

DEVELOPMENTALLY APPROPRIATE BELIEFS AND PRACTICES OF
PUBLIC AND PRIVATE KINDERGARTEN TEACHERS IN THE
UNITED STATES AND TAIWAN

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The purposes of the present study are to: (a) describe the beliefs and practices of the US and Taiwan (TW) public and private kindergarten teachers regarding developmentally appropriate practice (DAP), (b) examine the group differences between the four groups of teachers, and (c) identify the salient factors related to the variability of developmentally appropriate beliefs and practice in these teachers. Three hundred and fifty-seven kindergarten teachers participated in the study. The group sizes were 123, 123, 57, and 54 for Taiwan private, Taiwan public, US private, and US public kindergarten teachers, respectively. A survey was used to collect data.

Findings from this study showed: (a) Both the US and Taiwan kindergarten teachers highly endorsed beliefs about DAP; (b) US and Taiwan kindergarten teachers also held strong beliefs about developmentally inappropriate practices (DIP); (c) DAP activities occurred regularly in the classrooms; (d) developmentally inappropriate practice (DIP) activities also took place a lot although they were lower than the DAP activities; (e) the Taiwan teachers had higher beliefs about DAP and lower beliefs about DIP than the US teachers; (f) the US teachers reported both higher DAP and DIP activities than the Taiwan teachers; (g) there were no differences between public and private kindergarten teachers; (h) hierarchical regression analyses using teacher's personal demographic variables as the first block and numbers of boys and girls as the second block were generally not effective; (i) there were different sets of best predictors from the backward regression for different dimensions of developmentally appropriate beliefs and

practices; and (j) beliefs about DAP and DIP were usually more powerful than the demographic and classroom variables in predicting the DAP and DIP activities.

Future studies are needed to refine the Teacher Belief Scale and Instructional Activity Scale instruments and include classroom observations to verify and expand the findings. Future teacher training on DAP should promote beliefs about DAP and reduce beliefs about DIP. Enhancing teachers' skills to implement the DAP activities and decrease the DIP activities is suggested.

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DEFINITION OF TERMS

Acronyms/Terms	Definitions
Beliefs	Refers to kindergarten teachers' conviction about kindergarten curriculum and education (Wang, 2000).
Developmentally appropriate practice (DAP)	Refers to child-centered teaching. Children are active learners. Through interactions with adults, peers, and environment, and solving conflicts and problems, they construct meaningful knowledge (Burts, Hart, Charlesworth, Fleege, Mosley, and Thomasson, 1992)
DAP_FCI	The composite score of DAPB and FCI on the Teacher Belief Scale.
Developmentally inappropriate practice (DIP)	Refers to teacher-centered teaching. Children are taught through lectures, drill- and -practices, and workbooks and worksheet activities, have less hands-on learning opportunities, and be punished for unacceptable behaviors (Charlesworth, 1998).
DAPB	Beliefs about developmentally appropriate practice (DAP). Operationally, it is the belief subscale about DAP on the Teacher Belief Scale (TBS).
DIPB	Beliefs about developmentally inappropriate practice (DIP). Operationally, it is the belief subscale about DIP on the Teacher Belief Scale (TBS).
DAPIA	Developmentally appropriate practice instructional activities - operationally, it is the subscale about DAP on the Instructional Activity Scale (IAS).
DIPIA	Developmentally inappropriate practice instructional activities - operationally, it is the subscale about DAP on the Instructional Activity Scale (IAS).
ECE	Early childhood education
FCI	A subscale on the Teacher Belief Scale (TBS) measuring participant's beliefs about the value of family, culture, and inclusion.
IAS	Instructional Activity Scale - a survey measuring teacher's classroom activities from the perspective of DAP or DIP.
Kindergarten	Refers to the public or private education programs for four- to six-year-old children. In Taiwan, kindergarten means programs for children with age four to six (Law and Regulations Database of the Republic of China, n.d.). In Texas, however, kindergarten is for five-year-old children (Texas Education Agency, n.d.).

Public kindergarten	Refers to educational programs that are established in Texas and Taiwan for young children and offered in public elementary schools.
Private kindergarten	Refers to programs in Texas and Taiwan for young children where over 60% of the funding is from students' tuition.
Practices	Refers to kindergarten teachers' delivery and implementation of curriculum and programs (Wang, 2000).
TBS	Teacher Beliefs Scale - an instrument measuring teacher's beliefs about developmentally appropriate practices (DAP) or developmentally inappropriate practices (DIP).
Teacher	Defined as the individual who provides the primary daily care and educational experiences while a child is attending kindergarten.

CHAPTER I

INTRODUCTION

Kindergarten is an essential part of educational systems and societies in both the United States and Taiwan. It is not only part of the daily life for five-year-old children (Wollons, 2000), but also an important transition time for children from preschool to the primary grades (Graue, 2003; National Association for the Education of Young Children, 1996). High-quality early education produces long-lasting benefits for children's development and later academic success (National Research Council, 2001; Peisner-Feinber, Burchinal, Clifford, Culkin, Howes, and Kagan et al., 2000; Reynolds, Temple, Robertson, & Mann, 2001).

For the past several decades, kindergarten education has gained governmental attention both in the United States (US) and in Taiwan. In 2005, forty-three states in the US mandated that school districts offer at least half-day kindergarten programs, and fourteen states mandated that children aged five attend at least one half-day of kindergarten. Nine states mandated that school districts offer full-day kindergarten programs. Louisiana and West Virginia require that five-year-old children attend full-day kindergarten (Education Commission of the States, 2006). In Taiwan, in addition to provisioning the ongoing early childhood education programs for the children in urban cities, the government currently promotes a kindergarten program to help five-year-old children of the off-shore islands, aboriginal areas, and from lower income families. This is a preliminary step for the national compulsory kindergarten education in Taiwan (Ministry of Education, Republic of China, ROC, 2005).

Recently, the provision of high-quality, developmentally appropriate kindergarten programs that “promote the physical, social, emotional, aesthetic, intellectual, and language development” (National Association for the Education of Young Children, 1997) for five-year-

old children has been recognized both in the US and Taiwan (Education Commission of the States, 2006; Ministry of Education, 2005).

Development of Kindergarten Programs

Kindergartens in the United States

The first kindergarten in the United States was established by Margarethe Schurz, a student of Froebel, in 1856 in Watertown, Wisconsin (Beatty, 2000; Osborn, 1991; Spodek, 1986). Her purpose was to educate her own child and children of her German relatives. It was a private, German-speaking kindergarten. The curriculum adopted Froebel's philosophy and methods. At the same time, bilingual German-English kindergartens were spreading throughout the US. In 1860, Elizabeth Peabody opened the first English-speaking kindergarten in Boston. She wrote *Kindergarten Guide* based on Froebel's method (Spodek, 1986). Later, in 1873, the first public school kindergarten was opened in St. Louis Public Schools. In general, during the 1860s and 1870s, kindergartens in the US were private, taught by German kindergarten teachers, used Froebel's curricula, and served children and families from Europe and upper- and middle-class America (Beatty, 2000; Osborn, 1991; Spodek, 1986).

During the 1880s and 1890s, Froebel's kindergarten became a model for preschool. Society began to modify German kindergarten teaching methods to meet the needs of poor and immigrant children and families. Meanwhile, the German kindergarten curriculum was challenged due to the cultural conflicts and new scientific ideas about children's development and learning. Kindergarten teachers started to include daily experiences of American children's real lives in the curricula instead of "German folklore and artificial naturalism" (Beatty, 2000, p.47).

In the early twentieth century, public school kindergartens spread out into 23 states (Osborn, 1991). Under the influence of behavioral psychologists, kindergarten administrators and teachers started to modify their curricula to train young children to develop habits and skills. The “Conduct Curriculum” developed by Columbia University was an example of this type of kindergarten curriculum (Spodek, 1986). Debates on academic and developmental curriculum also existed and created many conflicts and challenges (Spodek, 1977, 1986). During this period, kindergartens became more focused on multicultural and American traditions. Kindergartens were institutions that unified the races in America and taught American values (Beatty, 2000). At the same time, American universities began to train their own kindergarten teachers and conducted research young children in laboratories in order to provide better educational environments and curricula for US children and their families (Beatty, 2000; Osborn, 1991; Seefeldt & Wasik, 2002).

In the middle and late twentieth century, the US government began to establish preschool programs for disadvantaged children. During the Depression years (1930s) through World War II, the federal government provided supports for young children as well as employment for families. Throughout the 1950s, the kindergarten movement in the US was developing; but, basically went unnoticed (Dombkowski, 2001). The Head Start program was a major federal early childhood education project in 1965 and was created to reduce inequities between people with different economic classes and races (Osborn, 1991; Seefeldt & Wasik, 2002). The Head Start program expanded the roles of parents and communities in kindergarten programs. Also, many states started to make kindergarten attendance mandatory (Seefeldt & Wasik, 2002). However, the academic skills-oriented curriculum (Osborn, 1991) caused debates on what and how children should learn in kindergartens. In order to balance the developmental and academic

needs of children, a national organization, National Association for the Education of Young Children (NAEYC), developed a position statement on education for four- and five- year-olds in 1986. The position statement, "Developmentally Appropriate Practice (DAP)," (Bredekamp & Copple, 1997) was an important guideline for early childhood education programs in the US (Dombkowski, 2001).

In the beginning of the twentieth-first century, kindergartens were available to almost all children (Osborn, 1991). In 2003, total enrollment in kindergarten (public and private) among children ages 4 to 6 was 3.7 million (National Center for Educational Statistics, NCES, 2004). Age 5 was the most common age to be enrolled in kindergarten (NCES, 2004). Seventy-three percent of all five-year-olds were enrolled in kindergarten in 2001, compared with 7 percent of four-year-olds and 13 percent of six-year-olds (NCES, 2004). Full-day kindergarten is more popular than half-day kindergarten today due to the change of family structure and educational reform (Brewster & Railsback, 2002). In 2001, about 60% of the kindergarteners enrolled in full-day programs, while, about 40% of kindergarteners enrolled in half-day kindergarten programs. Also, 80% of children ages 4 to 6 enrolled in public kindergartens, compared with 20% of children enrolled in private kindergartens (NCES, 2004). Approximately 98% of the young children attending in the US kindergarten prior to first grade for at least a half-day, although kindergarten education is optional in most states, (NCES, 2001).

Furthermore, each state establishes its own policies and standards for kindergarten programs. For instance, in Texas, the Texas Essential Knowledge and Skills (TEKS) – Kindergarten are the guidelines for public school kindergartens. Private kindergartens either follow state standards, guidelines of NAEYC, or establish their own standards.

The passage of the No Child Left Behind (NCLB) Act in 2002 influenced the importance of education to prepare children to learn and develop. The establishment of high-stakes testing (Bach, 2004) has shifted kindergarten curriculum from play-based to teaching discrete skills. The implementation of NCLB stimulated early childhood and child development experts, parents of children, administrators, teachers, and policy makers to rethink and advocate what a developmentally appropriate program for the US kindergarten children might look like (Stipek, 2006).

Kindergartens in Taiwan, Republic of China (ROC.)

In Taiwan, kindergarten is called “YouZhi Yuan”. “YouZhi” means young and ignorant in Chinese and “Yuan” means garden. This term was adopted from “Yochien,” the Japanese name for kindergartens (Stevenson, Lee, & Graham, 1993). It not only expressed the Chinese understanding about childhood but also translated Froebel’s model and ideas of kindergarten (Bai, 2000). The first kindergarten, GuangDiMiao Youzhi Yuan , was established in 1897 in the city of Tainan, during the Japanese colonial period. It adopted Japan’s kindergarten program and was for children from wealthy Taiwanese families. However, the kindergarten was closed three years later due to parents’ lack of understanding about the importance of early childhood education. In 1900, Japanese officials in Taiwan established a private kindergarten for their children in Taipei, Taiwan. This kindergarten was for Japanese children only. In 1921, the “Taiwan Public Kindergarten Rules” were published allowing Taiwanese children to enter kindergartens. However, Japanese and Taiwanese children were segregated. Generally, prior to 1945, Taiwanese kindergartens followed Japan’s colonial education policy. The Taiwanese kindergarten curriculum was based on Japanese values and language (Hong, 2000; Weng, 1998).

In 1945, after World War II, the Republic of China (ROC.) government had jurisdiction over Taiwan and applied its educational rules to Taiwan (Government Information Office, Republic of China, 2000). In 1946, the ROC government issued “*Preschool Curriculum Standards*,” “*Equipments References*,” and “*Preschool Set Up Rules*.” Although the government issued the standards and rules for kindergarten programs, limited resources were provided and these standards and rules were not modified until 1970. Between 1946 and 1970, kindergartens that were established in teacher education colleges were similar to those in China. In 1968, the predominate language in Taiwan became Mandarin (Hong, 2000; Weng, 1998), and placed more emphasis on Chinese educational practices. Private kindergartens’ curricula were continuing to imitate those in the Japanese kindergarten.

In 1981, the ROC government promulgated the “*Preschool Education Act*” (Government Information Office, Republic of China, 2004). This act discussed the kindergarten system and outlined the number of students allowed per class, personnel qualifications, minimum facility standards, and monetary fines for violations. This legislation not only increased the possibility for five-year-old Taiwanese children to participate in kindergarten, but also provided guidelines for kindergarten programs. In 1986, Taiwan’s early childhood education scholars re-examined and revised the “*Preschool Curriculum Standards*” in order to meet society’s contemporary needs. From that time, Taiwan’s kindergarten programs adopted more western viewpoints and these were fused into Taiwan’s kindergarten programs (Hong, 2000; Weng, 1998).

Kindergarten remains an optional educational experience for young children in Taiwan. It is for children ages four to six years. Some children, ages four to six go to nurseries as the nursery is another kind of institution that provides care and education for children from birth to age six. The administrations of these two types of institutions are different as the Ministry of

Education (MOE) governs kindergartens and the Ministry of the Interior provides oversight for nurseries (Ministry of Education, Republic of China, 2002).

Similar to those in the US, kindergartens in Taiwan have two primary types: public and private. Public kindergartens are partially or wholly owned by the national, municipal, county, or city governments. Private kindergartens are owned by private entrepreneurship and mostly run for profits. According to the MOE, 201,815 children attended 3,252 registered kindergartens in 2006. Among these kindergartens, 1,822 were private and 1,507 were public kindergartens. The majority of children in the kindergartens were five years old. Sixty-four percent of those children went to private kindergartens (Department of Statistics, n.d.). Taipei Municipal and Taipei County had the highest concentration of kindergartens (Department of Statistics, n.d.) and kindergartens in Taiwan are predominately full-day programs addressing the needs of dual-income families.

Developmentally Appropriate Early Childhood Programs

Developmentally Appropriate Practice (DAP) developed by the National Association for the Education of Young Children (NAEYC) has been an important guideline for early childhood programs in the US since its inception in 1987. In addition, other national associations such as National Education Goals Panel (NEGP), National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE, and Association for Childhood Education International (ACEI) also strongly support DAP ((Bredekamp & Copple, 1997; Moyer, 2001). Charlesworth (1998) argued that DAP is for everyone with diverse socioeconomic status, culture, race, gender, age, or special needs. Elkind (1989) also stated that a challenging, developmentally

appropriate learning environment would help children develop creative thinking and critical thinking abilities.

Empirical studies have demonstrated the efficacy of DAP in enhancing kindergarten children's learning and development. For instance, kindergarten children who enrolled in DAP classrooms had better grades in science and in physical and social skills (Marcon, 1993) and scored higher on rote learning and applied knowledge skills (Huffman & Speer, 2000). On the other hand, children in developmentally inappropriate practice (DIP) classrooms exhibited more stress behaviors than those in more DAP classrooms (Burts, Hart, Charlesworth, & Kirk, 1990; Burts et al., 1992).

However, some other studies have shown mixed results on the effects of DAP on children's learning and development. For instance, Stipek, Feiler, Daniels, and Milburn (1995) found that children in the more DIP classes scored better on reading whereas children in the more DAP classes scored better on math. In a later study, Stipek, Feiler, Byler, Ryan, Milburn, and Salmon (1998) found that students in the DIP classes scored higher on math and reading than those in the DAP classes. One year later in a follow-up study, students in the DIP classes continued to score higher in reading but not in math. However, the researchers also reported that children in the DAP classes performed better over time on problem solving, language, and conceptual grouping. Moreover, kindergarten children in the DIP classes demonstrated a higher expectation of completing a difficult task, a greater tendency to choose a challenging task, and greater persistence while working toward a goal (Stipek et al., 1998). Nevertheless, children in the DIP classes showed more negative behaviors than those in the DAP classes such as more negative affect in the classroom, more dependency on adults, less compliances with the teacher directions, and more reprimands from teachers (Stipek et al., 1998). Interestingly, no differences

in adaptive skills between children in DAP classrooms and those in DIP classrooms were found (Marcon, 1993).

Teachers are an important element of high-quality, developmentally appropriate early childhood programs. According to NAEYC and NAECS (NAEYC, 2003), teachers are the key to the implementation of high-quality curriculum and assessment in early childhood programs. They are decision-makers in the classrooms and their role is critical in supporting children's development and learning (Bredekamp & Copple, 1997). Early childhood teachers should be knowledgeable about child development and learning, the uniqueness of the individual child, and the social and cultural context when making decisions about their practices (Bredekamp & Copple, 1997). The Association of Childhood Education International (1986) also advocates for developmentally appropriate kindergartens staffed with early childhood teachers who are knowledgeable in child development, listen thoughtfully to children, regularly assess children's interests, needs, and skill levels, design positive learning environment, help children establish their self-esteem, utilize a variety of instructional approaches, and provide varied experiences for kindergarten children.

Because the teacher is critical in the implementation of the developmentally appropriate approach, the teacher's attitudes and beliefs about classroom practices are important. Research showed that teachers' developmentally appropriate beliefs and practices not only influence program quality but children's learning outcome. McCarty, Abbott-Shim, and Lambert (2001) found that teachers in low quality classrooms tended to have more inappropriate beliefs and practices than did those teachers in high quality classrooms. Jones and Gullo (1999) found that both teachers' developmentally appropriate beliefs and practices were associated with children's positive social skills ratings, but not academic achievement. Research findings indicate teachers'

beliefs and how they are related to their practice are important issues in the delivery of early childhood education (Rusher, McGrevin, and Lambiotte, 1992). Through understanding kindergarten teachers' beliefs and practices, teacher educators and policy makers could provide and develop educational opportunities and policies to enhance teacher and program quality of kindergartens.

Statement of the Problem

In the last two decades, developmentally appropriate practice (DAP) has been recognized as the foundation of best practices for early childhood education in the US (Bredkamp & Copple, 1997). Research supports the benefits of DAP for children's development and overall academic performance (Burts et al., 1990; Burts et al., 1992; Huffman & Speer, 2000; Marcon, 1993; Stipek et al., 1998). Teachers' commitment to DAP positively influences children's performance in the classrooms (Jones & Gullo, 1999; McCarty et al., 2001). However, in the US, the emphasis on standards and accountability of the No Child Left Behind Act (US Department of Education, 2003) signed by President George Bush in 2001 put pressure on kindergarten teachers to teach basic academic skills in kindergartens (Stipek, 2006). Therefore, many kindergarten teachers are spending more time on highly structured and teacher-directed teaching in order to help all children reach achievement standards (Stipek, 2006). Some professionals view this as developmentally inappropriate practice (Bredkamp & Copple, 1997).

Since kindergarten is an important transition for children from preschool to the primary grades (NAEYC, 1996), it is critical to provide high-quality programs for children that are developmentally appropriate, informal, and intellectually engaging (Miller, 2003) and teach children academic skills which implement a play-based curriculum that takes into account the

wide range of individual skill levels (Porch, 2002). Understanding current kindergarten teachers' beliefs and practices regarding DAP in kindergartens could be the first step to enhance the quality of programs.

Studies about US teachers' beliefs and practices of DAP have been conducted in many states such as Missouri (Vartuli, 1999), Nebraska (Smith, 1997), Indiana (McMullen, 1999), Montana (Hamilton, 1994), Massachusetts (Fei, 1995), Minnesota (Irvine, 1993), Iowa (Mayers, 1991), Utah (Sedgwick, 2003), South Carolina (Lu, 1993), Idaho (Harman, 2001), and Louisiana (Kim, 2005). However, research on Texas kindergarten teachers' beliefs and practices of DAP is missing. In order to help Texas' teacher educators and policymakers enhance the quality of the kindergarten programs, understanding Texas kindergarten teachers' beliefs and practices is needed.

Meanwhile, since the concept of DAP is spreading around the world (McMullen, Elicker, Wang, Erdiller, Lee, & Lin et al., 2005), studies about teachers' beliefs and practices regarding DAP are found in Asian and European countries, such as Taiwan (Yang, 1997; Lin, 2004; Hsieh, 2004), South Korea (Kim, Kim, & Maslak, 2005; Kwon, 2004; Suh, 1994), China (Wang, 2000), India (Hegde, 2005), Greece (Doliopoulou, 1996), and Hungary (Szente, Hoot, & Ernest, 2002). Among the several studies examining Taiwan early childhood educators' beliefs about DAP, Yang investigated Taiwan kindergarten teachers' beliefs. Lin used self-reported beliefs and classroom observation to explore early childhood teachers' beliefs about curriculum regarding DAP. Hsieh (2004) used case studies to study Taiwan early childhood teachers' DAP practices. A research study using the self-reported method to examine Taiwan private and public kindergarten teachers' beliefs and practices regarding DAP has not been completed; hence, there is a need for this study.

In the last two decades, cross-cultural studies in early childhood education have demonstrated diverse values and knowledge about childrearing, child development, and child learning between Western and Eastern nations (Roopnarine & Metindogan, 2006). These studies help people from both the East and the West learn to respect different perspectives from other cultures, and also improve their educational systems. Rapid changes in this period of globalization necessitate new visions for early childcare and education practices in order to provide culturally and linguistically appropriate early childhood education programs for families and children in societies around the world (Roopnarine & Metindogan, 2006).

Cross-cultural studies that compare kindergarten teachers' beliefs and practices regarding developmentally appropriate practice (DAP) in early childhood programs between Taiwan and the US were rare. Yang (1997) compared US and Taiwan kindergarten teachers' beliefs about DAP. McMullen and her associates (2005) compared self-reported beliefs and practices about DAP among early childhood education and child care professionals from the US, China, Taiwan, Korea, and Turkey. Both of these studies used instruments based on the 1987 DAP guidelines. Yang's (1997) research used the Teacher Questionnaire developed by Charlesworth, Hernandez, Kirk, Hart, and Burts in 1993. McMullen, et al. (2005) used the Teacher Belief Scale (TBS) and the Instructional Activities Scale (IAS) developed by Charlesworth, Hart, Burts, and Hernandez in 1991.

DAP guidelines were updated by the NAEYC in 1997 (Bredekamp & Copple, 1997). The new guidelines not only address the importance of age appropriate and individual appropriate practices, but also emphasize the significance of social and cultural appropriate practices in early childhood programs (Bredekamp & Copple, 1997). In order to understand teachers' beliefs and practices based on the DAP 1997 guidelines, Burts and her associates developed the *Teacher*

Beliefs and Practices Survey: 3-5 Year-Olds (Kim, 2005). Kim (2005) examined the psychometric properties of this measurement in Southeast Louisiana. The results show sound reliability as well as content, criterion, and construct validity for this instrument (Kim, 2005). Kim (2005) suggested that future researchers could use this instrument to survey teachers in other cultures “to explore the psychometric properties of the survey and also explore cross-cultural tendency of the relationship between teachers’ beliefs and self-reported practice in different cultures” (p.161).

Also, studies indicated that kindergarten teachers in different types of schools (public and private) tend to vary (Rathbun, Walston, & Hausken, 2000) and few studies have examined the similarities and differences of beliefs and practices of public and private kindergarten teachers between the US and Taiwan. The lack of empirical data about Texas and Taiwan kindergarten teachers’ beliefs and practices based on the revised DAP further demonstrated a need for this study. The results of this study may help US and Taiwan early childhood teacher educators understand the current status of public and private kindergarten teachers’ beliefs and practices related to DAP.

Purpose of the Study

The purposes of this study are: (a) to ascertain beliefs and practice of Texas, US and Taiwan public and private kindergarten teachers using *Teacher Beliefs and Practices Survey* based on NAEYC 1997 guidelines; (b) to examine whether similarities or differences exist in the self-reported beliefs and self-reported practice of US and Taiwan public and private kindergarten teachers; (c) to identify the most salient or insalient personal and classroom characteristics predicting kindergarten teachers’ developmentally appropriate beliefs and practices; and (d) to

explore how teachers' developmentally appropriate beliefs, in conjoint to their demographic and/or classroom factors, predicts their developmentally appropriate practices. The results of this study will provide data on teachers' perspectives regarding DAP for different types of teachers. This study's results could also serve as guideline for Texas and Taiwan early childhood educators for developing pre-service and continuing education curricula and training.

