic play	Nature/science	Math	Use of TV, video, and/or computer	Promoting individual differences	
Mode	4	4	2	4	1	4	3	4	N/A	1	
Mean	4.18	4.18	3.7	3.93	1.47	2.9	3.2	3.65	4.47	1.25	
<b>Subscale 5: Interaction</b>											
Item	Supervision of gross motor activities		General supervision of children	discipline			Staff-child interactions	Interactions among children			
Mode	6		7	7			7	7			
Mean	5.03		5.5	5.33			5.95	6.2			
<b>Subscale 6: Program Structure</b>											
Item	schedule		Free play		Group time			Provisions for children with disabilities			
Mode	2		3		4			N/A			
Mean	2.48		3.575		4.33			3.82			

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