Research Questions and Hypotheses

The following research questions will guide this study. Also several hypotheses on the group differences are also made based on the literature review.

1. To what extent do the kindergarten teachers in the US and Taiwan agree on beliefs about developmentally appropriate practices (DAP)?
2. To what extent do the kindergarten teachers in the US and Taiwan agree on the implementation of developmentally appropriate practices (DAP)?
3. What are the differences, if any, between the public and private kindergarten teachers in the US and Taiwan on their beliefs about developmentally appropriate practices?

Hypothesis 1: US public kindergarten teachers will have the highest on DAP beliefs scales about developmentally appropriate beliefs among Taiwan private, Taiwan public, US private, and US public groups.

Hypothesis 2: US private kindergarten teachers will have higher scores on DAP beliefs scales about developmentally appropriate beliefs than Taiwan private kindergarten teachers.

Hypothesis 3: Taiwan public kindergarten teachers will have higher scores on DAP beliefs scales developmentally appropriate beliefs than Taiwan private kindergarten teachers.

Hypothesis 4: Public kindergarten teachers will score higher on a developmentally appropriate beliefs scale than private kindergarten teachers.

Hypothesis 5: US kindergarten teachers will have higher scores on developmentally appropriate beliefs scale than Taiwan kindergarten teachers.

4. What are the differences, if any, between the public and private kindergarten teachers in the US and Taiwan on instructional activities regarding to developmentally appropriate practices?

Hypothesis 6: US public kindergarten teachers will have the highest scores on instructional activities regarding developmentally appropriate practices among Taiwan private, Taiwan public, US private, and US public groups.

Hypothesis 7: US private kindergarten teachers will have higher scores on instructional activities regarding developmentally appropriate practices than Taiwan private kindergarten teachers.

Hypothesis 8: Taiwan public kindergarten teachers will have higher scores on instructional activities regarding developmentally appropriate practices than Taiwan private kindergarten teachers.

Hypothesis 9: Public kindergarten teachers will score higher on developmentally appropriate practices than private kindergarten teachers.

Hypothesis 10: US kindergarten teachers will have higher scores on developmentally appropriate practices than Taiwan kindergarten teachers.

5. What are the salient teacher and classroom characteristics predicting teachers' developmentally appropriate beliefs?
6. What are the salient teacher and classroom characteristics predicting teachers' developmentally appropriate practices?
7. How are developmentally appropriate practices predicted by the developmentally appropriate beliefs along with the salient teacher and classroom characteristics?

CHAPTER II

REVIEW OF LITERATURE

Developmentally Appropriate Practice

Developmentally appropriate practice (DAP), first published by the National Association for Education of Young Children (NAEYC) in 1987, is a set of guidelines for practices to work with children from birth to age eight (Bredekamp, 1987). It is based on the knowledge of child development, theories, research, and opinions of US experts in early childhood education. The two purposes for DAP are: (a) enhancing the quality of early educational experiences for young children in early childhood programs by using developmentally appropriate activities, materials, and expectations (Bredekamp, 1987); and (b) balancing academic instruction in early childhood programs with other social, emotional, and physical development aspects (Bredekamp & Copple, 1997). Human and learning development along with individual characteristics and experiences are two core dimensions of the first edition of DAP (Bredekmap, 1987).

Criticisms and misunderstanding came after the first publication of DAP guidelines. Whereas some professionals, such as Charlesworth (1998), advocated DAP being applicable to all children, others argued it failed to support culturally appropriate practice (Bredekamp & Rosegrant, 1995; Cannella & Viruru, 2004; Hyun, 1998). Still others pointed out that there are some common misunderstandings about DAP, such as teachers taught minimal academic skills in classrooms and DAP was only for white, middle-class children (Kostelnik, 1993). In order to respond to criticisms and misunderstandings about DAP, NAEYC published the revised edition of DAP in 1997 (Bredekamp & Copple, 1997). Social and cultural context in the lives of children was added as the third core dimension of these guidelines. The teacher's role was clarified. The

guidelines also increased attention to appropriate curriculum content and assessment based on current understanding of theories and research regarding how children learn.

Human Development and Learning Theories Related to Developmentally Appropriate Practice Principles

Human development and learning theories, individual characteristics and experiences, and the social and cultural contexts of children formulated developmentally appropriate practice (DAP) (Jambunathan, Burts, & Pierce, 1999). The theories of Piaget, Gardner, Bowlby, Erikson, Bronfenbrenner, and Vygotsky laid the foundation of the twelve principles of DAP. The following is a brief description about the relationship between the twelve principles of DAP and the theories of human development and learning.

Piaget believed that cognition was a constructive process (Bjorklund, 2005). Children act on their world and interpret the objects and events that surround them (Thomas, 2000). In order to adjust their behaviors or thoughts to environmental demands, “children modify or distort environmental input and incorporate it into their current actions (Bjorklund, 2005, p. 81).” Piaget called this notion, assimilation. Another adaptation is accommodation. Children change their existing behaviors or thoughts to readjust for environmental features that cannot be ignored (Thomas, 2000). On the other hand, Vygotsky emphasized the importance of social contributions to children’s cognitive growth. He believed that social and cultural context provide meaning and purpose for children’s cognitive development (Bjorklund, 2005). Even though children have the same developmental process, culture leads to different outcomes. These concepts provide the foundation of one principle in the DAP guidelines:

Children are active learners, drawing on direct physical and social experience as well as culturally transmitted knowledge to construct their own understandings of the world around them (italics added). (Bredekamp & Copple, 1997, p. 13)

Another principle of DAP, “development advances when children have opportunities to practice newly acquired skills as well as when they experience a challenge just beyond the level of their present mastery” (Bredekamp & Copple, 1997, p. 14), reflects Vygotsky’s concept of the zone of proximal development (ZPD). Vygotsky defined the ZPD as the difference between a child’s “actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). Vygotsky believed that through the process of maturation, children’s intellectual functions will mature and have diverse developmental outcomes. Further, when adults using the ZPD knowledge to modify children’s activities, children will bring their best learning ability into full play.

Children’s growth and learning is a continuous process. However, there are breaks in the process. Piaget divided these breaks into four stages of cognitive development for children: sensorimotor, preoperations, concrete operations, and formal operations (Bjorklund, 2005; Forman & Kushner, 1983; Thomas, 2000). During the stage of sensorimotor (birth to age two), infants use their senses, such as visual, auditory, tactile, taste, olfactory, and motor. Children start to use mental images and words to represent actions and events in the preoperational stage (about age 2 to 7). In the concrete-operational stage (about age 7 to 11), children can deal with changes that relate to concrete objects. Children can integrate two or more mental operations into the formal operation period (beyond the 11th year) (Bjorklund, 2005). Two of the principles of DAP reflect these stages of development: “development occurs in a relatively orderly sequence, with later abilities, skills, and knowledge building on those already acquired” and “development proceeds in predictable directions toward greater complexity, organization, and internalization” (Bredekamp & Copple, 1997, pp. 10 and 11).

DAP emphasizes the significance of play in children's development and learning: "play is an important vehicle for children's social, emotional, and cognitive development, as well as a reflection of their development" (Bredekamp & Copple, 1997, p. 10). According to Vygotsky (1978), play and practical activity support development by providing a stage between the purely situational constraints of early childhood and adult thought which is fewer contexts bound. Vygotsky stressed that social and cultural structures affect the context of play. Make-believe play provides children greater opportunities to explore role responsibility, abstract thinking, and others' perspectives as they grow. Moreover, play allows children to interact with others, resolve conflicts, and deal with emotions (Vandenberg, 1986).

Piaget believed that children constructed their knowledge through manipulating objects, imitation, or interaction with others (Singer & Revenson, 1997). He defined various stages of play as practice, symbolic, and construction. Children learn and grow through active participant in all stages of play (Chaille & Silvern, 1996). Piaget (1962) emphasized symbolic play as ideal for children because it often required mental representation, as well as cooperation and communication among children.

According to Erikson (1977), play progresses through stages that mirror children's psychosocial development. Through play, children create model situations that help them master the demands of reality. It is a mean by which the child learns to cope with the environment. Erikson addressed the ways that psychological conflicts of children are reflected in the spatial configuration of their play with toys. Play creates "a model situation in which aspects of the past are relived, the present represented and renewed, and the future anticipated" (Erikson, 1977, p. 44). Children also learn social rules through play.

Bronfenbrenner's ecological model (1979) is one theory which one of the DAP principles draws upon. "Development and learning occur in and are influenced by multiple social and cultural contexts" (Bredekamp & Copple, 1997, p. 12). The ecological model emphasizes the influences of sociocultural context on children's development and learning. Family, educational setting, community, and society all have an influence on the development of children (Bronfenbrenner, 1979). Bronfenbrenner focused on four systems: micro-, meso-, exo-, and macrosystem. These systems may directly or indirectly influence children and their development.

Microsystem is defined as "a pattern of activities, roles, and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics" (Bronfenbrenner, 1979, p. 22). The influences from people, such as parents, siblings, teachers, and peers affect the child directly. The mesosystem refers to the linkage between the different settings (such as school, home, and peer group locations) in the microsystem. The exosystem represents that a child's development could be influenced by a setting that does not contain him/her directly, such as his/her parents' workplaces. The macrosystem influences all other systems, which includes cultural values, political philosophies, economic patterns, and social conditions

The relationship between children's early experiences, social and emotional development, and learning is also addressed in the following two principles:

- Early experiences have both cumulative and delayed effects on individual children's development. Optimal periods exist for certain types of development and learning.
- Children develop and learn best in the context of a community where they are safe and valued, their physical needs are met, and they feel psychologically secure. (Bredekamp & Copple, 1997, pp. 10 and 15)

Expanding Freud's psychoanalytic theory, Erikson's psychosocial theory is socially and culturally oriented (Miller, 2002). Psychosocial theory addresses the importance of the social environment on healthy personality development. Erikson also pointed out different cultures consider different behaviors desirable. In order to fit into the culture or society, the interactions of the individual with his or her social environment will shape different personalities. Erikson developed eight psychosocial stages that a person needed to go through in order to develop a healthy personality: trust/mistrust, autonomy/shame and doubt, initiative/guilt, industry/inferiority, identity/role confusion, intimacy/isolation, generativity/stagnation, and integrity/despair (Thomas, 2000). Children will develop more positive identities when they have more positive interactions with their environment. A healthy personality is able to master the environment and perceive the world and self correctly (Thomas, 2000).

Bowlby's attachment theory focuses on the significance of the relationship between an attached person and attachment figures (Thomas, 2000). The attachment figure usually means mother or the first caregiver. When the attachment figure provides strong and pervasive feelings of security, the attached person will value and continue the relationship and build strong emotional bonds with the attachment figure (Bowlby, 1988). According to Bowlby, infancy is a critical period for the development of attachment behavior. It is the basis for all future close relationships during childhood, adolescence, and adult life. A securely attached child is less disruptive, less aggressive, and more mature (Bowlby, 1988).

The increasing recognition that children have and should develop multiple ways of "seeing" and "knowing" has provided stimulation for schools to expand the curriculum to include "multiple intelligences" (Gardner & Hatch, 1989). Gardner formulated a list of the intelligences: linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal,

sexual, emotional, and spiritual intelligences. Gardner (1999) believes that these intelligences are used at the same time and tend to complement each other as people develop skills or solve problems. He also pointed out that people have different intelligent strengths that carry out different developmental and learning outcomes. Two concepts of the DAP reflect this theory:

- Development proceeds at varying rates from child to child as well as unevenly within different areas of each child's functioning.
- Children demonstrate different modes of knowing and learning and different ways of representing what they know. (Bredekamp & Copple, 1997, pp. 10 and 15)

The views of dynamic systems theory about child development also exist in the concepts of the DAP:

- Domains of children's development- physical, social, emotional, and cognitive- are closely related. Development in one domain influences and is influenced by development in other domains.
- Development and learning result from interaction of biological maturation and the environment, which includes both the physical and social worlds that children live in. (Bredekamp & Copple, 1997, pp. 10 and 13)

Children's development could be defined as a system. Physical, social, emotional, and cognitive domains are the components of the system. The components within the system are in motion, shifting, and adjusting among themselves. The changes in one component may affect other components and their interrelationships (Thomas, 2000). The interaction between the system and the environment changes with the passing of time, and also induces changes in each component.

Measurements of Developmentally Appropriate Practice (DAP)

When developmentally appropriate practice (DAP) guidelines were published, some early childhood education researchers and educators raised concerns about how these practices were being implemented in early childhood education programs. Researchers (Bryant, Clifford, & Peisner, 1991; Buchanan, Burts, Bidner, White, Charlesworth, 1998; Buts, Buchanan,

Charlesworth, & Jambunathan, 2000; Charlesworth, Hart, Burts, & Hernandez, 1991; Charlesworth, Hart, Burts, Thomasson, Mosley, & Fleege, 1993; Ernest, 2001; Fore, 1992; Hoot, Bartkowiak, & Goupil, 1989; Hyson, Hirsh-Pasek, & Rescorla, 1990; Lu, 1993; Smith, 1993) developed instruments to measure teachers' beliefs and practices regarding DAP based on the 1987 and 1997 NAEYC guidelines. The instruments could be divided into two types: teacher questionnaires and observation scales. The following provides a brief description of the studies and instruments based on the 1987 and 1997 NAEYC guidelines.

Based on 1987 NAEYC guidelines (Bredenkamp, 1987), Hoot et al. (1989) developed Educators' Beliefs Regarding Preschool Programming (EBRPP) to assess knowledge of appropriate practice in curriculum goals, teaching strategies, guidance of socioemotional development, language/literacy development, cognitive, physical and aesthetic development, program entry, and staffing areas. A panel of three judges, who were experts in early childhood education and were familiar with NAEYC guidelines, certified each of the 18 items to discriminate between appropriate and inappropriate practices. Scores of 1 and 0 were used to identify appropriate and inappropriate responses respectively. A group of graduate students in elementary/early childhood education joined the pilot study of the final draft of this instrument. The reliability and validity of this instrument were not reported. One-way analyses of variances (ANOVAs) were used to determine possible belief differences among elementary and special education administrators, pre-kindergarten, kindergarten, primary, intermediate, and special education teachers. The results indicated that elementary and special education administrators and pre-kindergarten teachers had better knowledge about DAP than kindergarten, primary grade, intermediate, and elementary teachers.

Hyson, Hirsh-Pasek, and Rescorla (1990) developed an observational instrument, Classroom Practices Inventory (CPI), to measure teachers' actual classroom practices. This instrument contains 20 items identifying the appropriate and inappropriate practices for 4- and 5-year-olds in 1987 NAEYC guidelines and 6 items that adopted from NAEYC's accreditation criteria for early childhood programs. It measures curriculum characteristics and the emotional climate of the early childhood program. The instrument is a five-point Likert-type scale. The range of the scale is from *Not at all like this classroom* to *Very much like this classroom*. High scores show more developmentally appropriate practices. Trained staff observers and student observers conducted 207 separate observations of 58 4-year-old and prekindergarten programs. The high Cronbach's alphas for each subscales and the total measure, appropriate program (.92), inappropriate program (.93), total program (.96), emotional climate (.88), and total appropriateness (.96) revealed high reliabilities of CPI. The researchers also examined the relationships between CPI scores and program, staff, family, and child characteristics. The results indicated that parents' and teachers' educational attitudes had significant correlation with CPI scores. Overall, CPI appeared to be a reliable and valid instrument for examining DAP in early childhood programs.

Another observational instrument, Teaching Strategies Checklist, was developed by Oakes and Caruso (1990) to record teacher and child behaviors on five-minute interval observations in classrooms. Six categories of teaching strategies (child-initiated versus teacher-directed, active versus passive child behaviors, small group versus total group activity, use of manipulative versus abstract materials, encouraging divergent versus convergent thinking, and open-ended versus teacher-directed interactions) and one subcategory (controlled responses versus noncontrolled responses) constructed the content of observation checklist. It was also

based on the 1987 NAEYC DAP guidelines for activities for four- and five-year-olds. In the study, the researchers also used Problems in Schools Questionnaire (Deci, Schwartz, Sheinman, & Ryan, 1981) and developed Professional Background Questionnaire to examine the relationship between kindergarten teachers' use of DAP and their attitudes toward authority in the classroom. Correlational analyses were used to examine the relationships. The findings revealed that teachers' attitudes and values regarding adult/child relationships influenced their authority styles and decision-making regarding curricula and classroom management. The reliability and validity of the observational instrument were not determined.

In order to document the extent of DAP in kindergartens in North Carolina and test predictors of the appropriateness of kindergarten classes, Bryant, Clifford, and Peisner (1991) developed an observational instrument, Checklist of Kindergarten Activities (CKA), and a teacher questionnaire. They also used the Early Childhood Environment Rating Scale (ECERS) (Harms & Clifford, 1980) and a survey developed by the Oregon Department of Education to examine the quality of classrooms as well as principals' and teachers' knowledge and attitudes about developmentally appropriate kindergarten practices. The CKA was developed based on the NAEYC position statement regarding DAP. Two subscales (activities and materials) were part of the instrument. The activities subscale contains 32 yes/no items. The items were divided into seven areas of teaching activities: language, cognitive, social, self-regulation, self-esteem, disposition to learn, and physical. The items in the material area included setting and group time, student number, number enrolled, and student race. Twenty-one yes/no items represented these areas. The new teacher 5-point Likert-type questionnaire included 28 statements about appropriate and inappropriate kindergarten practices. The items of the teacher questionnaires not only covered teacher and principal beliefs about appropriate and inappropriate kindergarten

practices. Additionally, retention, transition classes, and teacher and principal educational and teaching history were part of the instrument. Data were collected from 103 randomly selected kindergarten classrooms in North Carolina. Inter-rater reliability was 0.97 on the ECERS and 0.95 on the CKA. However, the reliability of the teacher questionnaires was not revealed. The results indicated that teacher and principal DAP belief scores significantly related to quality of classes. Overall, the results showed a low rate (20%) of the classes met or exceeded the criterion of DAP.

Fore (1992) also applied DAP guidelines (Bredenkamp, 1987) to design a self-assessment instrument about DAP for kindergarten and primary teachers. Two questions were addressed: (a) Does DAP have value as a self-assessment instrument for early childhood practitioners? and (b) To what extent do early childhood practitioners agree with NAEYC's developmentally appropriate and inappropriate practices? The instrument contains 23- and 37-item paired "Appropriate – Inappropriate" criteria. Ten respondents provided suggestions for modifications of the instrument, the directions, and the process before the data collection. Data were collected from K-3 teachers and the students in the researcher's early childhood education graduate class. Each respondent rated each item indicating where their practices fell and where they would like their practices to fall on a 7-point scale, from appropriate to inappropriate. The results indicated that kindergarten teachers tended to use more teacher-centered, whole group, passive learner instruction while primary teachers prefer grades, regular testing, retention, and report cards.

Charlesworth, Hart, Burts, and Hernandez (1991) developed the Teacher Questionnaire, to obtain kindergarten teachers' beliefs and practices about developmentally appropriate practices based on 1986 NAEYC guidelines (NAEYC, 1986). The first part of the questionnaire is demographic information of respondents, such as teachers' education and years of teaching

experience. Factors, such as parents, parish or school system policy, principal, teacher (themselves), state regulations, and other teachers, were designed for teachers to rank their influences on teachers' planning and implementation of instruction. The other two parts of the questionnaire are the Teacher Beliefs Scale (TBS) and the Instructional Activities Scale (IAS). The TBS contains 30 items for examining teachers' beliefs, and the IAS contains 31 items for inventorying actual instructional practice. The items could be divided into the following categories: curriculum goals, teaching strategies, guidance of socioemotional development, language development and literacy, cognitive development, physical development, aesthetic development, motivation, and assessment of children. Both of the scales are created using a 5-point Likert scale. The five points were defined as *Not important at all* (1) to *Extremely important* (5) for the TBS and as *Never or almost never* (1) to *Very often* (5) for the IAS.

Besides the Teacher Questionnaire, the researchers also developed the observational instrument, the Checklist for Rating Developmentally Appropriate Practice in Kindergarten Classrooms, to determine the accuracy of individual teacher's questionnaire responses. The observational instrument was based on the NAEYC guidelines for children ages 5 to 8 years (Bredekamp, 1987). The items represented the areas of curriculum goals, teaching strategies, integrated curriculum, guidance of social-emotional development, motivation, parent-teacher relations, evaluation, and transitions. It was a 5-point Likert scale as well. A score of 1 represented the most inappropriate practice and score 5 represented the most appropriate practice. One hundred thirteen public and private kindergarten teachers in 4 southern states completed the questionnaires. Four independent observers used the observational checklist to rate four kindergarten teachers' classrooms practices in order to determine the consistency between the teachers' perceived and actual practices. A factor analysis, correlational analysis,

and a series of 2 x 2 factorial analyses of variance were used to analyze the data. The reliability of four factors (developmentally appropriate, developmentally inappropriate, appropriate positive teacher/child relationship, and inappropriate literacy activities) of the TBS was measured by Cronbach's alpha respectively .85, .80, .68, and .74. The reliability of six factors (developmentally appropriate materials, choice making and pacing, developmentally inappropriate literacy activities, appropriate creative/exploratory learning, inappropriate rote learning, appropriate art activities, and inappropriate direct learning/control) of the IAS were also measured. The internal consistencies of the items were from .60 to .75.

The results of comparison of questionnaire results and classroom observations indicated that classroom observation ratings were consistent with four teachers' beliefs and three teachers' activities questionnaire responses. The correlation between developmentally inappropriate belief and practice was stronger than between developmentally appropriate beliefs and practice ($r = .71$, $p = .000$; $r = .63$, $p = .000$). Teachers (themselves) and school system policy were two major factors that influenced teachers' planning/implementing instruction. The teachers who tended to believe in DAP felt they were in control of planning and implementing their instructions. However, the results of the questionnaire showed that the use of inappropriate practices were prevalent in the sample. Over all, the researchers concluded that the Teacher Questionnaire showed promise of being a useful instrument for studying teachers' perceptions of their beliefs and practices regarding DAP.

Subsequently, Charlesworth, Hart, Burts, Thomasson, Mosley, and Fleege (1993) revised the *Teacher Questionnaire* and administered it to 204 kindergarten teachers. The revised questionnaire included 36 items on the Teacher Beliefs Scale and 34 items on the Instructional Activities Scale. Twenty kindergarten classrooms were observed by using the Checklist for

Rating Developmentally Appropriate Practice in Kindergarten Classrooms. Cronbach's alpha assessed the internal consistency of items of TBS (.58 to .84) and IAS (.56 to .79). These results were consistent with the previous study which demonstrated relationships between inappropriate beliefs and inappropriate practices were stronger than appropriate ones. Also, teachers showed appropriate beliefs more than appropriate practices. Overall, this study further supported that the questionnaire and classroom observation checklist were useful for examining kindergarten teachers' beliefs and practices.

Burts, Sugawara, and Wright (1993) developed an observational scale, Scale of Primary Classroom Practices (SPCP), to examine DAP and DIP in primary classrooms. This scale was based on 1987 NAEYC guidelines for children five to eight years of ages (Bredekemp, 1987). The SPCP consisted of 22 statements for teacher behaviors and 14 for child behaviors. Teacher behaviors included curriculum design and implementation, child assessment, motivational methods, and teacher-child interactions. Children's engagement in classroom activities, such as peer interaction and consultation, interaction with materials, and utilization of classroom space and furnishings, represented child behaviors. Twenty early childhood education experts reviewed the content of the thirty-six statements. A 4-point Likert-type scale was used to score each item in the SPCP. Twelve trained observers collected data in two 1st grade classrooms. One classroom presented a high degree of DAP and the other was low. The data were used to examine the reliability and validity of the SPCP. High alpha coefficients (.95 to .99) and significant discrimination between two classrooms in predicted directions demonstrated that the SPCP had strong potential as a reliable and valid instrument to assess DAP in primary classrooms.

Lu (1993) developed Beliefs and Attitudes of Teachers of Early Childhood (BATEC) based on 1987 NAEYC guidelines to examine the beliefs and attitudes early childhood teachers

of four-year-old children and kindergarten teachers. The questionnaire was a four-point Likert-type scale and consisted of demographic information, beliefs and attitudes scale, and the curriculum scale. The beliefs and attitude scale included 31 items that were randomly selected from the items related to the areas of curriculum goals, teaching strategies, social-emotional development, language and literacy, cognitive development, physical development, aesthetic development, motivation, and assessment of children. The curriculum scale contained 12 items (principal, teacher (self), other teachers, state regulations, superintendent, preservice training, professional education associations, results of standardized testing, school system policy, parents' opinions, professional journals, and workshops of conferences) regarding the influences on teachers' curriculum planning and implementing. Unfortunately, the validity and reliability of the questionnaire was not tested.

The Teacher Questionnaire was modified along with Primary Teachers' Beliefs and Practices Survey to assess the predictors of DAP beliefs and practices of first, second, and third grade teachers based on 1987 guidelines by Buchanan, Burts, Bidner, White, and Charlesworth (1998). The Checklist for Rating Developmentally Appropriate Practice in Kindergarten Classrooms was also used to confirm the validity of the revised questionnaire in the pilot study. The questionnaire consisted of teacher's background information, beliefs, and self-reported practices. Teachers' beliefs included 42 items and teachers' self-reported practices included 34 items. Both of them were 5-point Likert scales. One hundred 1st grade teachers, 92 second grade teachers, and 85 third grade teachers completed the questionnaire and returned it to the researchers. Factor analysis was used to obtain Cronbach's alpha of the items related to the four factors (developmentally appropriate and inappropriate beliefs and practices). Cronbach's alpha was .84, .71, .82, and .55 for developmentally appropriate beliefs and practices. The score on

subscales for each of the four factors were used to determine teachers' agreement and frequent practices of DAP and DIP. Teacher and classroom characteristics were examined by using regression analysis to determine the predictors of teachers' beliefs and practices of DAP. The results showed that both classroom characteristics (class size, grade level, number of children with disabilities, and number of children on free or reduced lunch) and teacher characteristics (perceived relative influence and certification area) predicted teacher beliefs and practices. Further, teacher characteristics significantly predicted developmentally inappropriate practices after controlling the classroom variables.

Burts, Buchanan, Charlesworth, and Jambunathan (2000) created the Teacher Beliefs and Practices Survey: 3-5 year olds by revising the Teacher Questionnaire (Charlesworth, et al., 1991) based on 1997 NAEYC developmentally appropriate practices guidelines. The differences between Teacher Questionnaire and the Teacher Beliefs and Practices Survey included more emphasis on culturally appropriate teaching, children with special needs, role of teacher's decision making, and both/and thinking concept. Those were important changes in 1997 NAEYC DAP guidelines. The new instrument included a cover letter, teacher demographics, the Teacher Beliefs scale, and the Instructional Activities scale. The items on the Beliefs scale were changed from 37 to 43; and, 34 to 30 for the Instructional Activities scale. The Beliefs scale contains one ranking question about factors for teacher decision making and 42 items (27 developmentally appropriate and 15 inappropriate items) of beliefs about kindergarten practices. On the other hand, there are 18 developmentally appropriate and 12 inappropriate practices items in the Instructional Activities scale. Both the Beliefs and Instructional Activities scales are 5-point Likert scales.

Kim (2005) examined the reliability and validity of this instrument by operating it to public kindergarten teachers in four regions in Louisiana. The construct validity of the Teacher Beliefs and Practices Survey was examined by using the Teacher Educational Attitude Scale (TEAS). TEAS is a teacher-report instrument which examines teachers' attitudes toward early academic instruction and teacher-directed learning. Furthermore, the revised observation instrument, Rating Scale for Measuring the Degree of Developmentally Appropriate Practices in Early Childhood Classrooms for 3- to 5-Year Olds, was used to observe some classrooms in order to examine the criterion-related validity of the survey. The content validity was examined by seven early childhood education experts throughout the US

The results showed that the reliability of internal consistency of the Beliefs scale and the Instructional Activities scale were acceptable, with Cronbach's alpha of .858 and .787. The recommended level was $\alpha > .80$. High correlation was found between participants' developmentally inappropriate practices scores and classroom observation score. Moreover, the teachers' self-reported beliefs scores were significantly higher than practice and classroom observed scores. The construct validity was determined through exploratory factor analysis, the results indicated that the three-factor solution (DAP, DIP, and Context Appropriate Practices) could engender the most meaningful factors for the Teachers Beliefs Scale. On the other hand, four-factor solution (DAP Activities, DAP Principles, DIP Activities, and DIP Classroom Management) was best for the Instructional Activities scale. Kim (2005) concluded that the Teacher Beliefs and Practices Survey could be a promising measure for critically examining teachers' beliefs about and practices of DAP. She also suggested that this instrument would be a good alternative to measure developmentally inappropriate practices without conducting classroom observation when a researcher experienced time and economic issues.

Studies of Teachers' Developmentally Appropriate Beliefs and Practice in the US

As the DAP guidelines and the measurements for assessing the guidelines have developed, US early childhood education researchers and scholars (Charlesworth, Hart, Burts, & Hernandez, 1991; Fei, 1995; Hamilton, 1994; Harman, 2001; Irvine, 1993; Jones, Burts, Buchanan, & Jambunathan, 2000; Kim, 2005; Lu, 1993; Mayers, 1991; McMullen, 1999; McMullen & Alat, 2002; Oakes & Caruso, 1990) have explored the acceptance and actual practices of DAP of among US educators.

Oakes and Caruso (1990) examined the relationship between kindergarten teachers' use of developmentally appropriate practices and their attitudes toward authority in a small Midwestern city. They developed an observational instrument, Teaching Strategies Checklist, based on NAEYC developmentally appropriate guidelines (Bredenkamp, 1986) to record kindergarten teachers' use of developmentally appropriate activities. The Problems in Schools Questionnaire (Deci, Schwartz, Sheinman, & Ryan, 1981) and Professional Background Questionnaire were used to discover teachers' attitudes about authority with children and gain information about teachers' professional experience and education. Twenty-five public school kindergarten teachers and their classrooms from one school district participated this study. Data were collected from two and a half hour classroom observation and teacher-reported questionnaires. The relationship between teachers' professional background, attitudes toward authority, and use of developmentally appropriate activities were examined by using correlation analyses.

The results indicated that teachers who scored higher in the area of an authority-sharing attitude tended to use more developmentally appropriate activities in their classrooms. Further, noncontrolled response and active child behaviors had significant positive relationships with the

authority-sharing attitude. On the other hand, there were no significant negative relationships found between teachers' attitudes toward authority and DAP. Also, no significant relationships were found between teachers' attitude toward authority and the backgrounds.

Charlesworth, Hart, Burts, and Hernandez (1991) using the Teacher Questionnaire, developed based on 1987 NAEYC guidelines, obtained information about kindergarten teachers' self-reported beliefs and practices. The questionnaire consisted of the Teacher Beliefs scale (TBS) and the Instructional Activities scale (IAS). In order to compare teachers' perceived and actual practices, the Checklist for Rating Developmentally Appropriate Practice in Kindergarten Classroom was used to record teachers' classroom practices. One hundred and two kindergarten teachers from both public and private schools in four Southern states completed the questionnaires. Four kindergarten teachers participated in the two 30-minute classroom observations. Relationships between teachers' perceptions of their own beliefs and practices and teachers' appropriate or inappropriate beliefs and practices and perceptions of control or influence were explored by using correlation analyses. In order to examine the differences between beliefs and practices, groupings relative to control/influence (parents, parish or school system policy, principal, teacher self, state regulations, other teachers) and teachers were divided into 8 groups:

1. Teachers with more appropriate/inappropriate beliefs who used more appropriate/inappropriate practices
2. Teachers with more appropriate/inappropriate beliefs who used fewer appropriate/inappropriate practices
3. Teachers with fewer appropriate/inappropriate beliefs who used more appropriate/inappropriate practices
4. Teachers with fewer appropriate/inappropriate beliefs who used fewer appropriate/inappropriate practices from either public or private kindergartens.

A series of 2 x 2 factorial analyses of variance were conducted. Further, post hoc tests were used to dismantle interactions and analyze mean differences.

The results indicated that relationship between teachers' developmentally inappropriate beliefs and inappropriate practices was stronger than developmentally appropriate beliefs and appropriate practices. Developmentally appropriate activity beliefs, positive teacher-child relations beliefs, creative/exploratory learning activities, appropriate art activities, and inappropriate teacher directed learning/control practices had significant correlations with teachers' perceptions of their amount of control/influence. Further, teachers' perceptions of the amount of parent control and state control showed significant relationships with inappropriate literacy practices and developmentally appropriate activity beliefs. On the other hand, teachers who used more developmentally inappropriate practice felt that parents and principals had more influence over their teaching. Principal influence/control was the main effect for teachers with more appropriate beliefs but fewer appropriate practices and teachers with fewer appropriate beliefs and practices. Overall, teachers who felt they had greater control over their teaching had more developmentally appropriate beliefs and used more developmentally appropriate practices.

Irvine (1993) investigated the discrepancy between self-reported beliefs and practices and observed classroom practices of thirty-two kindergarten teachers who cooperated with the University of Minnesota to provide internships for kindergarten student teachers. The instruments included the Teacher Questionnaire (Charlesworth et al., 1991) and Classroom Practices Inventory (Hyson, Hirsh-Pasek, & Rescorla, 1990). Pearson Product Moment correlations and one-way ANOVAs were used in data analyses.

The results showed that the kindergarten teachers in this sample did not practice what they believed. Teachers' self-reported practices did not have significant correlation with their

observed classroom practices. Teachers who had experience teaching older children showed higher observational scores than teachers who had experience in teaching kindergarten and prekindergarten age children only. In addition, urban teachers showed a slightly higher level of DAP than suburban teachers. Interestingly, teachers with less years of teaching experience had more beliefs in DAP and lower levels of inappropriate beliefs when contrasted with teachers with the most years of teaching experience. Yet, teachers with the most experience demonstrated more developmentally appropriate activities on self-reported practice. Teachers' total years of teaching experience did not influence their developmentally appropriate practices. The majority of teachers in this study mentioned that time was the major factor that influenced their ability to implement DAP. The level of teacher ranked control/influence factors over their decision-making, from high to low, were teacher (self), school district policy, other teachers, parents, principal, and state regulations. The findings were used to enhance the cooperation between colleges and school districts in order to provide developmentally appropriate settings for student teachers.

Lu (1993) used Beliefs and Attitudes of Teachers of Early Childhood (BATEC) to examine public school teachers of four-year-old program and kindergarten teachers in South Carolina. One 4-year-old and one kindergarten teacher from 328 public schools were invited to participate in the study. The final study sample consisted of 431 teachers. The return rate was 68%. Post hoc, *t*-tests and stepwise regression analysis were used to analyze the data.

The findings showed significant difference between teachers' beliefs and attitudes about DAP and inappropriate practices. Teachers' race, major, and professional education membership held influenced the teachers' beliefs and attitudes about DAP. The beliefs and attitudes of four-year-old and kindergarten teachers, years of teaching, degrees held, and certifications held

showed no significant differences in teachers' beliefs and attitudes about DAP. Teachers viewed professional journals, teachers (themselves), and other teachers having influence on their planning and implementing of a DAP curriculum. In contrast, standardized testing, state regulations, and parental opinions had negative influences on their planning and implementing a DAP curriculum. According to these findings, the author concluded that the majority of South Carolina public school early childhood teachers showed strong agreement about DAP. Formal education in child-related areas and professional information were important components for providing quality care for young children. The teachers indicated the pressure of following administrative mandates caused them to use developmentally inappropriate curriculum content. Finally, the author mentioned that parents, school administrators, superintendents, and state department of education should also become more knowledgeable about DAP.

In order to identify the degree of developmental appropriateness of Montana kindergarten teachers' philosophical beliefs and practices, Hamilton (1994) used the Teacher Questionnaire (Charlesworth et al., 1993) to collect the descriptive data. Two hundred thirty participants were drawn from four hundred thirty certified personnel who were currently teaching kindergarten in Montana and were sent the survey. One hundred ninety-seven teachers participated in the study. The return rate was 86%. Data were analyzed by using Pearson product moment correlation, Spearman correlation coefficients, Pearson correlation, T-test, and regression analysis.

The results indicated that 52% of the variance in classroom practices was explained by teachers' philosophical beliefs. Seventy-five percent of the teachers rated they had the greatest influence over their curriculum practices. Teachers who rated themselves and parents as important influence on curriculum practices had higher scores on developmental appropriateness of beliefs. In contrast, teachers who had lower scores on developmental appropriateness of

beliefs rated state regulations and local school boards as key influences. Similarly, teachers who rated themselves and parents as having great influence on curriculum practices had higher scores on developmentally appropriate practices. Teachers who had lower scores on developmental appropriate practices rated state regulations and local school boards as having more influence. In addition, teachers' philosophical beliefs were significantly correlated with the size of the district. Teachers' philosophical beliefs, years of teaching kindergarten, and size of district were significantly correlated with teachers reported classroom practices. Teachers who had master's degrees or were the members of Montana Association for Education of Young Children (MAEYC) had more developmentally appropriate beliefs and practices. Degree level, membership in MAEYC, size of district, and parental influence were found to be statistically significant in the prediction of teachers' philosophical beliefs. Teachers' classroom practices were best predicted by teachers' beliefs, years of teaching kindergarten, size of district, and parental influence.

Fei (1995) used the Teacher Questionnaire developed by Charlesworth et. al. in 1991 to examine Massachusetts kindergarten teachers' beliefs and practices about DAP. Samples were randomly selected from 150 schools in 351 school systems in Massachusetts. Three teachers in each school were invited to participate in this study. One hundred twenty-six teachers completed and returned the questionnaires. Frequency distributions, correlations, and analysis of variance were used to analyze the data.

A positive correlation was found between the respondents' belief scores and practice scores. Significant correlation was shown between teachers with recent bachelors degrees and teacher beliefs scores, but not practice scores. The relationships between teachers with recent advanced college/graduate training and teacher belief and practices scores were strong. Veteran

teachers showed high beliefs and practices towards DAP. In addition, kindergarten teachers who attended more professional development activities had higher scores on both belief and practice scales. Kindergarten teachers with early childhood education degrees or had more teaching experiences in preschool and kindergarten scored higher on both DAP scales than teachers with other majors. There was no difference between beliefs and practices of teachers in large and small communities. Furthermore, there was no difference in DAP scores between teachers who changed their beliefs and practices in their teaching career and teachers who did not change.

Idaho kindergarten teachers' beliefs and practices regarding kindergarten curriculum match with developmentally appropriate practices including the focus areas of assessment and teaching strategies were examined by Harman (2001). Twenty-one questions were utilized to determine the extent to which Idaho kindergarten teachers agreed with DAP. Teachers' agreement and implementation were shown by marking an appropriate number on the four-point Likert scales. Subjects of this study were 551 full- or part-time public kindergarten teachers of 5- and 6-year-old children in Idaho. Three hundred forty teachers completed and returned the questionnaires. Descriptive statistics and *t*-test were presented in the study.

In this study, 97.4% of respondents were female teachers. Seventy-five percent of the responding kindergarten teachers had a bachelor's degree and 21% had a master's degree. Idaho kindergarten teachers indicated strong agreements with developmentally appropriate assessment and teaching strategies. The results further showed that teachers who had more influence from their principals, peer teachers, or textbooks indicated less developmentally appropriate beliefs. About a quarter of the responding teachers had fewer than four years of experience in teaching kindergarten. Generally, Idaho kindergarten teachers held moderate agreement towards developmentally appropriate beliefs. They had strong beliefs that student work and teacher

observation were the most appropriate ways to assess children's achievement. The teachers also believed that use of open-ended and self-expressive materials were effective teaching strategies. The idea of not retaining kindergarten children was not accepted by most teachers. The use of time-out and predetermined curricular were acceptable and desirable by the Idaho kindergarten teachers. In addition, the teachers also showed moderate agreement on DAP. Portfolios and observations were used often by the teachers to assess children's growth. They regularly used learning centers and art and music materials in their classrooms. Overall, the Idaho kindergarten teachers had more developmentally appropriate beliefs than practices.

McMullen (1999) examined the characteristics of early childhood teachers who engaged in the best practices. Participants included nine preschool teachers of three- to five-year-old children from Montessori, Head Start, and multi-categorical special needs programs and eleven from public elementary schools. The Teachers' Beliefs and Practices (Charlesworth et al., 1991) and Classroom Practices Inventory (Hyson et al., 1990) assessed preschool teachers' DAP beliefs and practices. Primary teachers' DAP beliefs and practices were examined using the Primary Teachers' Questionnaire (Smith, 1993) and Scale of Primary Classroom Practices (Burt & Sugawara, 1993). Data were gained from teacher survey and classroom observation. The author used t-test and multiple regressions to analyze the data.

Beliefs about DAP and actual classroom practices of preschool and primary teachers showed significant differences. Preschool teachers had higher scores on both beliefs and practices than primary teachers. Further, teachers' beliefs about DAP highly correlated with their classroom practices. Teachers who had high DAP beliefs had early childhood or child development education backgrounds. Moreover, primary teachers who had early childhood

education or elementary degrees with preschool teaching experiences had higher scores on DAP practices than those who had elementary degrees with no preschool teaching experience.

Supports and barriers for beginning prekindergarten and kindergarten teachers' DAP were investigated by Jones, Burts, Buchanan, and Jambunathan (2000) using surveys, observations, and interviews. Nine participants were from public prekindergarten and kindergarten in six school districts in a large southern state. The Teacher Questionnaire (Charlesworth et al., 1991) and the Checklist for Rating Developmentally Appropriate Practice in Kindergarten Classroom (see Charlesworth et al., 1991) were used. Data were analyzed by one tailed t test and content analysis.

The teachers in this study demonstrated positive self-reported beliefs and practices toward DAP. In the classrooms, they used more DAP than developmentally inappropriate practices. The majority of teachers ranked themselves as the most important influences on their teaching. Administrators, co-workers, parents, curriculum requirements, and resources were teachers' support and also barriers for their implementation of DAP. The teachers suggested that teacher education programs should provide more field experience and classroom management courses.

McMullen and Alat (2002) examined the relationship between educational backgrounds and DAP of caregivers and teachers of 3- to 6-year-old children in Indiana. The one hundred fifty-one participants were from family child care homes, child care centers, Head Start center, church child center, public preschools, and Montessori preschool programs. The Teacher Belief Scale (TBS) of the Teacher Questionnaire (Charlesworth et al., 1991) was used to obtain beliefs of the caregivers and teachers. Pearson correlation analysis, two-way analyses of variances, and factor analysis were used to analyze the data.

The results indicated that highest degree obtained had significant correlation with the DAP scores. The teachers with graduate degrees and early childhood education backgrounds had higher DAP scores than teachers with high school/GED/CDA/associate degree and bachelor degrees and non-early childhood education backgrounds.

In her dissertation, Kim (2005) examined Louisiana kindergarten teachers' beliefs and practices regarding to 1997 NAEYC developmentally appropriate guidelines. The instruments used in this study included the Teacher Beliefs and Practices Survey, the Teacher Educational Attitude Scale, and the Rating Scale for Measuring the Degree of Developmentally Appropriate Practices in Early Childhood Classrooms for 3- to 5-year olds (Burts et al., 2000). Data were collected from teachers' self-reported beliefs and practices surveys and classroom observations. Three hundred seventy-five kindergarten teachers completed and returned the surveys. Thirteen teachers participated the classroom observations.

The results indicated that teachers who had high scores on self-reported developmentally inappropriate practices also showed more inappropriate practices in the classrooms. Further, when teachers had low scores on classroom observation, there were bigger gaps between their beliefs, self-reported practices, and observed classroom practices scores. On the other hand, teachers who had early childhood education background, gave permission for classroom observation, had higher education, or rated themselves as the primary person who influenced their classroom decision had higher tendency toward developmentally appropriate beliefs and self-reported practices. The number of children in the classroom and percent of children on free or reduced cost lunch were also influenced teachers' self-reported practices. Moreover, teachers with more teaching experiences showed less support to DAP.

Early Childhood Teachers' Beliefs and Practices about DAP in Other Countries

Doliopoulou (1996) examined Greek kindergarten teachers' beliefs and actual classroom practices about DAP by using the Teacher Questionnaire and the Checklist for Rating Developmentally Appropriate Practice in Kindergarten Classroom developed by Charlesworth et al. (1993). Both the instruments were translated into Greek. Sixty-seven kindergarten teachers in Greek's capital area participated in survey. Nine of them were observed in the classroom to examine the consistency between their self-reported beliefs and practices about DAP. Data were analyzed by Pearson correlation coefficient and correlational analysis.

The results revealed that Greek kindergarten teachers' DAP were highly correlated with their developmentally appropriate practices. The teachers who believed in the importance of DAP implemented more developmentally appropriate activities in their classrooms. Relationships among teachers' appropriate and inappropriate beliefs and practices, factors that influenced teachers' decision-making, years of teachers' experience, and number of children in a classroom were examined. Teachers who ranked parents or themselves having the highest influence on their instruction had more developmentally appropriate beliefs and implemented more appropriate activities. In addition, teachers who occupied children in more inappropriate activities ranked state regulations having high influence on their classroom activity planning and implementation. Furthermore, teachers who had more years of experience and had larger class sizes showed more inappropriate beliefs.

Hegde (2005) investigated the relationships between India kindergarten quality and teachers' beliefs and practices regarding to DAP. Data were collected from surveys, observations, and interviews. Teacher Beliefs Scale (TBS) and Instructional Activities Scale (IAS) (Charlesworth et al., 1991) were used to obtain India kindergarten teachers' self-reported

beliefs and practices. The teachers' actual classroom practices and the quality of classrooms were measured by Classroom Practice Inventory (CPI) (Hyson et al., 1990) and the Quality Observation Scale (Datta, 2001). The participants included 20 teachers of 5-year-old children (upper kindergarten teacher) and 20 4-year-old children (lower kindergarten teacher) from English schools in middle to higher income areas in Mumbai, India. The data were analyzed by ANOVAs, Pearson product moment correlations, and multiple regressions.

The results showed that there was no difference between upper and lower kindergarten teachers' developmentally appropriate beliefs and practices. Scores on actual classroom practice and classroom quality observation also indicated no difference between upper and lower kindergarten teachers. However, the discrepancy between upper kindergarten teachers' beliefs and practices was higher than lower kindergarten teachers'. Significant correlations were found between teachers' stated beliefs and practices, between self-reported practices and observed practices, and between teacher beliefs, observed practices, and classroom quality. Interestingly, teacher stated beliefs and observed classroom practices showed no significant correlation. Teachers in two-teacher classrooms had stronger beliefs about DAP and had more appropriate practices in their classrooms. Two-teacher classrooms had higher quality than one-teacher classrooms. In addition, teachers with high developmentally appropriate beliefs and self-reported practices had more developmentally appropriate observed practices. Class size and teacher-child ratio influenced the observed classroom quality. Classrooms with smaller size and lower ratio had more developmentally appropriate teaching and activities as well as higher quality.

Several studies about Korean early childhood teachers' beliefs and practices regarding DAP have been conducted by Suh (1994), Shim and Herwig (1997), and Kim, Kim, and Maslak (2005). Suh (1994) compared beliefs and values about public kindergarten program and practices

of Korean kindergarten parents, teachers, and principals. The participants included 280 parents, 179 kindergarten teachers, and 148 principals from three provinces in Korea. The Questionnaire on Public Kindergarten Programs and Practices was used to obtain beliefs and values of parents, teachers, and principals. Part of Questionnaire for Elementary Principals and Teachers developed by Bryant et al. in 1989 based on NAEYC guidelines was used for examining the attitude and knowledge of kindergarten principals and teachers toward DAP. Chi-square, *t*-test, and ANOVA were used to analyze the data.

The majority of Korean kindergarten parents, teachers, and principals showed strong agreement with providing public kindergarten education for 5-year-old children. They preferred public kindergarten teachers with early childhood education background. The kindergarten teachers valued the importance of affective development, play, social skill development, motor skill development, child selected activity, and parent involvement in public kindergarten more than the parents and principals. Teachers valued academic skill development and teacher directed activities were less important in the kindergarten education than parents or principals. Further, kindergarten teachers showed the highest agreement with developmentally appropriate practices when compared with parents and principals beliefs. In addition, kindergarten teachers with early childhood education backgrounds had stronger developmentally appropriate beliefs and values than teachers with elementary education background. The level of education also influenced teachers' knowledge about developmental appropriateness; thus, it was found the higher the teacher education level, the stronger their developmental appropriateness knowledge.

Shim and Herwig (1997) examined the beliefs and practices of Korean early childhood teachers in public and private programs. The participants were 54 child care teachers, 58 private kindergarten teachers, and 45 public kindergarten teachers. The Teacher Questionnaire

(Charlesworth et al., 1989) modified by Mayers (1991) was translated into Korean to obtain the beliefs and self-reported practices of the teachers. Data were analyzed using one-way ANOVA and post hoc and paired *t*-test.

The results revealed that the majority of public kindergarten teachers had higher levels of education and more teaching experience than teachers in private kindergartens or child care centers. Public kindergarten teachers also reported more frequent use of developmentally appropriate activities in their classrooms than other teachers. In contrast, child care teachers had the least teaching experience and showed less expectation and use of appropriate activities in their classrooms. Overall, Korean child care, private kindergarten, and public kindergarten teachers demonstrated a high desire toward DAP, but low developmentally appropriate teaching.

Kim, Kim, and Maslak (2005) investigated Korean kindergarten and child care teachers' understanding and use of DAP by using the Teacher Beliefs Scale (TBS) and the Instructional Activities Scale (IAS) developed by Charlesworth et al. (1991) based on the NAEYC guidelines. Study participants were 211 kindergarten teachers and 208 child care teachers. Multivariate analyses of variance (MANOVA) and discriminate analyses were used to analyze the data. The results indicated kindergarten teachers reported stronger agreement with DAP and more frequent use of appropriate activities than child care teachers. Reported inappropriate beliefs and practices were two important contributors for the significantly different responses for DAP between kindergarten and child care teachers.

Taiwan early childhood education scholars are also interested in exploring the acceptance of DAP by early childhood teachers. Yang (1997) compared the beliefs of kindergarten parents, teachers, and principals regarding DAP using the Teacher Beliefs Scale of the Teacher Questionnaire developed by Charlesworth et al. (1991) based on the NAEYC 1987 guidelines.

Fifty-seven kindergarten principals, 70 kindergarten teachers, and 59 parents of 5-year-old children in Taichung, Taiwan participated in this study. Data were analyzed using one-way ANOVA and Scheffe test.

For DAP items, Taiwan kindergarten parents, teachers, and principals all believed that social skills opportunities were important for kindergarten programs. All of the groups believed in some developmentally inappropriate practices. Parents showed more favor to traditional teaching than teachers and principals. In addition, parents, teachers, and principals showed significantly different opinions on the domains of inappropriate activities and materials, and appropriate social and inappropriate structures for DAP. The response to the domains of appropriate individualization, appropriate literacy activities, and appropriate integrated curriculum beliefs showed no difference among these three groups. Overall, kindergarten parents, teachers, and principals in Taichung, Taiwan, showed positive acceptance toward DAP.

Yang also examined the similarities and differences of Taiwan kindergarten teachers' and US kindergarten teachers' responses about DAP. Both Taiwan and US kindergarten teachers demonstrated belief in the DAP items. US kindergarten teachers stated higher support on stories read, dictate stories, see and use print, and input from parents than Taiwan kindergarten teachers. The majority of both groups agreed the item "social skills opportunities" is very important. On the other hand, the majority of US teachers believed that separate subject at separate time, seatwork, flashcards, authority-starts-treats to encourage appropriate behavior, and learn to read were not important. Meanwhile, authority-punishment to encourage appropriate behavior, recognize letters, and color within lines was not important for the most of Taiwan kindergarten teachers.

A study that compared the perspectives of the best instructional practices in early childhood programs related to DAP among Taiwan parents and teachers of 4- and 5-year-olds was conducted by Chang (2003). The participants were 826 parents and 296 teachers from public and private kindergartens in Taipei, Taichung, Tainan, Kaohsiung, and Hualien, in Taiwan. Data were collected by using the Perspectives of Instruction in Early Childhood Education (PIECE) developed by the researcher. Twenty of the 26 statements of the questionnaire were adapted from a part of the Classroom Practices Inventory (CPI) developed by Hyson et al., (1990) based on NAEYC guidelines. In order to distinguish the locations of the participants, the researcher used different colored questionnaires for the different areas. Data were analyzed by using a 2 x 2 multivariate analysis of variance. Developmentally appropriate classroom instructional practices (DACIP), developmentally inappropriate classroom instructional practices (DICIP), developmentally appropriate educational home practices (DAEHP), and developmentally inappropriate educational home practices (DIEHP) were the four dependent variables.

The results indicated that kindergarten parents and teachers had different perspectives regarding DICIP, DAEHP, and DIEHP. In addition, when comparing the perspectives of parents and teachers regarding different age levels of children, no significant differences were found on the perspectives related to DACIP, DICIP, DAEHP, or DIEHP. Overall, both parents and teachers in Taiwan believed that developmentally appropriate classroom instructional practices were very important for early childhood education.

Lin (2004) used surveys, classroom observations, and interviews to examine Taiwanese early childhood teachers' beliefs about DAP curriculum. Survey data were collected by two researchers at two different periods. Four hundred fifty-nine participants were teachers, administrators, and caregivers of 3- to 6-year-old children in Taipei (urban area), Miaoli,

Hsinchu, and Changhua (rural/suburban areas) Taiwan. The participants' beliefs about curriculum were obtained by using the Teachers Beliefs Scale developed by Charlesworth et al. (1993). The questionnaire was translated into Chinese by the researcher. Four teachers with different beliefs, from different locations, and in different types of early childhood programs participated in the interviews and classroom observations. The teachers' actual classroom practices were recorded by Early Childhood Environment Rating Scale Revised (ECERS-R) developed by Harms, Clifford, and Cryer in 1998. Documents and artifacts were also used to investigate the consistency between teachers' beliefs and actual classroom practices.

The factor structure and the internal consistency of the Taiwanese version of the TBS were examined by components analysis and Cronbach's alphas. Three of four factors (teacher-directed/academic instruction, developmentally appropriate practices/social-cultural curriculum, active and interactive learning) were higher the minimum .30 and were used in the study. Cronbach's alphas of the three factors were .72, .71, and .75 respectively. The results indicated that Taiwanese early childhood teachers had stronger beliefs toward DAP than inappropriate practices. However, there were 6 items that Taiwanese early childhood teachers did not show consistency with DAP philosophy. They were evaluating performance on worksheets and workbooks, classroom activities responsive to individual differences in development, allowing children to cut their own shapes, plan their own creative activities, using workbooks and ditto sheets, using teachers' authority through punishment and/or reprimands to encourage appropriate behavior, and forming letters correctly on a printed line. In addition, teachers who worked in urban areas or public settings and had early childhood education related majors or higher levels of education had stronger beliefs about DAP than teachers who worked in rural areas or private settings and had no early childhood education related majors or had lower levels of education.

More access to educational resources and more competition for recruiting students served as contributors for urban teachers' strong DAP beliefs.

In the interviews and classroom observations, the four Taiwanese kindergarten teachers showed strong beliefs about the importance of ethic education and self-help training in curriculum which was not included in the TBS survey items. Parents' input was the primary factor on teachers' teaching decision-making and practices. The consistency between teachers' beliefs and actual practices only appeared on teacher-parent relationships, not on curriculum or teacher-student relationships.

Summary

The above literature review clearly shows that NAEYC's DAP has become a paradigm in early childhood education since its inception in 1987. Many measurement instruments have been developed to quantify early childhood educator's DAP beliefs and practices. A rich body of research has examined the factors related to teacher's DAP beliefs and practices. However, the findings have been inconclusive and contradictory. A possible reason is that the multivariate phenomena have often been investigated by using the univariate methods. In addition, cross-cultural studies on teacher's DAP beliefs and practices beyond the descriptive level have been minimal.

CHAPTER III

METHODOLOGY

Participants

The participants in this study were public and private full-time kindergarten teachers serving children ages 4- to 6-year-old in the north Texas region of the US and in the north, middle, and south of Taiwan, Republic of China. The investigator used US and Taiwan contacts (directors and deans at the college of education, early childhood education professors, directors of public and private schools, and educators of young children) in public and private kindergartens to identify teachers. Two hundred five Taiwan public kindergarten teachers, 172 Taiwan private kindergarten teachers, 54 US public kindergarten teachers, and 57 US private kindergarten teachers were selected. The survey instrument was mailed or delivered to each of the 488 teachers in this convenient sample. One hundred twenty-three (60%) of the Taiwan public teachers, 123 (71%) of Taiwan private teachers, 54 (100%) of US public teachers, and 57 (100%) of US private teachers returned the survey and became this study's sample. However, after handling the missing data and outlier issues, the final sample sizes for the Taiwan private group, Taiwan public group, US private group, and US public group are 119, 114, 55, and 53 respectively.

The reported ages of the four groups ranged from 22 to 55 ($M = 34.52$, $SD = 7.52$; Taiwan private), 25 to 60 ($M = 42.07$, $SD = 8.21$; Taiwan public), 20 to 68 ($M = 36.01$, $SD = 11.67$; US private), and 23 to 63 ($M = 34.83$, $SD = 10.37$; US public). Appendix Tables B.1-4 provide more detailed description of the sample. Overall, the Taiwan groups were entirely female whereas the US groups had approximately 15% male teachers. The majority of the teachers held bachelor's degree and the teachers in the public kindergartens had slightly higher

education than their counterparts in the private schools. Whereas the Taiwan teachers primarily majored in early childhood education, especially for those in the public kindergartens, the US teachers had diverse education-related majors. At least over 70% of the teachers across the groups did not have a minor. The majority of the public kindergarten teachers were certified. The certification rates for the four groups were 44.4% (Taiwan private), 93.1% (Taiwan public), 28.8% (US private), and 100% (US public), respectively. Over 68% of the teachers in all of the four groups had teaching experiences with children with special education needs. Also, the majority of the teachers in all of the four groups was full-time teachers and did not have experiences teaching other grades except for 4- to 6-year-old children in preschool and kindergarten.

Data Collection Procedures

Data collection of this study included three steps. First, I obtained approval for the study from the University of North Texas Institutional Review Board (IRB). The board serves as a judge to ensure the study meets the criteria for protecting human subjects from harm. Second, the researcher contacted early childhood education professors and directors as well as educators of young children in public and private kindergartens in the north, middle, and south of Taiwan to identify kindergarten teachers. Two hundred five public and 172 private kindergarten teachers were identified by those contacts. A packet of information including letters explaining the purposes of the study, questionnaires, consent forms, and self-addressed stamped envelopes (see Appendix A) were sent or personally delivered to these contacts. Individual packets were then distributed to the kindergarten teachers to complete. Kindergarten teachers completed the questionnaires and consent forms independently, placed them in the self-addressed stamped

envelopes, and returned them to the researcher. The period of data collection in Taiwan was from March 1 to April 30, 2007. One hundred twenty-three public and 123 private kindergarten teachers completed and returned the surveys. Third, the same data collection procedures were conducted in the United States from April 15 through May 31, 2007. The dean of the College of Education, early childhood education professors, and public and private school educators of young children were contacted to identify kindergarten teachers. All of the contacted 54 US public and 57 US private kindergarten teachers completed and returned the survey.

Survey Instruments

The Teachers Beliefs and Practices Survey: 3-5 Year Olds (Burts et al., 2000) designed by Burts and her colleagues based on 1997 National Association Education of Young Children Developmentally Appropriate Practice (DAP) guidelines (Bredekamp & Copple, 1997) was used to collect data. The survey includes a teacher demographic questionnaire, Teacher Belief Scale, and Instructional Activities Scale. The teacher demography questionnaire was used to obtain teacher educational background, teaching experience, and current teaching position information. Considering the differences in educational settings in Taiwan from those in the US and making the demographic variables comparable among the four groups, some items were removed or modified. For instance, questions 1-5 on teacher's educational backgrounds were modified from multi-choice questions to open-ended questions to accommodate the possibly different teachers' preservice educational paths in Taiwan. Questions 6, 14, 15, and 17 addressing teachers' and students' ethnicity and percentage of students qualifying for free lunch were removed as these questions were not applicable in Taiwan. Question 18 on the types of teaching environment was

simplified as some of them did not exist in Taiwan (e.g., Head Start, faith-based child care).

Appendix A presents the modified survey in Chinese and the survey in English.

There are 43 items on the Teacher Beliefs Scale (TBS) (1 ranking question, 27 items of developmentally appropriate beliefs, and 15 items of inappropriate beliefs). The first question in the scale asked teachers to rank order of the influences (parents, school system policy, principal/director, teacher self, state regulations, and other teachers) on their decision-making regarding how they plan and implement their instructions. The remaining 42 questions of the TBS examined teachers' beliefs about teaching kindergarten programs. The Instructional Activities Scale (IAS) contained 30 items (18 items of developmentally appropriate practices and 12 items of inappropriate practices for kindergartens). The IAS examined the teachers self reported frequency of appropriate and inappropriate practices that occur in their classrooms. Both scales (TBS and IAS) used 5-point Likert scales. The anchors of the Teacher Belief Scale are: 1 = *Not at all important*, 2 = *Not very important*, 3 = *Fairly important*, 4 = *Very important*, and 5 = *Extremely important*. For the Instructional Activities Scale (IAS), the anchors were: 1 = *Almost never* (less than monthly), 2 = *Rarely* (monthly), 3 = *Sometimes* (weekly), 4 = *Regularly* (2-4 times a week), and 5 = *Often* (daily).

Kim (2005) reported the TBS has three factors: Beliefs about Developmentally Appropriate Practices (DAPB) (Items 3, 4, 5, 8, 9, 12, 13, 16, 18, 21, 22, 23, 25, 26, 28, 29, and 33), Beliefs on Developmentally Inappropriate Beliefs (DIPB) (Items 2, 7, 10, 11, 14, 15, 17, 19, 20, 24, 31, 29, 40, 41, and 42), and Attitudes toward Family, Culture, and Inclusion (FCI) (Items 6, 27, 30, 32, 34, 35, 36, 37, and 38). The internal consistency reliability coefficients in Cronbach alpha of these three factors were .85, .82, and .81 in Kim's (Kim, 2005) sample of 375 US teachers, respectively. The same factorial structure was used in this study. Item 43 did not

load on any factor in Kim's study; therefore, it was excluded in this study. Kim (2005) also found the IAS had four factors: DAP Principles (Items 3, 8, 19, 21, 23, 26, 28, 29, and 30), DAP Activities (Items 1, 2, 4, 5, 6, 7, 9, 24, and 25), DIP Activities (Items 10, 11, 12, 13, 14, 15, 16, 17, and 20), and DIP Classroom Practices (Items 18, 22, and 27). The Cronbach alphas for the four factors were .82, .76, .73 and .59, respectively. However, the preliminary analysis with this study's sample showed the alpha for the factor of DIP Classroom Practices was .01 for the US public group, much below the .60 minimum acceptable threshold for exploratory studies (Devillis, 1991). Therefore, the two-factor structure (Kim, 2005) was applied. The factors of DAP Activities and DAP Principles were combined into the DAP scale. DIP Activities were combined with DIP Classroom Practices into the DIP scale. The internal consistency reliability indicated the factors on the TBS were acceptable. Thus, no modifications were made to those factors.

Translation of the Questionnaires

Because the Chinese version of the Teachers Beliefs and Practices Survey: 3-5 Year Olds (Burts et al., 2000) could not be located, the researcher translated the survey into Chinese in order to conduct the study in Taiwan. A back-translation was completed by a native Chinese doctoral candidate in early childhood education, who is also fluent in English. All disagreements between the two parties were resolved. The final version of the back-translated Chinese survey was also sent to Dr. Lien-An Hsu, an associated professor in early childhood education at National Chengchi University, in Taiwan for a review and pilot tested with four Taiwan kindergarten teachers who were not part of the sample. Their professional knowledge about

Taiwan kindergarten improved the content validity of the Chinese version survey. Adjustments to the instrument were made based on their suggestions.

In addition to the survey instrument, the teacher consent form and introduction letter were also translated. The consent form was designed to comply with the University of North Texas Institutional Review Board standards for graduate student investigators. The purpose of the consent form was to provide participants' information about their rights and protect them from harm. The consent form included the title of the study, name of the principal investigator and the school and department where she studies, purpose of the study, study procedures, foreseeable risks, benefits to the subjects or others, procedures for maintaining confidentiality of research records, contact information of the principal investigator and major professors, review for the protection of participants, and research participants' rights (see Appendix A). This form was returned with the completed survey. For confidentiality of the research records, the consent form was kept separate from the completed survey.

Assumptions

The cultural relevance of the used survey and reliable data were the key to the present study. The appropriateness of the instruments was simply assumed to be acceptable. This study assumed the following: (a) the translated survey from English to Chinese through the backward translation process maintained its conceptual validity, (b) the survey had acceptable reliability and validity for both the US and Taiwan participants, (c) teachers were able to understand and answer the questions on the survey, and (d) each respondent completed the survey independently.

Data Analysis Strategies

Data Screening

Three guidelines were used to screen the data: (a) incomplete questionnaires missing one or more pages; (b) questionnaires missing more than five items on either the TBS or IAS scale; and (c) questionnaires with the same answers to all items. Questionnaires were excluded from the sample if a case violated one of these three guidelines. Nine (9) questionnaires were excluded.

After applying the above guidelines, there were still some missing data. A total 49 (.03%) pieces of data were missing from the DAPB scale and 53 (.05%) pieces of data were missing from the DAP scale. However, it seems those missing data were random. The 20-80-percent rule was used to replace the missing data with the factor mean (Hair, Black, Babin, Anderson, and Tatham, 2006). For example, the DAPB subscale has 17 items, if a participant missed three or less items the missing items were replaced with the DAPB factor mean for that participant. On the other hand, if a participant missed more than 20% of the items on any factors for a scale, all the items of that scale were deleted. Demographic information and other data were retained. Only one instance of the DAP was excluded based on this guideline. After these steps, the data set had no missing data.

A normal distribution of data was checked based on standard scores of skewness and kurtosis (Hair et al., 2006). The .01 level of significance was utilized in this study to judge the normality of the factor means for each of the four groups. To meet the normality assumption, outliers for each group on the two scales were detected and excluded independently based on the 2.5 standard deviations of the standardized scores (Hair et al.). Table 4 illustrates the normality assumption was met in all of the cases after the outliers were moved.

Ideally, confirmatory analysis (CFA) and exploratory analysis (EFA) should be conducted to validate the factor structure from the original developers of the questionnaire (Hair et al, 2006). The sample size was not large enough to conduct this analysis. Alternatively, the questionnaire was examined for internal consistency reliability using Cronbach alpha.

Additionally, Item 23 on the IAS demonstrated a negative correlation with the rest of other items on the DAP practice subscale for the US private group. The Cronbach alpha would be increased to .68 from .59. Further examination showed the deletion of this item had minimum impact on the alpha for other three groups. Thus, Item 23 was excluded and the factor mean of DAP practice was adjusted accordingly. Similarly, the Cronbach alpha for the FCI factor in this group would increase to .56 from .50 without Item 32, and therefore, this item was deleted also. The mean was recomputed as well.

Statistical Analysis Strategies

Research Questions 1 and 2 were explored through descriptive statistics. Questions 3 and 4 were answered with 2 (location) x 2 (school type) ANOVAs. Multiple regression was used to answer Research Questions 5, 6, and 7.

CHAPTER IV

RESULTS

The Assessment of Psychometric Properties

Tables B1-B4 display the demographic characteristics for each of the four groups of kindergarten teachers used in this study. The majority of the teachers were female, with bachelor's degrees, majoring in education related areas, with about half certified, and teaching predominately 5-year-old children.

Table 1 shows the internal consistency reliability in Cronbach alpha on the three factors of the Teacher Beliefs Scale (TBS) and the two factors of Instructional Activities Scale (IAS) for the four groups. The alphas for the Taiwan two groups (private and public) and the US public group were all above .70 levels (Hair, Black, Babin, Anderson, & Tatham, 2006). The alphas for the US private group were somewhat lower than those in the other three groups, especially the factor of family, culture, and inclusion (FCI). But they were primarily acceptable or approaching to the .60 minimum threshold for acceptable (Devillis, 1991). Overall, the Cronbach alphas demonstrated that the survey had acceptable internal consistency reliability in the present sample.

Table 2 presents the intercorrelations among the five factors of the TBS and IAS for the four groups. The correlations among the three factors (i.e., developmentally appropriate practice beliefs (DAPB), family, culture, and inclusion (FCI), and developmentally appropriate practices instructional activities (DAPIA)) related to the positive dimensions of developmentally appropriate practices were statistically significant for all groups except for the US private group. Also the correlations between the two negative dimensions (i.e., developmentally inappropriate practice beliefs (DIPB) and developmentally inappropriate practices instructional activities (DIPIA)) were significant at the .001 level. The correlations between the three positive and two

negative dimensions were not statistically significant except for that between DIPB and DAPIA for the Taiwan public group. For the US private group, DAPB was also significantly correlated with FCI and DAPIA. Interestingly, DAPB correlated with the two negative dimensions of DIPB and DIPIA.

Although DAPB and FCI were correlated with each other at the .001 level, generally there were no negative correlations between DIPB and DAPB or FCI as in Kim (2005) study. Therefore, the higher-order structure by combining DAPB, FCI, and DIPB with reverse scoring was not supported in the current sample. Similarly, the higher-order structure on the practice scale of combining DAPIA and the reversed DIPIA was not suggested. Accordingly, this study used the separate scores on these five factors rather than the derived composite scores on beliefs and practices.

Table 1

Internal Consistency Reliability of the Teachers Beliefs and Practices Survey

Subscales	Number of items	Taiwan Private		Taiwan Public		US Private		US Public	
		<i>n</i>	<i>α</i>	<i>n</i>	<i>α</i>	<i>n</i>	<i>α</i>	<i>n</i>	<i>α</i>
Developmentally Appropriate Practice Beliefs	17	119	.80	114	.82	55	.76	53	.88
Developmentally Inappropriate Practice Beliefs	15	119	.83	114	.80	55	.71	53	.85
Family, Culture, and Inclusion	8	119	.82	114	.74	55	.56	53	.86
Developmentally Appropriate Practice Instructional Activities	17	119	.81	114	.82	55	.68	53	.87
Developmentally Appropriate Practice Instructional Activities	12	119	.84	114	.80	55	.80	53	.82

Table 2

Intercorrelations among Teacher Belief Scale and Instructional Activity Scale Subscales within Sample

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. TW Private - DAPB	-																			
2. TW Private - DIPB	-.11	-																		
3. TW Private - FCI	.80 ^c	-.18	-																	
4. TW Private - DAPIA	.37 ^c	.00	.43 ^c	-																
5. TW Private - DIPIA	-.07	.60 ^c	-.05	-.01	-															
6. TW Public - DAPB						-														
7. TW Public - DIPB						.05	-													
8. TW Public - FCI						.67 ^c	.04	-												
9. TW Public - DAPIA						.52 ^c	-.25 ^a	.41 ^c	-											
10. TW Public - DIPIA						.09	.41 ^c	.07	.005	-										
11. US Private - DAPB											-									
12. US Private - DIPB											.28 ^a	-								
13. US Private - FCI											.58 ^c	.19	-							
14. US Private - DAPIA											.29 ^a	-.22	.08	-						
15. US Private - DIPIA											.29 ^a	.12	.09	.06	-					
16. US Public - DAPB																-				
17. US Public - DIPB																.20	-			
18. US Public - FCI																.74 ^c	.13	-		
19. US Public - DAPIA																.44 ^b	.14	.60 ^c	-	
20. US Public - DIPIA																-.09	.54 ^c	.13	-.16	-

Note: TW = Taiwan; US = United States; DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. $a = p < .05$; $b = p < .01$; $c = p < .001$.

Status of Kindergarten Teachers' Developmentally Appropriate Beliefs and Practice

Research Questions 1 (To what extent do the kindergarten teachers in the US and Taiwan agree on developmentally appropriate beliefs?) and 2 (To what extent do the kindergarten teachers in the US and Taiwan agree on developmentally appropriate practices?) were aimed at describing the current status of teachers' beliefs and practices related to developmentally appropriate practices and were examined through the five factor scores on the TBS Scale and IAS Scale. Table 3 presents the means and standard deviations on the five factors of the survey for kindergarten teachers in the four sample groups. For developmentally appropriate beliefs, 3 groups scored above 4.00, indicating they thought these beliefs are very important; whereas the US public kindergarten teachers scored slightly below the anchor point of 4 or *Very important*.

Beliefs on developmentally inappropriate beliefs ranged from a mean of 3.44 to 2.86 with a standard deviation of .52 to .28 indicating Taiwan and US kindergarten teachers were overall consistent in their developmentally inappropriate beliefs responses at the extent of *Somewhat important*. The beliefs on the values of family, culture, and inclusion were indicated as *Very important* by the respondents of all 4 groups, as reflected by the means. DAPs in the teachers' classrooms were reported close to 4 (i.e., *Regularly vary* - 2-4 times per week).

Developmentally inappropriate practices in the two Taiwan groups (private and public) were between rarely (monthly) and sometimes (weekly). For the two US groups (private and public), developmentally inappropriate practices were between sometimes (weekly) and regularly vary (2-4 times a week). Interestingly, the two US groups had higher DIPIA scores than the two Taiwan groups, even though the US DAPIA scores were higher than the Taiwan groups.

Table 3

Descriptions of the Teachers' Beliefs and Instructional Activities Scales

			<i>n</i>	<i>M</i>	<i>SD</i>	Skew- ness	Kurtosis	Z- skewness	Z- kurtosis
Teacher Beliefs Scale	Developmentally Appropriate Practice Beliefs	TW Private	119	4.17	.37	-.16	-.79	-.69	-1.75
		TW Public	114	4.18	.37	-.32	-.27	-1.39	-.58
		US Private	55	4.02	.28	-.11	-.47	-.34	-.71
		US Public	53	3.92	.43	-.19	-1.01	-.58	-1.50
	Developmentally Inappropriate Practice Beliefs	TW Private	119	3.09	.52	.34	-.59	1.53	-1.32
		TW Public	114	2.86	.46	.15	.14	.67	.30
		US Private	55	3.40	.28	-.21	1.34	-.65	2.03
		US Public	53	3.44	.42	-.89	.13	-2.64	.19
	Family, Culture, and Inclusion	TW Private	119	4.08	.54	-.32	-.60	-1.40	-1.33
		TW Public	114	4.06	.45	-.02	-.55	-.10	-1.20
		US Private	55	4.11	.24	.11	.13	.33	.19
		US Public	53	4.15	.52	-.23	-.55	-.68	-.81
Instructional Activities Scale	Developmentally Appropriate Practice Instructional Activities	TW Private	119	3.76	.47	-.33	-.22	-1.49	-.48
		TW Public	114	3.72	.43	.22	-.06	.95	-.12
		US Private	55	3.90	.25	.21	-1.00	.65	-1.52
		US Public	53	3.80	.40	.24	1.15	.73	1.71
	Developmentally Inappropriate Practice Instructional Activities	TW Private	119	2.96	.66	-.03	-.34	-.12	-.76
		TW Public	114	2.65	.53	-.11	.43	-.48	.93
		US Private	55	3.59	.43	-.69	1.04	-2.10	1.58
		US Public	53	3.70	.40	-.48	.20	-1.43	.30

Developmentally Appropriate Beliefs and Practices:
Group Differences

This study's Research Questions 3 and 4 were designed to examine the group differences on various aspects of teachers' beliefs about developmentally appropriate practices and the implementation of those practices. Two (school location) x two (school type) ANOVAs on the five factors on the Teachers Beliefs and Practices Survey were conducted to address the research questions.

There are three major assumptions for a two-way ANOVA: (a) random sampling and independent observation; (b) normal distribution of the dependent variables; and (c) homogeneity of variances (Hinkle, Wiersma, & Jurs, 2003). In this study, the kindergarten teachers were asked to answer the survey independently, therefore, the assumption of independent sampling was met. A convenience sample was used; yet, this violation tends to be minimal to the Type I error since the sample size is large (Maxwell & Delany, 2004). The five dependent variables were all normally distributed in each of the groups (see Table 3). Homogeneity of variance ensures the variances in the populations from which the samples were selected are equal and it was examined through the Lavene's test. All of the two-way ANOVAs met the homogeneity assumption.

To assess the statistical significance, the conventional .05 level of the Type I error rate was used through out this study. For practical significance, the partial η^2 was used. Cohen (1988) established the following rule for determining the magnitude of a variance-accounted-for type of practical significance: less than 1% as trivial, 1% as the minimum threshold for a small effect size, 9% as the minimum value for medium effect size, and 25% as the minimum threshold for a large effect size. These rules were observed in this study.

The interpretation of a two-way ANOVA usually starts with the interaction effect (Pedhazur & Schmelkin, 1991). If there is no significant interaction, the main effects are then examined. However, if the statistical significant interaction effect is ordinal, the main effects are interpreted as well (Hair et al., 2006). Also, if a main effect is much larger than the interaction effect as reflected in a noticeably larger F value and η^2 , the main effect is interpreted. Once a significant interaction effect was found, the simple effects were conducted for the post-hoc tests by using the independent sample t -test.

As explained earlier in this chapter, the composite belief and practice cannot be analyzed.

Therefore, the 10 research hypotheses at the composite score level were broken into 25

hypotheses at the factor level. These are as follows:

Hypothesis 1: US public kindergarten teachers will have the highest scores on developmentally appropriate beliefs (DAPB) among the four groups.

Hypothesis 2: US private kindergarten teachers will have higher scores on DAPB than Taiwan private kindergarten teachers.

Hypothesis 3: Taiwan public kindergarten teachers will have higher scores on DAPB than Taiwan private kindergarten teachers.

Hypothesis 4: Public kindergarten teachers will score higher on DAPB than private kindergarten teachers.

Hypothesis 5: US kindergarten teachers will have higher scores on DAPB than Taiwan kindergarten teachers.

Hypothesis 6: US public kindergarten teachers will have the highest scores on the beliefs on the value of family, culture, and inclusion (FCI) among four groups.

Hypothesis 7: US private kindergarten teachers will have higher scores on FCI than Taiwan private kindergarten teachers.

Hypothesis 8: Taiwan public kindergarten teachers will have higher scores on FCI than Taiwan private kindergarten teachers.

Hypothesis 9: Public kindergarten teachers will score higher on FCI than private kindergarten teachers.

Hypothesis 10: US kindergarten teachers will have higher scores on FCI than Taiwan kindergarten teachers.

Hypothesis 11: US public kindergarten teachers will have the lowest scores on developmentally inappropriate beliefs (DIPB) among the four groups.

Hypothesis 12: US private kindergarten teachers will have lower scores on DIPB than Taiwan private kindergarten teachers.

Hypothesis 13: Taiwan public kindergarten teachers will have lower scores on DIPB than Taiwan private kindergarten teachers.

Hypothesis 14: Public kindergarten teachers will score lower on DIPB than private kindergarten teachers.

Hypothesis 15: US kindergarten teachers will have lower scores on DIPB than Taiwan kindergarten teachers.

Hypothesis 16: US public kindergarten teachers will have the highest scores on developmentally appropriate practices instructional activities (DAPIA) among the four groups.

Hypothesis 17: US private kindergarten teachers will have higher scores on DAPIA than Taiwan private kindergarten teachers.

Hypothesis 18: Taiwan public kindergarten teachers will have higher scores on DAPIA than Taiwan private kindergarten teachers.

Hypothesis 19: Public kindergarten teachers will score higher on DAPIA than private kindergarten teachers.

Hypothesis 20: US kindergarten teachers will have higher scores on DAPIA than Taiwan kindergarten teachers.

Hypothesis 21: US public kindergarten teachers will have the lowest scores on developmentally appropriate practices instructional activities (DIPIA) among the four groups.

Hypothesis 22: US private kindergarten teachers will have lower scores on DIPIA than Taiwan private kindergarten teachers.

Hypothesis 23: Taiwan public kindergarten teachers will have lower scores on DIPIA than Taiwan private kindergarten teachers.

Hypothesis 24: Public kindergarten teachers will score lower on DIPIA than private kindergarten teachers.

Hypothesis 25: US kindergarten teachers will have lower scores on DIPIA than Taiwan kindergarten teachers.

Table 3 has shown the group means and standard deviations on the five factors at the cell level. Table 4 further presents the means and standard deviations by school location and school type at the independent variable level. Table 5 shows the results for the two-way ANOVAs for the five dependent variables.

For DAPB, neither the interaction effect nor the main effect on school type was found. Hypotheses 1, 2, 3, and 4 were rejected. Contrary to Hypothesis 5, Taiwan kindergarten teachers reported stronger beliefs on developmentally appropriate practices than the US counterparts: $F(1,$

337) = 23.92, $p < .001$. About 6.6% of the variance on DAPB could be accounted for by location, a small effect size.

Table 4

Means and Standard Deviations by School Location and School Type

Dependent Variables	School Location				School Type			
	US		Taiwan		Private		Public	
	<i>n</i>	<i>M(SD)</i>	<i>n</i>	<i>M(SD)</i>	<i>n</i>	<i>M(SD)</i>	<i>n</i>	<i>M(SD)</i>
Developmentally Appropriate Practice Beliefs	108	3.97(.36)	233	4.18(.37)	174	4.13(.35)	167	4.09(.40)
Developmentally Inappropriate Practice Beliefs	108	3.42(.35)	233	2.98(.51)	174	3.19(.48)	167	3.05(.52)
Family, Culture, and Inclusion	108	4.13(.40)	233	4.07(.50)	174	4.09(.47)	167	4.09(.47)
Developmentally Appropriate Practice Instructional Activities	108	3.85(.34)	233	3.74(.45)	174	3.81(.42)	167	3.74(.42)
Developmentally Inappropriate Practice Instructional Activities	108	.64(.42)	233	2.81(.61)	174	3.16(.66)	167	2.98(.69)

For FCI, neither the interaction nor the main effect was found. All of teachers in different groups had similarly strong beliefs on the value of family, culture, and inclusion. Hypotheses 6-10 were rejected.

For DIPB, the interaction effect was significant: $F(1, 337) = 6.26, p < .01$. The practical significance is small. About 2% of the variance on DIPB could be accounted for by the interaction of location and school type. Further examinations showed three significant simple effects: (a) The US public group scored higher than the TW public group, $t(138) = 6.88, p < .001$; (b) The US private group scored lower than the US public group, $t(149) = 4.19, p < .001$; and (c) The TW public group scored lower than the TW private group, $t(184) = 2.71, p < .01$; Therefore, Hypotheses 11 and 12 were rejected and Hypothesis 13 was supported. As seen from the profile plot on Figure 1 in Appendix C, the interaction effect was disordinal (Hair et al., 2006). Usually a main effect under the case of disordinal interaction effect is not recommended to be interpreted (Pedhazur & Schmelkin, 1991). However, the main effect of location on DIPB in this study was much larger than the interaction effect: $F(1, 337) = 69.61, p < .001$; thus, it should be considered. Contrary to Hypothesis 15, the US kindergarten teachers held stronger beliefs about developmentally inappropriate practices than their Taiwan counterparts. The practical significance in η^2 was 17%, a medium effect size. The main effect on school type was not found, thus, Hypothesis 14 was rejected as well.

For developmentally appropriate practice instructional activities (DAPIA), only the main effect of location was found. As hypothesized, the US teachers reported more DAP activities than did the Taiwan teachers: $F(1, 337) = 4.89, p < .05$. The practical significance was small. Only about 1.4% of the variance on DAPIA could be accounted for by location. Whereas Hypothesis 20 was supported statistically, Hypotheses 16-19 on DAPIA were rejected.

Similar to DIPB, there was a disordinal interaction effect (see Table 5 and Figure 2 in Appendix C) and a much larger main effect of location on DAPIA: $F(1, 337) = 10.45, p < .001$ for the interaction effect; and $F(1, 337) = 174.97, p < .001$ for the main effect of location.

Table 5

Two-way ANOVA of Developmentally Appropriate Beliefs and Practices

		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Developmentally Appropriate Practice Beliefs	Location	3.23	1	3.23	23.92	.00	.066
	School type	.18	1	.18	1.31	.25	.004
	Location x School type	.20	1	.20	1.45	.23	.004
	Error	45.45	337	.13			
	Total	48.92	340				
Developmentally Inappropriate Practice Beliefs	Location	14.37	1	14.37	69.61	.00	.171
	School type	.64	1	.64	3.11	.08	.009
	Location x School type	1.29	1	1.29	6.26	.01	.018
	Error	69.58	337	.21			
	Total	86.78	340				
Family, Culture, and Inclusion	Location	.27	1	.27	1.21	.27	.004
	School type	.01	1	.01	.03	.86	.000
	Location x School type	.08	1	.08	.34	.56	.001
	Error	74.08	337	.22			
	Total	74.42	340				
Developmentally Appropriate Practice Instructional Activities	Location	.85	1	.85	4.89	.03	.014
	School type	.39	1	.39	2.26	.13	.007
	Location x School type	.06	1	.06	.32	.57	.001
	Error	58.61	337	.17			
	Total	59.86	340				
Developmentally Inappropriate Practice Instructional Activities	Location	52.25	1	52.25	174.97	.00	.342
	School type	.73	1	.73	2.46	.12	.007
	Location x School type	3.12	1	3.12	10.45	.00	.030
	Error	10.63	337	.30			
	Total	158.10	340				

Note. $p < .05$ = statistically significant level.

The interaction could explain about 3% of the variance on DIPIA whereas location could account for about 34% of the variance, a large effect size. Further tests on the simple effects showed: (a)

The US public group scored higher than the TW public group, $t(165) = 12.84, p < .001$; (b) there

were no differences on DIPIA between the US public and private kindergarten teachers; (c) the US private group scored higher than the Taiwan private group, $t(151) = 7.59, p < .001$; and (d) the TW public group scored lower than the TW private group, $t(224) = 3.93, p < .001$. Therefore, Hypotheses 21 and 22 were rejected and Hypothesis 23 was supported. Hypothesis 24 on the main effect of school type was rejected: $F(1, 337) = 2.46, p = .12$. There were no differences on DIPIA between private and public kindergarten teachers. The main effect of location was found to be in the opposite direction as hypothesized. Taiwan teachers reported much fewer DIPIA than the US teachers. Hence, Hypothesis 25 was rejected as well.

Predictions of Developmentally Appropriate Beliefs and Practices

Multiple regression as a versatile multivariate statistic technique in investigating the relationship between one dependent and multiple independent variables, was selected to answer the Research Questions 5, 6, and 7 to predict the variance of the five factors on the Teacher Belief Scale and Instructional Activity Scale for each of the four groups separately. For questions five and six, the available teacher's demographic and classroom variables as two blocks were first used to predict the variance on each of the five dependent variables subsequently. Although this method may reveal the relative contributions of the two blocks of variables, it may not be able to maximize the predictions due to the inclusion of unimportant predictor variables. Therefore, in the second step, the backward regression, as explained later, was used to search the best prediction model for each group on each factor of the TBS and IAS.

Selections of the Predictor Variables for the Hierarchical Regression Analyses

Initially, all of the eighteen variables except for kindergarten type in the demographic

section of the survey were designed for the multiple regression analyses for each of the four groups. However, as full-time status (i.e., full-time for Item 14) and location of children receiving special education services (i.e., both for Item 17) were homogeneous across the four groups, they were excluded as predictors. Hours of training received in developmentally appropriate practices (Item 7) was eliminated as well because most of the US and Taiwan teachers did not respond to the question. Teaching years in the current school (Item 8) was excluded also as it was highly correlated with total teaching years with coefficients greater than .80 in all of the four groups. Therefore, 13 variables remained as the potential predictors. Of them, age, total teaching experiences, teaching years in public kindergarten, teaching years in private kindergarten, child age, numbers of boys and girls were continuous whereas the rest were categorical variables.

However, some variables were not applicable to all groups. For instance, gender was only meaningful for the US public group and the Taiwan teachers usually did not have a minor. Also the data distribution patterns of the categorical predictors were not the same in different groups. For instance, Taiwan public school teachers predominantly had a major in early childhood education; the US public kindergarten teachers had a variety of majors. Thus, it seemed reasonable to use a different set of predictors specifically applicable to each of the four groups. In addition, as the preferred minimum of observations to variable is 15:1 (Hair et al., 2006), some categorical variables needed to be regrouped to maintain the sufficient occurrences for each of the subgroups for the categorical predictors. Hence, the predictors and the subgroups for each categorical predictor may be different across the four groups. Moreover, multicollinearity among independent predictors could have substantially adverse impact on the prediction model

(Hair et al.). The multicollinearity among the predictors for the four groups was examined through the bivariate correlations and presented in Tables B.5-B.8.

For the Taiwan private group, the 14 predictors were grouped into two broad categories of teacher personal characteristics (i.e. age, gender, total teaching years, years of teaching other grades, years of teaching private kindergarten, years of teaching public kindergarten, years of teaching disabled child, certification, education, major, and minor) and classroom environment (i.e. child age, number of boy, and number of girl). However, teacher's age, total teaching years, and teaching years in private kindergartens were highly correlated with one another with coefficients larger than .82 (see Table B.5). Only the variable of total teaching years was retained as a predictor whereas the other two were excluded as it was applicable to all of the four groups and educationally meaningful. Gender and minor were excluded as well for this group as most of teachers were female and did not have a minor (see Table B.1). For major, due to the low frequencies of all but early childhood education (see Table B.1), the initial eight categories were collapsed into two categories: early childhood education (ECE) and non-ECE with all of the other categories combined. For educational level, the data distribution (see Table B.1) seemed to suggest two groups: one with high school diploma and the associate degree and the other one with bachelor's degree and above. This was also true for the other groups. For child age, 6 classrooms served 3-year-old children and 4 classrooms had children with mixed ages of 4, 5, or 6 year-olds. These classroom teachers were excluded. In addition, 10 teachers failed to report children's ages in the classrooms. They were excluded as well, leaving 99 private kindergarten teachers serving children aged 4 to 6 years old in this group for the hierarchical regression analysis with 10 predictors.

For the Taiwan public group, gender, major, minor, certification were excluded as predictors because the Taiwan public teachers were predominantly females majored in early childhood education and certified without a minor (see Table B.2). Also as in the Taiwan private group, teacher's age, total teaching years, and teaching years in public kindergarten were significantly correlated with one another at the .001 level with coefficients greater than .88 (see Table B.6). Thus, only total teaching experience was retained. Therefore, 8 predictors remained as the predictors for this group. Twenty-one teachers reported their classrooms had mixed ages of 4- to 6-year-olds. Six teachers failed to report children's ages. These 27 teachers were excluded for the multiple regression analyses, leaving 87 classroom teachers serving children aged 4 to 6 years old.

For the US private group, major was excluded due to the majority of the US private kindergarten teachers majored in diverse non-early childhood education fields (see Table B.3). Gender was excluded as a predictor as well because only five teachers were male (see Table B.3). Fifty out of the 55 teachers taught 5-year-old children, thus, child age was also excluded from the predictor list. The correlations among age, total teaching experience in years, and teaching years in private kindergarten were less than .70 although significant at the .001 level (see Table B.7), implying that the separate variances were greater than the shared variances among these three variables. Thus, they were all retained. Teaching other grades correlated with teaching public kindergarten experiences at .83 at the .001 level. As the former may be applicable to the other groups, the latter was eliminated. Therefore, 10 predictors in teacher characteristics (i.e., age, education, minor, certification, total teaching years, experiences of teaching public and private kindergarten, and experience of teaching disabled child) and classroom environment (numbers of boy and girl) were used as the predictor variables for this group. Minor was coded as 1 = a minor

(no matter what of the field) and 0 = no minor. Although the variable of teaching years initially was designed as continuous, the data demonstrated that it was skewed with almost half of the participants having three and less years (i.e., 49.1%). Thus, this variable was recoded as a dummy variable (teaching years of three and below as 0 and more than three years as 1). The same coding schemata were applied to the US public group.

For the US public group, child age, experience of teaching disabled child, and certification were homogeneous and were excluded as predictors (see Table B.4). Teacher's age and teaching years in public kindergartens were excluded as well as they were highly correlated with total teaching experiences in years with coefficients greater than .72 (See Table B.8). Hence, the remaining 9 variables were selected as the predictors for this group. Seven of them were teacher's characteristics (i.e., gender, education level, major, minor, teaching years, teach private, and teach disabled) and two of them are number of boys and girls in the classroom. Education was coded as 1 = Bachelor and 2 = Master. Major was recoded into two groups due to the low frequencies of the initial eight categories: the ECE group with early childhood education, early childhood to fourth grade, and interdisciplinary/ elementary and the non-ECE group with all of the other four categories combined.

Results of the Hierarchical Regression

Table 6 shows the results of the hierarchical regression on the five dependent variables for the two Taiwan school location groups. For the Taiwan private group, the predictions on DAPB, FCI, and DAPIA were not significant either with the seven predictors of teacher's characteristics or with the second block of the three additional three classroom variables included. However, the predictions on DIPB and DIPIA were significant at the .05 level with either the

seven variables in the first block or the ten variables in the two blocks. The multiple R^2 for DIPB and DIPIA with seven predictors were .27 and .26, respectively. The corresponding adjusted R^2 were .20 and .19, medium effect sizes. The second block only contributed .01 and .05 to the predictions of DIPB and DIPIA. Thus, the variances of DIPB and DIPIA were largely explained by teacher's personal characteristics.

For the Taiwan public group, all of the predictions on the five dependent variables with the five teacher's characteristics were insignificant. With the three classroom variables added as the second block, the predictions were still not significant at the .05 level. These eight variables together did not significantly predict the variances on the five factors in Taiwan public kindergarten teachers.

Table 7 shows the results of the hierarchical regression on the five dependent variables for the two US groups. For the US private group, the predictions with the eight teacher's characteristics were not significant on FCI, DAPIA, and DIPIA whereas the predictions on DAPB and DIPB were significant at the .05 level. The eight demographic variables explained 33% of the variances on DAPB or DIPB. With the two classroom variables (i.e., numbers of boys and girls) added as the second block, the results of the predictions remained similar, that is, the predictions of FCI, DAPIA, and DIPIA with ten predictors were still insignificant and those on DAPB and DIPB were again significant. The second block variables additionally contributed 20% and 2% to the predictions of the variances on DAPB and DIPB, respectively. Overall, it seemed that the prediction on DAPB was more successful than the predictions on other dependent variables. About 53% of the variance on DAPB could be accounted for by these ten predictors. Even after the downward correction, the value of the adjusted R^2 was .41, a large effect size for multiple regression (Cohen, 1988).

Table 6

Hierarchical Regressions for Taiwan Private and Public Teachers Related to Teacher Beliefs and Instructional Activities

Groups	Predictors	DAPB	DIPB	FCI	DAPIA	DIPIA	
Taiwan Private	Block 1	Certification Education Major Teaching experience Teach other grades Teach public-K Teach disabled	$F(7,81) = 1.30,$ $p = .26,$ $R^2 = .10,$ $R_{adj}^2 = .02$	$F(7,81) = 4.21,$ $p < .01,$ $R^2 = .27,$ $R_{adj}^2 = .20$	$F(7,81) = .91,$ $p = .51,$ $R^2 = .07,$ $R_{adj}^2 = -.01$	$F(7,81) = 2.09,$ $p > .05,$ $R^2 = .15,$ $R_{adj}^2 = .08$	$F(7,81) = 3.98,$ $p < .01,$ $R^2 = .26,$ $R_{adj}^2 = .19$
	Block 2	Child age Number of boy Number of girl	$F(10,78) = 1.38,$ $p = .21,$ $R^2 = .15,$ $R_{adj}^2 = .04$	$F(10,78) = 3.02,$ $p < .01,$ $R^2 = .28,$ $R_{adj}^2 = .19$	$F(10,78) = 1.21,$ $p = .30,$ $R^2 = .13,$ $R_{adj}^2 = .02$	$F(10,78) = 1.76,$ $p > .05,$ $R^2 = .18,$ $R_{adj}^2 = .08$	$F(10,78) = 3.53,$ $p < .01,$ $R^2 = .31,$ $R_{adj}^2 = .22$
	ΔR^2		.05	.01	.06	.03	.05
Taiwan Public	Block 1	Education Teaching experience Teach other grades Teach private-K Teach disabled	$F(5, 76) = 1.30,$ $p = .27,$ $R^2 = .08,$ $R_{adj}^2 = .02$	$F(5, 76) = .58,$ $p = .72,$ $R^2 = .04,$ $R_{adj}^2 = -.03$	$F(5, 76) = .41,$ $p = .84,$ $R^2 = .03,$ $R_{adj}^2 = -.04$	$F(5, 76) = 1.40,$ $p = .23,$ $R^2 = .08,$ $R_{adj}^2 = .02$	$F(5, 76) = 1.43,$ $p = .23,$ $R^2 = .09,$ $R_{adj}^2 = .03$
	Block 2	Child age Number of boy Number of girl	$F(8,73) = 1.24,$ $p = .29,$ $R^2 = .12,$ $R_{adj}^2 = .02$	$F(8,73) = 1.20,$ $p = .31,$ $R^2 = .12,$ $R_{adj}^2 = .02$	$F(8,73) = 1.59,$ $p = .14,$ $R^2 = .14,$ $R_{adj}^2 = .06$	$F(8,73) = 1.44,$ $p = .19,$ $R^2 = .14,$ $R_{adj}^2 = .04$	$F(8,73) = 1.38,$ $p = .22,$ $R^2 = .13,$ $R_{adj}^2 = .04$
	ΔR^2		.04	.08	.11	.06	.04

Note: DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. $p < .05$ = statistically significant level.

Table 7

Hierarchical Regressions for US Private and Public Teachers Related to Teacher Beliefs and Instructional Activities

Groups	Predictors	Developmentally Appropriate Practice Beliefs	Developmentally Inappropriate Practice Beliefs	Family, Culture, and Inclusion	Developmentally Appropriate Practice Instructional Activities	Developmentally Inappropriate Practice Instructional Activities
US Private	Block 1	Age Education Minor Certification Teaching years Teach other grades Teach private-K Teach disabled $F(8,43) = 2.61,$ $p = .02,$ $R^2 = .33,$ $R^2_{adj} = .20$	$F(8,43) = 2.67,$ $p = .02,$ $R^2 = .33,$ $R^2_{adj} = .21$	$F(8,43) = 1.28,$ $p = .28,$ $R^2 = .19,$ $R^2_{adj} = .04$	$F(8,43) = .66,$ $p = .72,$ $R^2 = .11,$ $R^2_{adj} = -.06$	$F(8,43) = .65,$ $p = .73,$ $R^2 = .11,$ $R^2_{adj} = -.06$
	Block 2	Number of boy Number of girl $F(10,41) = 4.57,$ $p < .001,$ $R^2 = .53,$ $R^2_{adj} = .41$	$F(10,41) = 2.21,$ $p = .04,$ $R^2 = .35,$ $R^2_{adj} = .19$	$F(10,41) = 1.35,$ $p = .24,$ $R^2 = .25,$ $R^2_{adj} = .06$	$F(10,41) = 1.55,$ $p = .16,$ $R^2 = .27,$ $R^2_{adj} = .10$	$F(10,41) = .68,$ $p = .74,$ $R^2 = .14,$ $R^2_{adj} = -.07$
	ΔR^2	.20	.02	.06	.16	.03
US Public	Block 1	Gender Teaching years Teach other grades Teach private-K Education Major Minor $F(7, 45) = .69,$ $p = .68,$ $R^2 = .10,$ $R^2_{adj} = -.04$	$F(7, 45) = .66,$ $p = .71,$ $R^2 = .09,$ $R^2_{adj} = -.05$	$F(7, 45) = .57,$ $p = .78,$ $R^2 = .08,$ $R^2_{adj} = -.06$	$F(7, 45) = 1.10,$ $p = .38,$ $R^2 = .15,$ $R^2_{adj} = .01$	$F(7, 45) = .35,$ $p = .93,$ $R^2 = .05,$ $R^2_{adj} = -.10$
	Block 2	Number of boy Number of girl $F(9, 43) = .55,$ $p = .83,$ $R^2 = .10,$ $R^2_{adj} = -.09$	$F(9, 43) = .65,$ $p = .75,$ $R^2 = .12,$ $R^2_{adj} = -.07$	$F(9, 43) = 1.70,$ $p = .11,$ $R^2 = .11,$ $R^2_{adj} = -.07$	$F(9, 43) = 1.44,$ $p = .20,$ $R^2 = .23,$ $R^2_{adj} = .07$	$F(9, 43) = .33,$ $p = .96,$ $R^2 = .06,$ $R^2_{adj} = -.13$
	ΔR^2	.00	.04	.03	.08	.01

For the US public group, the predictions on the five dependent variables with the seven teacher's characteristics in the first block were not significant. The explained portion of the variances ranged from .05 to .15. The values of the adjusted R^2 corrected for different types of errors (e.g., random error, sampling error, and model specification error) were either trivial or meaningless (i.e., less than zero) possibly due to the too much error in the prediction models. With numbers of boys and girls added to the prediction as the second block, the predictions were not significant either. The contributions of these two variables were small or lower moderate, ranging from .04 to .11. In summary, the predictions with the two blocks of variables for this group were generally ineffective.

Rationales for Selecting the Backward Regression

Although the hierarchical regression method may reveal the relative contributions of the two blocks of variables, it may not be able to maximize the predictions due to the inclusion of some unimportant predictor variables. To maximize the prediction in the case of lack of strong theories, backward regression is often used to search for the best model. Hair et al. (2006) stated backward regression “starts with a regression equation including all the independent variables, and then deletes independent variables that do not contribute significantly” (p. 212). Backward regression has the advantage of maximizing the prediction with the minimum subset of significant predictors, but the disadvantage of this technique is that the eliminated predictors cannot be back into equation anymore. Hair et al. further stated that backward regression may be used to maximize the prediction if there is no multicollinearity among predictors. As Tables B.5-8 demonstrated, the multicollinearity among the used predictors for each of the four groups was not a threat. Thus, backward regression seemed to be appropriate.

In deciding the best prediction model, the adjusted multiple R^2 was used as the criterion for the competing models as it is a potentially better estimate of the real effect in the population due to its correctness on sampling error (Snyder & Lawson, 1993). Generally a model with the largest adjusted R^2 was chosen as the best model. If several models had similar R^2 , the one with the least number of predictors was designated as the best model.

Assumptions of Multiple Regression

There are four primary assumptions for multiple regression: (a) linearity of relationship between the predictors and the dependent variable, (b) constant variance of the errors or the error variance being constant over the range of the predictor values (i.e., homoscedasticity), (c) independence of error terms (i.e., each predicted value is independent of other predicted values), and (d) normality of the error terms or the error terms appearing to be normally distributed (Hair et al., 2006). These assumptions were visually checked through the studentized residual plots and the normal probability plots as recommended (Hair et al.) for each of the regression analyses below. The plots demonstrated that there were no serious violations to the above assumptions although they were not completely met. Therefore, no remedial techniques such as data transformation were performed on the dependent variables. The assumptions were considered as being met.

Results of the Backward Regression

Tables B.9-12 lists the results of the model summaries on the five dependent variables in the four teacher groups. For the prediction on developmentally appropriate practice beliefs (DAPB) in the Taiwan private group, model six (see Table B.9) with five predictors turned out to

be the best model. Table 8 shows this prediction was significant: $F(5, 83) = 2.63, p = .03$. The five predictors altogether could explain 9% of the variance on DAPB after the corrections, at the lower bound of the threshold for a medium effect size. Three predictors were salient: education, number of boys, and experience of teaching other grades. Teachers with higher education tended to have higher DAPB. With more boys in the classroom, teachers were less likely to hold DAPB. Experiences of teaching other grades than preschool and kindergarten were also inversely related to teacher's DAPB. Those who only taught young children tended to have higher DAPB than the counterparts with teaching experiences at other grades.

For DIPB in the Taiwan private group, the model with seven predictors (Model 4 in Table B.9) had the largest adjusted R^2 . The prediction was statistically at the .001 level: $F(7, 81) = 4.47, p < .001$. The seven predictors collectively could account for 22% of the variance on DIPB, a moderate effect size. Among the seven predictors, experiences of teaching other grades, education, certification, and major were the significant predictors at the .05 level. Except for experiences of teaching other grades, all of the other three predictors were negatively related to DIPB. In other words, teachers with higher education, with certification, and with a major in early childhood education had lower DIPB than those with lower education, no certificate, or other non-ECE majors. Teachers with teaching experiences at other grades had more DIPB than those with teaching experiences with young children only.

For the prediction of FCI in this group, Model 6 (see Table B.9) with five predictors had the highest adjusted R^2 . However, as Table 8 shows, the prediction model was not significant: $F(5, 83) = 2.03, p = .08$. The adjusted R^2 was small also. Hence, the individual predictors were not examined.

Table 8

Backward Regression for Taiwan Private Group

Predictors	DAPB			DIPB			FCI			DAPIA			DIPIA		
	β	t	p	β	t	p	β	t	p	β	t	p	β	t	P
Education level	.25	2.38	.02	-.26	-2.47	.02	.20	1.86	.07	.14	1.34	.18	-.25	-2.44	.02
Teach other grades	-.21	-1.99	.05	.26	2.62	.01	-.13	-1.19	.24	.27	2.61	.01	.13	1.33	.19
Teach disabled	.16	1.52	.13	-.14	-1.40	.17	.15	1.39	.17	—	—	—	-.18	-1.92	.06
Number of boys	-.21	-2.02	.05	.12	1.19	.24	-.16	-1.49	.14	-.13	-1.22	.23	-.16	-1.58	.12
Number of girls	.17	1.62	.11	—	—	—	.23	2.15	.03	.15	1.39	.17	-.14	-1.48	.14
Certification	—	—	—	-.22	-2.08	.04	—	—	—	—	—	—	-.25	-2.49	.01
Major	—	—	—	-.20	-2.00	.05	—	—	—	.12	1.17	.24	-.17	-1.69	.10
Teaching years	—	—	—	.15	1.45	.15	—	—	—	.18	1.71	.09	—	—	—
Teaching public K	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Child age	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Model summary	$F(5,83) = 2.63,$ $p = .03,$ $R^2 = .14,$ $R^2_{adj} = .09$			$F(7,81) = 4.47,$ $p < .001,$ $R^2 = .28,$ $R^2_{adj} = .22$			$F(5,83) = 2.03,$ $p = .08,$ $R^2 = .11,$ $R^2_{adj} = .06$			$F(6,82) = 2.77,$ $p = .02,$ $R^2 = .17,$ $R^2_{adj} = .11$			$F(7,81) = 5.06,$ $p < .001,$ $R^2 = .30,$ $R^2_{adj} = .24$		

Note. Dashes indicate the predictor was not part of the best prediction model for the criterion variable. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. $p < .05$ = statistically significant level.

Table B.9 demonstrates that Model 5 was the best prediction model for DAPIA in Taiwan private teachers. Table 8 shows that the six predictors significantly predicted DAPIA at the .05 level: $F(6, 82) = 2.77, p = .02$. About 11% of the variance on DAPIA could be accounted for by these six predictors, a medium effect size. Of the six predictors, only the variable of teaching other grades was significant. Teachers with experiences of teaching other grades tended to demonstrate more DAP activities in the classrooms than did the counterparts teaching preschool and kindergarten only.

For the DIPIA prediction in Taiwan private teachers, Model 5 (see Table B.9) was the best model. Table 8 indicates that this seven-predictor model was significant at the .001 level: $F(7, 81) = 5.06, p < .001$. About 24% of the variance on DIPIA could be accounted for by these predictors. Of the seven predictors, only education and certification were salient. Teachers with higher education and/or certification had fewer DIP activities in their classrooms than those with lower education and/or no certification.

Table B.10 lists the model summaries on the predictions of the five dependent variables for the Taiwan public group. For DAPB, Model 7 with two predictors was the best. Table 9 shows the prediction was significant at the .05 level: $F(2, 79) = 3.07, p = .05$. These two variables could explain 5% of the variance on DAPB, a small effect size. Teaching experience was the salient predictor. Teachers with more experience had lower beliefs on DAP.

For DIPB, Model 4 with five predictors was the best (see Table B.10). However, even this model with the largest adjusted R^2 was not significant as shown in Table 9: $F(5, 76) = 1.96, p = .09$. The five predictors collectively could explain 6% of the variance on DIPB. Individual predictors were not examined for the salient ones as the whole prediction model was not significant.

Table 9

Backward Regression for Taiwan Public Group

Predictors	DAPB			DIPB			FCI			DAPIA			DIPIA		
	β	t	p	β	t	p	β	t	p	β	t	p	β	t	P
Teaching years	-.22	-2.06	.04	—	—	—	-.16	-1.48	.14	-.25	-2.30	.02	—	—	—
Teach private-K	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Teach other grade	—	—	—	.14	1.25	.22	—	—	—	—	—	—	—	—	—
Number of boy	—	—	—	.18	1.60	.11	-.18	-1.64	.10	-.13	-1.25	.21	.21	1.93	.06
Number of girl	.15	1.38	.17	.18	1.58	.12	.24	2.21	.03	-.19	-1.75	.08	—	—	—
Education	—	—	—	-.14	-1.27	.21	—	—	—	—	—	—	-.25	-2.40	.02
Child age	—	—	—	-.17	-1.49	.14	-.26	-2.41	.02	—	—	—	—	—	—
Model summary	$F(2,79) = 3.07,$ $p = .05,$ $R^2 = .07,$ $R^2_{adj} = .05$			$F(5,76) = 1.96,$ $p = .09,$ $R^2 = .11,$ $R^2_{adj} = .06$			$F(4,77) = 3.04,$ $p = .02,$ $R^2 = .14,$ $R^2_{adj} = .09$			$F(3,78) = 3.31,$ $p = .02,$ $R^2 = .11,$ $R^2_{adj} = .08$			$F(2,79) = 5.02,$ $p = .01,$ $R^2 = .11,$ $R^2_{adj} = .09$		

Note. Dashes indicate the predictor was not part of the best prediction model for the criterion variable. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. $p < .05$ = statistically significant level.

For FCI, Model 5 was the best (see Table B.10). Table 9 indicates this model with four predictors significantly predict FCI at the .05 level: $F(4, 77) = 3.04, p = .02$. These predictors could explain 9% of the variance on FCI at the minimum threshold of a medium effect size. Among the predictors, child age and number of girls were the salient. Teachers with younger children tended to have higher values on FCI. Teachers also tended to have higher values on FCI with more girls in the classroom.

For DAPIA, Model 6 in Table B.10 was the chosen as the best model. As shown in Table 9, this three-predictor model was significant: $F(3,78) = 3.31, p = .02$. The three predictors could explain 8% of the variance on DAPIA, a small effect size. Teaching experience was found to be the most important predictor. Teachers with more teaching years tended to have few DAP activities in their classrooms.

For DIPIA, Table B.10 indicates Model 7 was the best. Table 9 shows that the two-predictor model was significant at the .01 level: $F(2,79) = 5.02, p = .01$. About 9% of the variance on DIPIA could be accounted for by education and number of boys in the classroom, a medium effect size. Teachers with higher education reported fewer DIP activities in their classrooms. Number of boys was a significant predictor. With more boys in their classrooms, teachers tended to have more DIP activities

Table B.11 presents the results of model summaries for the backward regression on the predictions of the five dependent variables for the US private group. For DAPB, Model 4 with seven predictors was considered as the best. Table 10 shows the prediction of DAPB with the seven predictors was significant at the .001 level: $F(7, 44) = 6.62, p < .001$. These predictors altogether could explain 44% of the variance on DAPB, a large effect size. Three of the seven predictors were salient: teaching years in private kindergarten, teaching experience at other

grades, and number of boys. They were all on the negatively related to DAPB. Teachers with more teaching years in the private kindergarten setting, more experiences of teaching other grades, or more boys in their classrooms tended to have lower DAPB.

For DIPB, Model 8 (see Table B.11) had the highest adjusted R^2 and was designated as the best model. Table 10 indicates teacher's education and age significantly predict DIPB: $F(2, 49) = 11.15, p < .001$. The two variables could predict 29% of the variance on DIPB, a large effect size. Teachers with lower education or older age children in classroom tended to report fewer DIPB.

Table B.11 shows Model 7 was the best for FCI. This best prediction model with four predictors was also significant with a medium effect size: $F(4, 47) = 2.71, p = .04, R_{adj}^2 = .12$ (see Table 10). Of the four predictors, two were significant at the .05 level. Teachers with more experiences in the private kindergarten settings were more likely to have lower values on FCI. Teachers who had taught children with special education needs tended to have higher values on FCI.

Model 8 for DAPIA was the best. The three-predictor model was significant at the .01 level: $F(3, 48) = 4.32, p = .01$ (see Table 10). The practical significance was moderate. Sixteen percent of the variance on DAPIA could be explained by these three predictors. Number of boys in the classroom was the best predictor. Teachers tended to have more DAP activities with fewer boys in the classrooms.

For the prediction of DIPIA, Model 9 had the largest adjusted R^2 (see Table B.10) and thus designated as the best model. However, this three-predictor model was not statistically significant: $F(3, 48) = 2.03, p = .12$ (see Table 10). The practical significance in terms of adjusted R^2 was small also.

Table 10

Backward Regression for United States Private Group

Predictors	DAPB			DIPB			FCI			DAPIA			DIPIA		
	β	t	p	β	t	p	β	t	p	β	t	p	β	t	P
Education	.16	1.32	.19	.50	4.23	.00	—	—	—	—	—	—	—	—	—
Minor	.19	1.63	.11	—	—	—	—	—	—	—	—	—	—	—	—
Certification	.26	1.86	.07	—	—	—	—	—	—	—	—	—	—	—	—
Teach other grades	-.42	-3.17	.00	—	—	—	-.17	-1.25	.22	—	—	—	-.27	-1.97	.05
Teach private-K	-.37	-3.43	.00	—	—	—	-.29	-2.16	.04	—	—	—	-.17	-1.23	.23
Number of boy	-.31	-2.17	.04	—	—	—	-.25	-1.90	.06	-.40	-3.14	.00	—	—	—
Number of girl	-.19	-1.30	.20	—	—	—	—	—	—	—	—	—	-.17	-1.25	.22
Age	—	—	—	-.27	-2.23	.03	—	—	—	-.17	-1.28	.21	—	—	—
Teach disabled	—	—	—	—	—	—	.30	2.10	.04	.23	1.70	.10	—	—	—
Model summary	$F(7,44) = 6.62,$ $p < .001,$ $R^2 = .51,$ $R^2_{adj} = .44$			$F(2,49) = 11.15,$ $p < .001,$ $R^2 = .31,$ $R^2_{adj} = .29$			$F(4,47) = 2.71,$ $p = .04,$ $R^2 = .19,$ $R^2_{adj} = .12$			$F(3,48) = 4.32,$ $p = .01,$ $R^2 = .21,$ $R^2_{adj} = .16$			$F(3,48) = 2.03,$ $p = .12,$ $R^2 = .11,$ $R^2_{adj} = .06$		

Note. Dashes indicate the predictor was not part of the best prediction model for the criterion variable. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. $p < .05$ = statistically significant level.

Table B.12 lists the model summaries for the backward regression on the five dependent variables for the US public group and Table 11 shows the detailed results of the best model for each dependent variable. All of the prediction models except for that on DAPIA were not statistically significant and the practical significances were trivial. For the prediction on DAPIA, the three-predictor model was significant at the .05 level: $F(3,49) = 3.73, p = .02$. About 14% of the variance on DAPIA could be accounted by these three predictors, a medium effect size. Number of boys was the most important predictor. Teachers with more boys in the classrooms tended to report few DAP activities.

Results of the Hierarchical Regression with Demographic and Belief Variables

In addition to searching for the best model for each dependent variable in each of the four groups using the teachers' personal demographics and classroom variables, this study was also interested in the relative contributions of the demographic variables and teachers' beliefs to predict DAP and DIP activities. However, due to the high correlation between DAPB and FCI across the four groups as shown in Table 12, DAPB and FCI were combined into one factor by re-computing the factor mean. The correlation matrices among the predictors for DAPIA or DIPIA after these two factors synthesized in each group as shown in Table B.13-16 demonstrated multicollinearity were not a challenge. Thus, for Research Question 7, the predictors from the backward regression best model for DAPIA or DIPIA were entered as the first block and the two belief factors (i.e., DAPB_FCI and DIB) were entered as the second block.

Table 11

Backward Regression for United States Public Group

Predictors	DAPB			DIPB			FCI			DAPIA			DIPIA		
	β	t	p	β	t	p	β	t	p	β	t	p	β	t	P
Gender	-.23	-1.59	.11	—	—	—	—	—	—	—	—	—	—	—	—
Teaching years	.24	1.69	.10	—	—	—	—	—	—	—	—	—	.17	1.12	.27
Teach other grades	—	—	—	—	—	—	-.17	-1.13	.27	—	—	—	—	—	—
Major	—	—	—	-.20	-1.37	.18	—	—	—	-.25	-1.92	.06	—	—	—
Number of girl	—	—	—	.24	1.66	.10	.19	1.38	.18	—	—	—	—	—	—
Number of boy	—	—	—	—	—	—	—	—	—	-.33	-2.54	.01	—	—	—
Teach private-K	—	—	—	—	—	—	.22	1.45	.15	.17	1.29	.20	—	—	—
Education	—	—	—	—	—	—	—	—	—	—	—	—	-.19	-1.23	.22
Model summary	$F(2,50) = 2.08,$ $p = .14,$ $R^2 = .08,$ $R^2_{adj} = .04$			$F(2,50) = 1.78,$ $p = .18,$ $R^2 = .07,$ $R^2_{adj} = .03$			$F(3,49) = 1.34,$ $p = .27,$ $R^2 = .08,$ $R^2_{adj} = .02$			$F(3,49) = 3.73,$ $p = .02,$ $R^2 = .19,$ $R^2_{adj} = .14$			$F(2,50) = 1.00,$ $p = .38,$ $R^2 = .04,$ $R^2_{adj} = .00$		

Note. Dashes indicate the predictor was not part of the best prediction model for the criterion variable. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. $p < .05$ = statistically significant level.

Table 12

Correlations among the Three Belief Factors for the Four Groups

Group	DAPB and FCI	DAPB and DIPB	FCI and DIPB
TW private	.80***	-.11	-.19
TW public	.67***	.05	.04
US private	.58***	.28*	.19
US public	.74***	.20	.13

Note. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion. * $p < .05$, *** $p < .001$.

Similar to the results in Table 8 for the best model on DAPIA for the Taiwan private group, Table 13 shows that the six structural variables in the first block significantly predict DAPIA at the .01 level. Experience of teaching other grades was the only significant predictor as in Table 8. When the two belief factors were entered as the second block, the prediction was significant at the .001 level: $F(8, 85) = 6.03, p < .001$. The adjusted R² increased to .30, a large effect size. The two belief factors contributed 18% to the explanation of the variance on DAPIA, more than the six structural variables in the first block did. For the eight predictors in the final model, three were salient: DAPB and FCI, teaching other grades, and teaching years. Teachers with higher values of DAPB and FCI, with experiences of teaching other grades, or with more years of teaching experience tended to report more DAP activities in their classrooms. Teacher's value of DAPB and FCI was the most important factor influencing the DAP activities as reflected in the largest β and t values.

Table 13

Hierarchical Regression on Developmentally Appropriate Practice Instructional Activities (DAPIA) with Structural and Belief Variables for Taiwan Private Group

Criterion/Predictor Variables	R^2	R^2_{adj}	F	β	t	p
Model 1	.18	.12	$F(6, 87) = 3.14^{**a}$			
Education				.15	1.50	.14
Teach other grades				.29	2.86	.01
Number of boys				-.14	-1.34	.18
Number of girls				.16	1.62	.11
Major				.09	.92	.36
Teaching years				.18	1.81	.07
Model 2	.36	.30	$F(8, 85) = 6.03^{***}$			
Education				.05	.55	.59
Teach other grades				.36	3.89	.00
Number of boys				-.06	-.69	.49
Number of girls				.06	.69	.49
Major				.03	.32	.75
Teaching years				.20	2.18	.03
DAPB_FCI				.46	4.95	.00
DIPB				-.02	-.24	.81

Note. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. *a* = The *F* value may be different from that in Table 8 due to a different sample size. ** $p < .01$, *** $p < .001$.

Table 14 shows the seven structural variables in the first block significantly predict DIPIA at the .001 level as in Table 8 for the Taiwan private group. But with the two belief factors entered as the second block, the *F* value had increased to 9.22 from 5.19. The adjusted R^2 had also dramatically increased from .25 to .45. The two belief factors alone with the presence of

the other seven structural variables contributed 20%. In the final model with the nine predictors, teacher's DIPB was the most important predictor. Teachers with higher value of DIPB reported more DIP activities in their classrooms. The other salient predictors were number of boys, number of girls, and certification. They were all inversely related to DIPIA. Teachers with a certification or with more boys/girls in their classrooms reported less DIP activities.

Table 14

Hierarchical Regression on Developmentally Inappropriate Practice Instructional Activities (DIPIA) with Structural and Belief Variables for Taiwan Private Group

Criterion/Predictor Variables	R^2	R^2_{adj}	F	β	t	p
Model 1	.31	.25	$F(7, 83) = 5.19^{***a}$			
Education				-.24	-2.37	.02
Teach disabled				-.18	-1.88	.06
Teach other grades				.14	1.49	.14
Number of boys				-.15	-1.54	.13
Number of girls				-.15	-1.59	.12
Certification				-.26	-2.68	.01
Major				-.16	-1.63	.11
Model 2	.51	.45	$F(9, 81) = 9.22^{***}$			
Education				-.09	-1.02	.31
Teach disabled				-.12	-1.47	.15
Teach other grades				.02	.19	.85
Number of boys				-.21	-2.41	.02
Number of girls				-.17	-2.05	.04
Certification				-.17	-2.02	.05
Major				-.06	-.71	.48
DAPB_FCI				.06	.77	.45
DIPB				.52	5.70	.00

Note. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. a = The F value may be different from that in Table 8 due to a different sample size. *** $p < .001$.

Table 15 indicates the three structural variables from the best model in the backward regression for this group significantly predicted DAPIA at the .05 level with a small effect size: $F(3, 79) = 3.17, p < .05, R_{adj}^2 = .07$. Teaching years was the only salient predictor. Teachers with more teaching experiences reported few DAP activities. After the two belief factors were included as the second block, the prediction power had dramatically increased: $F(5, 77) = 10.44, p < .001, R_{adj}^2 = .37$. Thirty percent of the additional variance on DAPIA was accounted for by the two belief factors. The positive belief about DAP (i.e., DAP and FCI) was the most important predictors. Teachers with higher value on DAPB and FCI tended to have higher DAP activities in the classrooms. The other two salient factors were DIPB and number of girls in the classroom. Teachers with less DIPB or few girls reported more DAP activities. Teaching years was no longer a significant predictor anymore after the two belief factors were entered in into the equation.

For the prediction of DIPIA in this group, Table 15 shows that the two structural variables (i.e., education and number of boys) significantly predicted 9% of the variance at the .01 level: $F(5, 79) = 5.02, p < .01$. Education was the salient factor. Teachers with higher education reported fewer DIP activities. With the two belief factors included as the second block, the prediction increased from the .01 level to the .001 level: $F(4, 77) = 6.36, p < .001$. Additional 12% of the variance on DIPIA could be accounted for by the two belief factors. Of the four predictors, DIPB was the most important one. Teachers with higher DIPB tended to have more DIP activities. Education remained as a salient factor on the opposite direction of DIPIA as in the first block with the two structural variables.

Table 15

Hierarchical Regressions on Developmentally Appropriate and Inappropriate Practice Instructional Activities with Structural and Belief Variables for Taiwan Public Group

Criterion/Predictor Variables		R^2	R^2_{adj}	F	β	t	p
DAPIA	Model 1	.11	.07	$F(3, 79) = 3.17^{*a}$			
	Teaching years				-.24	-2.28	.03
	Number of boys				-.14	-1.33	.19
	Number of girls				-.17	-1.61	.11
	Model 2	.40	.37	$F(5, 77) = 10.44^{***}$			
	Teaching years				-.11	-1.15	.26
	Number of boys				-.04	-.47	.64
	Number of girls				-.22	-2.37	.02
	DAPB_FCI				.55	5.94	.00
	DIPB				-.23	-2.54	.01
DIPIA	Model 1	.11	.09	$F(2, 79) = 5.02^{**a}$			
	Number of boys				.21	1.93	.06
	Education				-.26	-2.40	.02
	Model 2	.25	.21	$F(4, 77) = 6.36^{***}$			
	Number of boys				.16	1.53	.13
	Education				-.23	-2.25	.03
	DAPB_FCI				.12	1.21	.23
DIPB				.34	3.27	.00	

Note. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. *a* = The F value may be different from that in Table 9 due to different sample sizes. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 16 indicates the three structural variables from the best model in the backward regression significantly predicted DAPIA with a medium effect size: $F(3, 48) = 4.32$, $p < .01$, $R^2_{adj} = .16$. Number of boys was the only significant predictor. Teachers with more boys in the classroom tended to report fewer DAP activities. After the two belief variables were entered as the second block, the F value decreased but the value of R^2_{adj} increased. The two belief factors could account for additional 6% of the variance on DAPIA. DIPB turned out to the most

significant predictors. Teachers with higher DIPB reported fewer DAP activities. Number of boys remained significant in the opposite direction of DAPIA as in the first block.

For the prediction of DIPIA for the US private group, Table 16 shows that the first block with three predictors did not predict DIPIA. The value of R^2_{adj} was small. After the two belief factors entered as the second block, the prediction was even worse. The F value and R^2_{adj} had decreased. The inclusion of the belief factors did not contribute any to the explanation of the variance on DIPIA. None of the predictors were significant.

Table 16

Hierarchical Regressions on Developmentally Appropriate and Inappropriate Practice Instructional Activities with Structural and Belief Variables for United States Private Group

Criterion/Predictor Variables		R^2	R^2_{adj}	F	β	t	p
DAPIA	Model 1	.21	.16	$F(3, 48) = 4.32^{**a}$			
	Age				-.17	-1.28	.21
	Teach other grades				.23	1.70	.10
	Number of boy				-.40	-3.14	.00
	Model 2	.30	.22	$F(5, 46) = 3.93^{**}$			
	Age				-.22	-1.58	.12
	Teach other grades				.25	1.92	.06
	Number of boy				-.32	-2.30	.03
	DAPB_FCI				.17	1.19	.24
	DIPB				-.31	-2.32	.02
DIPIA	Model 1	.11	.06	$F(3, 48) = 2.03^a$			
	Teach other grades				-.27	-1.97	.05
	Teach private-K				-.17	-1.23	.23
	Number of girls				-.17	-1.25	.22
	Model 2	.13	.03	$F(5, 46) = 1.33$			
	Teach other grades				-.24	-1.69	.10
	Teach private-K				-.11	-.73	.47
	Number of girls				-.11	-.73	.47
	DAPB_FCI				.13	.73	.47
DIPB				.04	.27	.78	

Note. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. a = The F value may be different from that in Table 8 due to a different sample size. * $p < .05$, ** $p < .01$.

Table 17 shows that the three structural variables from the best model of the backward regression for the US public group significant predicted DAPIA with a medium effect size: $F(3, 49) = 3.73, p < .05, R_{adj}^2 = .14$. Number of boys was the only significant predictor. Teachers with more boys in the classroom reported fewer DAP activities. With the two belief variables entered as the second block, the prediction was significant at the .001 level with a large effect size: $F(5, 47) = 7.15, p < .001, R_{adj}^2 = .37$. Additional 23% of the variance on DAPIA could be accounted for by the two belief factors. Teacher's belief value on DAP and FCI (i.e., DAPB_FCI) was the most important predictor. Teachers with higher values on DAPB and FCI reported higher DAP activities. Number of boys remained as an important predictor and had a negative impact on teacher's DAP activities. Major became the third important predictor in the final model. Teachers majored in early childhood or related majors reported more DAP activities in their classrooms than did the counterparts majored in other fields.

For DIPIA, the two structural variables (i.e., teaching years and education) in the best model from backward regression did not predict DIPIA. The value of R_{adj}^2 was virtually zero. However, after the two belief factors entered as the second block, the prediction model was significant at the .001 level with a large effect size: $F(4, 48) = 6.70, p < .001, R_{adj}^2 = .31$. Almost all of the variance on DIPIA in this model was explained by the two belief factors. Both of the two belief factors were salient. Teachers with higher values of DIPB or lower values of DAPB and FCI tended to report higher DIP activities in their classrooms.

Table 17

Hierarchical Regressions on Developmentally Appropriate and Inappropriate Practice Instructional Activities with Structural and Belief Variables for United States Public Group

Criterion/Predictor Variables		R^2	R^2_{adj}	F	β	t	p
DAPIA	Model 1	.19	.14	$F(3, 49) = 3.73^{*a}$			
	Teach private-K				.17	1.29	.20
	Major				-.25	-1.92	.06
	Number of boys				-.33	-2.54	.01
	Model 2	.43	.37	$F(5, 47) = 7.15^{***}$			
	Teach private-K				.08	.74	.46
	Major				-.24	-2.13	.04
	Number of boys				-.31	-2.84	.01
	DAPB_FCI				.50	4.43	.00
	DIPB				.01	.06	.96
DIPIA	Model 1	.04	.00	$F(2, 50) = 1.00^a$			
	Teaching years				.17	1.12	.27
	Education				-.19	-1.23	.22
	Model 2	.36	.31	$F(4, 48) = 6.70^{***}$			
	Teaching years				.12	.92	.36
	Education				-.12	-.97	.34
	DAPB_FCI				-.24	-1.99	.05
	DIPB				.56	4.72	.00

Note. DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion; DAPIA = developmentally appropriate practice instructional activities; DIPIA = developmentally inappropriate practice instructional activities. a = The F value may be different from that in Table 8 due to a different sample size. * $p < .05$, *** $p < .001$.

CHAPTER V

DISCUSSION

Summary and Discussion

Governmental attention increased the importance of kindergarten education in five-year-old children's education in the United States and Taiwan (Wollons, 2000). Developmentally appropriate practices (DAP) have proved to have both short-term and long-term positive impacts on young children. Conversely, developmentally inappropriate practices (DIP) have negative influences on children's behaviors and learning (Burts et al., 1990, Burts et al., 1992; Stipek et al., 1998). Teachers' beliefs about developmentally appropriate practices and the implementation of the developmentally appropriate principles in the classroom have remained much understudied in both US and Taiwan. The three purpose of this study were to (a) describe the current status of kindergarten teachers' beliefs and practices about DAP in the US and Taiwan, (b) examine the differences between the US and Taiwan public and private kindergarten teachers on developmentally appropriate beliefs and practices, and (c) explore salient factors predicting the different dimensions of developmentally appropriate beliefs and practices. Seven research questions guided this study.

The first two research questions examined the extent to which the US and Taiwan public and private kindergarten teachers reported the beliefs about DAP and rated themselves as demonstrating DAP activities in their classrooms. Findings from this study showed both the US and Taiwan teachers believed DAP is very important in working with young children ages 4-6 years. The group means were 4.17, 4.18, 4.02, and 3.92 on a 5-point Likert scale for the Taiwan private, Taiwan public, US private, and US public groups, respectively. These results were comparable to the findings of Israsena (2007) in a sample of 93 Thai preschool and kindergarten

teachers ($M = 4.20$) and of Kim (2005) in a sample of 375 US early childhood education teachers ($M = 4.22$). The teachers also rated the values of family, culture, and inclusion as very important ($M_s = 4.08, 4.07, 4.11, \text{ and } 4.25$ for the four groups, respectively). The two US groups had higher values on FCI than on developmentally appropriate practice beliefs (DAPB). In contrast, the two Taiwan groups had opposite value on FCI and DAPB. This finding may be due to the emphasis of multiculturalism and inclusion in the US whereas students in Taiwan are more homogeneous in terms of ethnicity (Brok & Levy, 2005). Interestingly, the teachers thought the developmentally inappropriate beliefs were important as well although the DIP beliefs were lower than the DAP beliefs ($M_s = 3.09, 2.86, 3.40, \text{ and } 3.44$, respectively on a 5-point Likert scale). These values were similar to 3.35 among Thai teachers (Israsena, 2007) and 3.40 in US teachers (Kim, 2005).

All teachers reported DAP practices occurring in their classrooms regularly. The means for the four groups were 3.76, 3.72, 3.80, and 3.90, respectively; similar to 3.77 in Israsena's (2007) Thai sample and 3.80 in Kim's (2005) sample. Also similar to Israsena's and Kim's findings, the teachers' DAP beliefs outscored the DAP practices ($M_s = 4.17$ vs. 3.76, 4.18 vs. 3.72, 4.02 vs. 3.80, and 3.92 vs. 3.80 respectively for the four groups). Although DIP was lower than DAP for all of the four groups, interestingly, the Taiwan teachers reported fewer DIP activities than beliefs in DIP ($M_s = 3.09$ and 2.86 vs. 2.96 and 2.65) whereas the US teachers scored lower both on DIPB and DIPIA. The exact reason for this phenomenon is unknown. Future studies could include other techniques such as classroom observations to validate the self-reported findings. Overall, these results indicated both the US and Taiwan kindergarten teachers endorse DAP beliefs to a large extent and conduct DAP activities regularly in their classrooms while they value DIP beliefs and do DIP activities as well but to a lesser extent.

The third research question focused on the group differences of the three dimensions of the beliefs about developmentally appropriate practices between the Taiwan and US public and private teachers: DAPB, FCI, and DIPB. On DAPB, only the main effect of location was found. Contrary to the hypothesis, the Taiwan teachers had higher DAPB than the American teachers. This may be due to the more recent introduction of the concept of a child-centered approach in Taiwan (Hsieh, 2004). Meanwhile, in the US, issues of academic achievement accountability and No Child Left Behind (2001) promoted American teachers to focus on teaching academic skills and testing; therefore, the beliefs on developmentally appropriate practices may have been reduced (Lin, Lawrence, & Gorrell, 2003). On FCI, all of the four groups equally recognized the values of family, culture, and inclusion in education. Neither a main effect nor an interaction effect was found. On DIPB, a small main effect of location and a medium effect of interaction effect were found. Different from the hypotheses, the US teachers reported higher DIPB than the Taiwan teachers. The US private kindergarten teachers had lower DIPB than their public counterparts. But consistent with the hypothesis, the Taiwan public kindergarten teachers had lower DIPB than the private school teachers. These findings may reflect changes in educational policies and practices for young children (Goldstein, 2007).

The fourth question examined the group differences on developmentally appropriate practices instructional activities (DAPIA) and developmentally inappropriate practices instructional activities (DIPIA). Results showed that the US teachers reported more DAP activities in the classrooms than the Taiwan teachers as hypothesized. However, the interaction effect and the main effect of school type were not found. For DIPIA, contrary to the hypothesis, the US teachers reported more DIPIA than the Taiwan counterparts; the US public kindergarten teachers reported more DIPIA than the Taiwan teachers in public kindergartens; and the US

public kindergarten teachers reported more DIPIA than the US private counterparts. However, consistent with the hypothesis, the Taiwan public kindergarten teachers had fewer DIPIA than had the Taiwan private school teachers. Again, these findings may demonstrate the emphasis on academics rather than social and emotional development with young children in the U.S (Parker & Neuharth-Prichett, 2006).

The fifth and sixth questions explored the possible salient factors influencing the US and Taiwan teachers' developmentally appropriate beliefs and practices. Due to the heterogeneity of the teacher's demographic variables, a universal set of predictors was not possible. Hence, four different sets of predictors were used for the four groups. In the first step, hierarchical regression was employed to compare the relative contributions of teacher's demographic variables and the classroom variables in terms of child composition. For the Taiwan private groups, findings from this study illustrated: (a) the predictions on the three positive dimensions (i.e., DAPB, FCI, and DAPIA) were not statistically significant, (b) the predictions on the two negative dimensions (i.e., DIPB and DIPIA) were significant at the .01 level with medium effect sizes, (c) the three classroom variables (e.g., child age, number of boys and number of girls) contributed little to the predictions of DIPB and DIPIA. For the Taiwan public group, all of the predictions on the five dimensions of developmentally appropriate/inappropriate practices were not significant at the .05 level, even with all eight predictors in the two blocks. For the US private group, the results showed: (a) the prediction on FCI, DAPIA, and DIPIA were not statistically significant, (b) the predictions on DAPB and DIPB were significant with large or medium effect sizes, and (c) the two classroom variables (i.e., number of boys and girls) contributed significant to the prediction of DAPB whereas they were not significant contributors to the prediction of DIPB. For the US

public group, the prediction models were not statistically significant. The practical significances were also trivial.

In summary, findings from the hierarchical regression indicated: (a) the hierarchical regression was generally not effective in explaining the predictors of DAPB, DIPB, FCI, DAPIA, and DIPIA; however, among the US private group, DAPB was found with large effective size, (b) teacher's personal variables were generally more important than the child characteristics for the significant predictions except for the US private group on DAPB, and (c) the predictions using teacher's personal characteristics in the two public groups were not effective. These results of insignificant or small predictions were consistent with other findings. Israsena (2007) reported four predictor variables (i.e., training group membership – currently being trained, trained five years ago, and no training on a child-centered curriculum; teacher's educational level; teaching experience in years; and total number students in the classroom) did not significantly predict the variability on any of the five dimensions using the Thai version of the same survey. Kim (2005) found seven predictors (i.e., permission for observation, education level, ECE background, years of teaching, number of children, percentage of free lunch, and locus of control) significantly predicted only about 13% of variances on the composite scores of DAP beliefs and DAP activities.

Due to the inclusion of the unimportant predictor variables and the relative small group sizes, in the second step, backward regression was used to search for the best models on each of the five dimensions of developmentally appropriate/inappropriate beliefs and practices in each of the four groups by using the same set of predictors as in the hierarchical regression. For the Taiwan private group, the backward regression demonstrated: (a) DAPB was predicted by five variables with a medium effect size. Of the five predictors, teacher education level, number of

boys, and experience of teaching other grades were significantly important. Teachers' education level positively linked to DAPB, which number of boys and experiences of teaching other grades were on the opposite direction; (b) DIPB was also significantly predicted with a medium effect size. Four predictors were significant. Teachers with a certificate, an early childhood education degree, or more years of education, had fewer DIPB than those without a certificate, had majored in a non-ECE field, or had less years of education. Experiences of teaching other grades had a positive relationship with DIPB for this group of teachers; (c) the best model of FCI using the ten predictors was not found; (d) six predictors significantly predicted DAPIA with a medium effect size. Teaching other grades was the only salient variable. Teachers with experiences of teaching other grades reported more DAP classroom activities; and (e) seven variables significantly predicted DIPIA. Teachers with higher education and certificate reported fewer DIP activities in their classrooms.

For the Taiwan public group, teaching experiences and the number of girls in the classroom together significantly predicted DAPB with a small effect size. Teachers with more teaching experience valued DAPB less. This is possibly due to the fact teachers with less experience had more preservice training related to DAPIA. However, DIPB cannot be predicted among this group. Four variables predicted 9% of the variance on FCI. Number of girls and children's age were the significant predictors of FCI. Teachers tended to have higher value on FCI with more girls in the classroom or younger children. Three variables significantly predicted DAPIA. Similar to the negative impact of teaching experience on DAPB, teaching experience had adverse impacts on DAPIA as well. Two variables predicted DIPIA with a small effect size. Both were statistically significant. Teachers with more years of education or fewer boys in the classroom reported more DIP activities.

For the US private group, seven variables predicted about 44% of the variance on DAPB. Three predictors were salient. As in the Taiwan public group, teachers with more teaching experience had lower values on DAPB. Also similar to the Taiwan private group, teaching experience in other grades and number of boys in the classroom negatively related to DAPB. Teachers' years of education and age predicted 29% of the variance on DIPB. Strangely, teachers with more education had a higher value on DIPB. Younger teachers also had higher DIPB scores. These phenomena may be due to the fact that these teachers did not major in early childhood education or related fields and recognized the inappropriateness of DIPB in their teaching practices. Four variables predicted 12% of the variance on FCI. Among them, experience of teaching private kindergarten and teaching special needs children were salient. Whereas the latter positively related to FCI, the former negatively associated with FCI. On DAPIA, sixteen percent of its variance could be accounted for by three predictors. Number of boys in the classroom was the only significant predictor. As in the Taiwan public group, number of boys in the classroom negatively predicted DAPIA. A best fit model for DIPIA was not found.

For the US public group, only DAPIA could be predicted. Among the three predictors, number of boys in the classroom was the only significant predictor. Teachers with more boys in the classroom tended to report fewer DAP activities as in the Taiwan public and US private groups.

In summary, the above findings indicated: (a) backward regression was more powerful than hierarchical regression in identifying the best prediction models possibly due to exclusion of unimportant predictors, (b) the predictors, including the salient ones, varied across the groups and dependent variables, and (c) generally, teachers' education level, major in early childhood education, and certification were positively associated with the positive dimensions of

developmentally appropriate beliefs and practices whereas the number of boys in the classroom had the opposite results.

Research question seven further examined the relative contributions of the best demographic predictors and developmentally appropriate/inappropriate beliefs to the predictions of appropriate/inappropriate practices in the four groups. Findings from this study showed that: (a) the two beliefs had similar or even larger contributions as the best structural predictors in all groups except for the US private group, (b) the positive belief about developmentally appropriate practices (i.e., the mean of DAPB and FCI) usually was the best predictor for DAPIA in the positive direction, and (c) the negative belief about developmentally appropriate practices (i.e., DIPB) was the best predictor for DIPIA in the positive direction as well. This result is similar to the study of Kim, Kim, and Maslak (2005) on 211 kindergarten teachers' and 208 child care center teachers' beliefs about developmentally appropriate practices in Korea. They found that teachers' DIP beliefs had great influence on their practices.

Contributions and Limitations

Although the early childhood education professionals in both the US and Taiwan has advocated for developmentally appropriate beliefs and practices, empirical data on the actual practitioners' beliefs and instructions have been limited in both societies. This study contributed to the field with some descriptive data on different dimensions of developmentally appropriate/inappropriate beliefs and practices for both US and Taiwan public and private kindergarten teachers. This study compared group differences between teachers in four settings on critical dimensions of developmentally appropriate/inappropriate beliefs and practices. This study may serve a starting point for further cross-cultural studies on DAP between the US and

Taiwan early childhood educators as well as educators in other countries. Salient demographic variables predicting teachers' developmentally appropriate/inappropriate beliefs and practices were explored in this study. The multifaceted findings may suggest a phenomenon that important factors affecting teachers' DAP instructional activities and beliefs about DAP vary from setting to setting and teacher to teacher. Last, this study partially validated the Teacher Beliefs and Practices survey in Taiwanese culture.

The findings of the present study need to be considered in light of the following limitations. First, as this study used a convenience sample, the generalizability of the findings are limited. Second, the translated survey did not demonstrate adequate psychometric properties in both the US and Taiwan samples. Third, due to the limited sample size, factor analyses were not conducted to validate and develop the unique factorial structure of the used survey before ANOVA and regression analyses. Fourth, the survey responses were not personally monitored, which may have produced lower quality response. Lastly, indication of developmentally appropriate/inappropriate beliefs and practices was based on the self-reported questionnaires with limited response reliability which often lacks ecological validity.

Findings and Conclusions

Several future research directions are recommended based on this study: (a) verification and refinement of the survey instrument, (b) inclusions of other variables that may contribute to DAP, and (c) using multiple methods to explore and validate same or similar questions. Each of these recommendations are elaborated below.

This study did not use the composite scores of DAP belief and DAP activity by reservedly coding the negative factors as in Kim's study due to the lack of significant

correlations among these five factors which was also presented in Kim's (2005) study. While it may be possible that the five-factor structure was true in the current sample, another way to analyze the data was to conduct factor analysis to verify the factorial structure of the survey. Future studies could verify or refine the survey structure with factor analysis techniques when sufficient sample sizes are available. The original survey may need to be modified by adding more items based on the DAP guidelines for certain factors such as DIP classroom activities to increase its validity and reliability. As the definition of appropriateness of educational beliefs and practices varies from culture to culture, an indigenous instrument may need to be developed for the Taiwan sample to reflect the uniqueness of Taiwan's educational culture. Also, with changes in educational policies and practices in all countries, the *Teacher Beliefs and Practices Survey* (Burts et al., 2000), may need to be updated.

This present study considered several personal characteristics of teachers and three classroom variables. Future studies could include other variables from an ecological perspective. Teacher's familial factors, program variables, and community and societal characteristics may influence teachers' attitudes toward and behaviors on developmentally appropriate beliefs and practices (Cryer, Tietze, Burchinal, Leal, & Palacios, 1999).

This study employed the self-reported survey method. With enough resources, future research could employ a variety of methods to collect the data, such as classroom observations, case studies, and interview, all would complement a survey method. Collaborating researchers from Taiwan and the US on studies such as this could broaden cultural understanding and strengthen data collection and analyses (Ember & Ember, 2001). Likewise, using triangulation and mixed methods data analyses could enrich the understanding of teachers' developmentally appropriate beliefs and practices.

Implications

This study's findings have both research and practice implications. Implications for research and practice in early childhood education will be discussed.

Research Implications

The findings demonstrated that the Teacher Beliefs and Practices Survey (Burts et al., 2000) was not psychometrically adequate especially on the negative dimensions of DAP in both the US and Taiwan samples. This is possibly due to too few items on the survey for each of the factors being measured (Kim, 2005). Survey refinement should be a high priority for future studies on DAP. The group differences between US and Taiwan public and private teachers on developmentally appropriate/inappropriate beliefs and practices generally did not support the hypotheses of main effects of location and school type. Instead, contrary to the hypotheses, the Taiwan teachers reported higher beliefs about developmentally appropriate practices, lower beliefs about developmentally inappropriate practices, and lower developmentally appropriate practices than did the US teachers. While these findings are not fully explained through this study, further investigation into Taiwan educational policies and practices are needed. Additionally, a more complete study of Taiwan teacher education programs and in-service educational programs for early childhood education is needed as well. As hypothesized, the US teachers reported more developmentally appropriate practice activities than Taiwan educators. The dilemmas of the inconsistency between the beliefs and practices may link to the culturally psychological profiles of the teachers in the two societies and deserves further investigation (Bronfenbrenner, 1979). Changing educational values and policies at community, family, and government levels may contribute to these findings of inconsistency between teachers' beliefs and practices. Further investigation and cases would be valuable research contributions. The

multiple regression analyses on predicting different dimensions of developmentally appropriate/inappropriate beliefs and practices in this study were preliminary and need further study. The salient factors and the underlying mechanisms linking to teachers' developmentally appropriate/inappropriate beliefs and practices are challenging to be understood. This study was a beginning to understand belief factors and practices related to developmentally appropriate practice among Taiwan and US teachers. This study could be replicated with additional teachers and in different areas.

Practice Implications

From the practical perspective, this study found that both US and Taiwan teachers of young children highly endorsed the beliefs about developmentally appropriate practices and the values of family, culture, and inclusion. However, these teachers also held strong beliefs about developmentally inappropriate practices, although to a lesser extent. A possible priority for the future pre-service and in-service teacher training is to reduce the beliefs about developmentally inappropriate practices and to demonstrate those practices so that teachers can avoid them in their classroom settings. On self-rating of teachers' practices, although developmentally inappropriate practice activities occurred less than the developmentally appropriate practice activities, they did take place in classrooms almost as regularly. It also appears practicing early childhood teachers need help and support on skills to implement DAP activities and reduce DIP activities. Teacher mentors could be used regularly with early childhood educators to help them develop skills and practices related to developmentally appropriate practices (Cummins, 2004). Additionally, continuing education opportunities could promote and demonstrate developmentally appropriate practices for young children.

Summary

The regression analyses showed although there were different sets of salient factors related to different dimensions of developmentally appropriate beliefs and practices, teachers' beliefs about developmentally appropriate/inappropriate practice were equally as important as the structural variables (teacher characteristics and classroom environment). While the structural variables are maybe hard to change, future teacher preparation education should focus on facilitating developmentally appropriate practice beliefs as well as reducing developmentally inappropriate practice beliefs (McMullen & Alat, 2002). While the classroom environment is challenging to change, teacher educators and classroom teachers may need to explore the most effective classroom environment for developmentally appropriate practices. Teachers could work with school leaders to create classroom environments to support developmentally appropriate practices and reduce developmentally inappropriate practices. Additional study and teacher assessment are need to better understand the relationships between teacher DAPB and DAP.

APPENDIX A
TEACHER'S DEVELOPMENTALLY APPROPRIATE BELIEFS
AND PRACTICES SURVEY

March 7, 2007

Huei-Chun Liu
Department of Counseling, Development and Higher Education
University of North Texas

Re: Human Subjects Application No. 07-018

Dear Huei-Chun Liu:

As permitted by federal law and regulations governing the use of human subjects in research projects (45 CFR 46), the UNT Institutional Review Board has reviewed your proposed project titled "A Comparison of Self-reported Developmentally Appropriate Beliefs and Practices Between and among Public and Private Kindergarten Teachers in the United States and Taiwan ." The risks inherent in this research are minimal, and the potential benefits to the subject outweigh those risks. The submitted protocol and consent form are hereby approved for the use of human subjects in this study. **Federal Policy 45 CFR 46.109(e) stipulates that IRB approval is for one year only, March 7, 2007 to March 6, 2008.**

Enclosed is the consent document with stamped IRB approval. Please copy and **use this form only** for your study subjects.

It is your responsibility according to U.S. Department of Health and Human Services regulations to submit annual and terminal progress reports to the IRB for this project. Please mark your calendar accordingly. The IRB must also review this project prior to any modifications.

Please contact Shelia Bourns, Research Compliance Administrator, or Boyd Herndon, Director of Research Compliance, at extension 3940, if you wish to make changes or need additional information.

Sincerely,



Scott Simpkins, Ph.D.
Chair
Institutional Review Board

Informed Consent Form

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: A Comparison of Self-reported developmentally appropriate beliefs and practices between and among public and private kindergarten teachers in the United States and Taiwan

Principal Investigator: Huei-Chun Liu, doctoral candidate in the University of North Texas (UNT) Department of Early Childhood Education.

The purpose of the study is to identify similarities and differences of kindergarten teachers' beliefs about teaching and specific things they do in their classroom. There is no school or individual named in any report about the study. All your response will be confidential. All data will be presented in group format. There are neither "good" or "bad" teachers, nor no "right" or "wrong" answers in this research. The results will only show similarities and differences of teachers' beliefs and practices.

The expected benefit of this research is to provide a contemporary view of Taiwan and U.S. kindergarten teachers' curriculum beliefs and practices. Furthermore, the results may help U.S. and Taiwan early childhood education scholars work cooperatively to provide more appropriate trainings and education for experienced and preservice teachers.

Please take the 30 minutes needed to complete the survey. Then, put the survey with the consent form in the stamped envelope and mail it to me before April 30, 2007. A copy of the consent form is enclosed. Your signed consent form and survey results will be maintained in separate locations.

If you have any questions about the study, please call or send an e-mail to one of the following people.

Jean Keller
Dean
College of Education
University of North Texas
940-565-2233
E-mail: jkeller@unt.edu

George S. Morrison
Professor
Early Childhood Education
University of North Texas
940-565-4476
E-mail: morrison@unt.edu

Huei-Chun Liu
Doctoral candidate
Early Childhood Education
University of North Texas



This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Your signature below indicates that you have read the Informed Consent Form and you confirm all of the following:

- You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You have been told you will receive a copy of this form.

Printed Name of Participant

Signature of Participant

Date

I certify that the contents of this form have been shared with the participant signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the participant understood the explanation.

Signature of Principal Investigator or Designee

Date

APPROVED BY THE UNT IRB
FROM 3/7/07 TO 3/6/08
RB

#07-018

同意書

親愛的教師：

在參與此項研究前，請您仔細研讀以下對於此項研究目的的解釋，並瞭解研究過程如何進行。

主題：美國和台灣公私立幼稚園教師對課程信念與教室實務之比較

主要研究者：劉惠君，美國北德州大學幼兒教育系博士候選人

此項研究的主要目的是在瞭解台灣和美國幼稚園教師對課程的信念與實際教室教學的相異處。此項研究不會對您的教學紀錄有任何的影響或危險。您所有的答案都將是保密的。每一個答案都是根據教師自己的想法和實際教學情形來回答，因此沒有所謂「好」、「壞」或「對」、「錯」的答案。所有從問卷中所獲得的資料將不會用來評論您或您的學校。研究的結果只呈現教師課程信念和實際教室教學的相異度。

此項研究的結果將提供台灣和美國幼兒教育學家作為合作發展幼稚園師資培養課程之參考，以幫助老師在教學上更加得心應手。

此份問卷大約需要 20-30 分鐘左右來填寫。填寫完畢後，請利用附上之回郵信封在三月二十五日前寄回給主要研究者。您的同意書與所答之問卷將分開放置，且妥善保存。

如果您對此項研究有任何問題，歡迎用電子郵件(如下所附)與我或我的指導教授, Dr. George Morrison, 或是北德州大學教育學院院長, Dr. Jean Keller, 連絡。

Jean Keller
Dean
College of Education
University of North Texas
940-565-2233
E-mail: jkeller@unt.edu

George S. Morrison
Professor
Early Childhood Education
University of North Texas
940-565-4476
E-mail: morrison@unt.edu

劉惠君
博士候選人
幼兒教育系
北德州大學

#07-018

此項研究通過北德州大學研究學會審查委員會的審查並獲得認可。如果您對您在研究中所應有的權利有所疑問，歡迎向北德州大學研究學會審查委員會詢問。連絡電話是 (940) 565-3940。

同意書

您以下的簽名代表您已經研讀過此教師同意書，且確認以下事項：

- 您已被告知此研究的潛在益處與危險。
- 您瞭解如果拒絕參與此項研究，不會對您造成任何傷害。而且您可以隨時退出此項研究。
- 您瞭解此項研究的目的和研究過程。
- 您瞭解您在此項研究中的權利，而且您是自願參與此項研究。
- 您已被告知您將收到此同意書。


參與者的簽名

日期

我保證我已分享此同意書的內容與以上所簽名的參與者。我已經解釋此項研究的益處與危險。我確定參與者瞭解我對此項研究的解釋。

主要研究者簽名

日期

APPROVED BY THE UNT IRB
FROM 3/7/07 TO 3/6/08


Dear Kindergarten Teacher,

I am Huei-Chun Liu, a doctoral candidate in Early Childhood Education at the University of North Texas. As a doctoral candidate, I have the opportunity to survey Texas and Taiwan kindergarten teachers with the intent of identifying the similarities and differences of their developmentally appropriate practices and beliefs.

The results of this study will provide a contemporary status of Texas and Taiwan teachers' developmentally appropriate practices and beliefs. The findings of this study will allow for better discussion of appropriate training and education for kindergarten teachers and will help improve the quality of kindergarten education in both Texas and Taiwan.

I recognize that your time is valuable and tried to make the questionnaire brief and to the point. Please follow the following three steps if you would like to participate in this study.

- read and sign the teacher consent form.
- take about 20-30 minutes to complete the questionnaire
- return the consent and the questionnaire to the researcher in the stamped envelop **before May 31, 2007**

There is no trick or secret, psychoanalytic questions. None of the information gathered in this study will be used to compare your work with any other teacher. The information gathered will be used to generally describe early childhood teachers' perspectives and teaching experiences. Your answers will be confidential. Your participation is very important and worth for the study.

I hope to have your participation and support for this important study.

If you have any questions about the study, please feel free to call or send an e-mail to me or my major professor, Dr. George Morrison, or the Dean of the College of Education at University of North Texas, Dr. Jean Keller.

Thank you very much for your support and participation!

Jean Keller

George S. Morrison

Huei-Chun Liu

Dean
College of Education
University of North Texas

Professor
Early Childhood Education
University of North Texas

Doctoral candidate
Early Childhood Education
University of North Texas

☆If you would like to receive a summary of the results, please write down your e-mail address on the tope of the consent form. Thanks again for your involvement.

Enclosures: a copy of the questionnaire and teacher consent form

親愛的幼稚園老師，您好：

我是劉惠君，美國北德州大學幼兒教育系博士候選人。目前正著手進行我的論文研究，其主題為「美國和台灣公私立幼稚園教師對課程信念與教室實務之比較」。

此項研究的主要目的是在瞭解台灣和美國幼稚園教師對課程的信念與實際教室教學的相異處。研究結果將提供台灣和美國幼兒教育學家作為合作發展幼稚園師資培養課程之參考，以幫助老師在教學上更加得心應手。

我瞭解您的時間寶貴，且試著讓問卷簡單明瞭。若您願意參與此項研究，請根據以下三個步驟完成此問卷調查。

1. 請詳細閱讀同意書，並在同意書的第二頁上簽名。
2. 請花大約 20-30 分鐘完成問卷。
3. 將同意書與問卷放入所附的回郵信封內，在**三月二十日前**寄回給研究者。

問卷中不包含任何欺騙或心理分析的問題。請安心就您個人想法與實際教學情況作答。所獲得資料不會將您與其他老師做比較。此研究所收集的資料將概括敘述台灣和美國幼稚園老師的課程觀點與教學經驗。**您所有的答案都將是保密的**。請瞭解您的參與對此研究是非常重要的且具高度價值的。我希望有您的支持與參與。

如果您對此項研究有任何問題，歡迎用電子郵件(如下所附)與我或我的指導教授連絡。

Jean Keller	George S. Morrison	劉惠君
Dean	Professor	博士候選人
College of Education	Early Childhood Education	幼兒教育系
University of North Texas	University of North Texas	北德州大學

TEACHER BELIEFS AND PRACTICES QUESTIONNAIRE

Your answers to this survey are confidential. Reports of findings will not use your name or schools.

Please tell us about yourself:

1. Age _____ years
2. Gender: ____ Male ____ Female
1. Educational level completed ____ (Please insert a number)
(1= Middle School, 2=High School, 3=Two-Year College, 4=Bachelors, 5=Master, 6=Doctoral)
2. College Major _____
3. College Minor _____
4. Are you certified? No ____ Yes ____ (Certification Type and Area _____)
5. How many hours of the developmentally appropriate practice (DAP) training have you had? _____ hours (Please insert a number)
(1=0 hour, 2=1-5 hours, 3=6-10 hours, 4=11-15 hours, 5=16-20 hours, 6= over 21 hours)

Please tell us about your teaching career:

6. How many total years have you taught? _____ years
7. How many years have you taught in your current school? (including this year)
_____ years
8. How many years have you taught in an early childhood (PK-K) classroom? (including this year) _____ years

9. How many years have you taught the public schools and private schools separately
(including this year) Public : _____ years Private : _____ years

10. How many years have you taught children with disabilities? _____ years

11. Have you taught other grades and for how long? No _____

If yes, what grades and how many years:

_____ grade _____ years _____ grade _____ years

_____ grade _____ years _____ grade _____ years

12. Your current position is : Full-time _____ or Part-time _____

Please tell us about your current teaching position:

15. What is the predominate age group of children that you teach? (check one)

_____ 3 years old _____ 4 years old _____ 5 years old _____ 6 years old

16. How many children are in your class?

Full day: _____ boys _____ girls

Morning class only: _____ boys _____ girls

Afternoon class only: _____ boys _____ girls

17. If special education support services are provided to children in your classroom, where
do the children receive that support? (check one)

_____ pull-out programs

_____ in the classroom

_____ both in and out of my classroom

18. Which of the following best describes your school? (check one)

_____ Private school

_____ Public School

The following questions were created by Diane C. Burts, Teresa K. Buchanan, Joan H. Benedict, Sheri Broussard, David Dunaway, Stephanie Richardson, & Mary Sciaraffa at Louisiana State University.

For the following part, Please think about classrooms for 3-, 4-, and 5-year-olds in general and your class in particular

1. Rank the following (1-6) by the amount of influence you believe each has on the way you plan, or will plan, and implement instruction, after considering children’s needs. Please use each number only once.

(1 = Most influence; 6 = Least influence)

- Parents _____
- School system policy _____
- Principal/director _____
- Teacher (yourself) _____
- State regulations _____
- Other teachers _____

Recognizing that some things in education programs are required by external sources, what are **Your Own Personal Beliefs** about early childhood programs? **Please circle the number that most nearly represents your beliefs** about each item’s importance for early childhood programs.

1	2	3	4	5
Not at all Important	Not very Important	Fairly Important	Very Important	Extremely Important

2. As an evaluation of children’s progress, readiness or achievement tests are_____.	1	2	3	4	5
3. To plan and evaluate the curriculum, teacher observation is _____.	1	2	3	4	5
4. It is _____ for activities to be responsive to individual children’s interests.	1	2	3	4	5
5. It is _____ for activities to be responsive to individual differences in children’s levels of development.	1	2	3	4	5
6. It is _____ for activities to be responsive to the cultural diversity of students.	1	2	3	4	5
7. It is _____ that each curriculum area be taught as separate subjects at separate times.	1	2	3	4	5
8. It is _____ for teacher-child interactions to help develop children’s self-esteem and positive feelings toward learning.	1	2	3	4	5

	1	2	3	4	5
	Not at all Important	Not very Important	Fairly Important	Very Important	Extremely Important
9. It is ____ for teachers to provide opportunities for children to select many of their own activities.	1	2	3	4	5
10. It is ____ to use one approach for reading and writing instruction.	1	2	3	4	5
11. Instruction in letter and word recognition is ____ in preschool.	1	2	3	4	5
12. It is ____ for the teacher to provide a variety of learning areas with concrete materials (writing center, science center, math center, etc.).	1	2	3	4	5
13. It is ____ for children to create their own learning activities (e.g., cut their won shapes, decide on the steps to perform an experiment, plan their creative drama, art, and computer activities).	1	2	3	4	5
14. It is ____ for children to work individually at desks or tables most of the time.	1	2	3	4	5
15. Workbooks and/or ditto sheets are ____ in my classroom.	1	2	3	4	5
16. A structured reading or pre-reading program is ____ for all children.	1	2	3	4	5
17. It is ____ for the teacher to talk to the whole group and for the children to do the same things at the same time.	1	2	3	4	5
18. It is ____ for the teacher to move among groups and individuals, offering suggestions, asking questions, and facilitating children's involvement with materials, activities, and peers.	1	2	3	4	5
19. It is ____ for teachers to use treats, stickers, and/or stars to get children to do activities that they don't really want to do.	1	2	3	4	5
20. It is ____ for teachers to regularly use punishments and/or reprimands when children aren't participating.	1	2	3	4	5
21. It is ____ for teachers to develop an individualized behavior plan for addressing severe behavior problems.	1	2	3	4	5
22. It is ____ for teachers to allocate extended periods of time for children to engage in play and projects.	1	2	3	4	5
23. It is ____ for children to write by inventing their own spelling.	1	2	3	4	5
24. It is ____ for children to color within pre-drawn forms.	1	2	3	4	5
25. It is ____ to read stories daily to children, individually and/or on a group basis.	1	2	3	4	5
26. It is ____ for children to dictate stories to the teacher.	1	2	3	4	5
27. It is ____ that teachers engage in on-going professional development in early childhood education (e.g., attend professional conferences, read professional literature).	1	2	3	4	5

	1 Not at all Important	2 Not very Important	3 Fairly Important	4 Very Important	5 Extremely Important
28. It is ____ for children to see and use functional print (telephone book, magazines) and environmental print (cereal boxes, potato chip bags).	1	2	3	4	5
29. It is ____ to provide many daily opportunities for developing social skills (i.e., cooperating, helping, talking) with peers in the classroom.	1	2	3	4	5
30. It is ____ that books, pictures, and materials in the classroom include people of different races, ages, and abilities and both genders in various roles.	1	2	3	4	5
31. It is ____ that outdoor time have planned activities.	1	2	3	4	5
32. It is ____ for parents/guardians to be involved in ways that are comfortable for them.	1	2	3	4	5
33. It is ____ for strategies like setting limits, problem solving, and redirection to be used to help guide children's behavior.	1	2	3	4	5
34. It is ____ for teachers to integrate each child's home culture and language into the curriculum throughout the year.	1	2	3	4	5
35. It is ____ for teachers to solicit and incorporate parent's knowledge about their children for assessment, evaluation, placement, and planning.	1	2	3	4	5
36. It is ____ to establish a collaborative partnership/relationship with parents of all children, including parents of children with special needs and from different cultural groups.	1	2	3	4	5
37. It is ____ for the classroom teacher to modify, adapt, and accommodate specific indoor and outdoor learning experiences for the child with special needs as appropriate.	1	2	3	4	5
38. It is ____ that services (like speech therapy) be provided to children with special needs in the regular education classroom by specialist within the context of typical daily activities.	1	2	3	4	5
39. It is ____ that teachers maintain a quiet environment.	1	2	3	4	5
40. It is ____ to provide the same curriculum and environment for each group of children that comes through the program.	1	2	3	4	5
41. It is ____ to focus on teaching children isolated skills by using repetition and recitation (e.g., reciting ABCs).	1	2	3	4	5
42. It is ____ to follow a prescribed curriculum plan without being distracted by children's interests or current circumstances.	1	2	3	4	5
43. It is ____ to plan activities that are primarily just for fun without connection to program goals.	1	2	3	4	5

For the following questions, please think about how often children in your classroom do the following activities.

	1 Almost Never (less than monthly)	2 Rarely (monthly)	3 Sometimes (weekly)	4 Regularly (2-4 times a week)	5 Often (daily)
1. build with blocks	1	2	3	4	5
2. select from a variety of learning areas and projects (i.e., dramatic play, construction, art, music science experience, etc.)	1	2	3	4	5
3. have their work displayed in the classroom	1	2	3	4	5
4. experiment with writing by drawing, copying, and using their own invented spelling	1	2	3	4	5
5. play with games, puzzles, and construction materials (e.g., Thinker Toys, Bristle Blocks)	1	2	3	4	5
6. explore science materials (e.g., animals, plants, wheels, gears, etc.)	1	2	3	4	5
7. sing, listen, and/or move to music	1	2	3	4	5
8. do planned movement activities using large muscles (e.g., balancing, running, jumping)	1	2	3	4	5
9. use manipulative (e.g., pegboards, Legos, and Unifix Cubes)	1	2	3	4	5
10. use commercially-prepared phonics activities	1	2	3	4	5
11. work in assigned ability-level groups	1	2	3	4	5
12. circle, underline, and/or mark items on worksheets	1	2	3	4	5
13. use flashcards with ABCs, sight words, and/or math facts	1	2	3	4	5
14. participate in rote counting	1	2	3	4	5
15. practice handwriting on lines	1	2	3	4	5
16. color, cut, and paste pre-drawn forms	1	2	3	4	5
17. participate in whole-class, teacher-directed instruction	1	2	3	4	5
18. sit and listen for long periods of time until they become restless and fidgety	1	2	3	4	5
19. have the opportunity to learn about people with special needs (e.g., a speaker or a character in a book)	1	2	3	4	5

1 2 3 4 5
Almost Never **Rarely** **Sometimes** **Regularly** **Often**
(less than monthly) **(monthly)** **(weekly)** **(2-4 times a week)** **(daily)**

20. receive rewards as incentives to participate in classroom activities in which they are reluctant participants	1	2	3	4	5
21. see their own race, culture, language reflected in the classroom	1	2	3	4	5
22. get placed in time-out (i.e., isolation, sitting on a chair, in a corner, or being sent outside of the room)	1	2	3	4	5
23. experience parents reading stories or sharing a skill or hobby with the class	1	2	3	4	5
24. engage in child-chosen, teacher-supported play activities	1	2	3	4	5
25. draw, paint, work with clay, and use other art media	1	2	3	4	5
26. solve real math problems using real objects in the classroom environment that are incorporated into other subject areas	1	2	3	4	5
27. get separated from their friends to maintain classroom order	1	2	3	4	5
28. engage in experiences that demonstrate the explicit valuing of each other (e.g., sending a card to a sick classmate)	1	2	3	4	5
29. work with materials that have been adapted or modified to meet their needs	1	2	3	4	5
30. do activities that integrate multiple subjects (reading, math, science, social studies, etc.)	1	2	3	4	5

Thank you very much for your time and participation!
Now, please send the survey to the researcher! Thanks!!

幼稚園教師課程信念與教學問卷

研究者將小心地保持您對於這份問卷調查回答的機密性。對結果的報告將不會使用回答者的姓名或學校名稱。

基本資料

1. 年齡：_____ 歲
2. 性別：_____ 男 _____ 女
3. 最高學歷：_____ (不包括您目前所正在攻讀的學位)
(1. 國中, 2. 高中, 3. 二專/五專, 4. 大學, 5. 碩士, 6. 博士)
4. 主修 _____
5. 副修 _____
6. 您有教師執照嗎? 沒有 _____ 有 _____ (如果有, 執照種類 _____)
7. 您受過多少小時的發展合宜(Developmentally Appropriate Practice, DAP)的訓練? _____
小時

教學經歷

8. 您已經教學幾年? _____ 年 (不包括實習)
9. 您在現任學校教學幾年? (包括今年) _____ 年
10. 您已經在托兒所和幼稚園教學幾年? (包括今年) _____ 年
11. 您在公私立學校各教過幾年? (包括今年) 公立 _____ 年 私立 _____ 年
12. 您是否曾經教過有特殊需求的幼兒? __否__是 (時間有多久? __年 __月)
13. 除托兒所和幼稚園外, 您有教過其他年級的小朋友嗎?
____沒有 __有 (幾年級和多久? ____年級, ____年; ____年級, ____年)
14. 您目前的工作是: 全職 _____ 半職 _____

目前的教學職務

15. 您現在所教的小朋友的年紀大多為幾歲? (請選一項)

3 歲 4 歲 5 歲 6 歲

16. 在您的班級裡有多少小朋友?

上全天班: 男生 女生

只上早上班: 男生 女生

只上下午班: 男生 女生

17. 如果班上特殊需求的幼兒有接受特殊教育支援服務, 請問小朋友在哪裡接受支援服務?

校外 教室內 兩者都有

18. 下列哪一項最能描述您目前任職的學校: 私立學校 公立學校

1. 下列有六個選項, 請依照您的看法, 排列出其對您在計畫與教學中的影響程度。1~6 每個號碼只使用一次。(1 = 影響最多; 6 = 影響最少)

- 家長
- 學校體制政策
- 校長/園長
- 老師 (您自己)
- 政府法令規章
- 其他老師

請根據您的看法, 判斷下列問題對於幼兒教育課程的重要性, 並圈選出最能代表您意見的選項。(1 = 根本不重要; 5 = 非常重要)

1	2	3	4	5
根本不重要	不是很重要	普通重要	很重要	非常重要

2. 作為幼兒進步的評估, 學校預備性評量和學業成就評量 是 ___	1	2	3	4	5
3. 為了計畫和評估課程, 老師的親身觀察 是 ___	1	2	3	4	5
4. 課程活動反映每個幼兒的興趣 是 ___	1	2	3	4	5
5. 課程活動反映幼兒發展程度上的個別差異 是 ___	1	2	3	4	5

6. 課程活動反映幼兒的文化多元性 是 ___	1	2	3	4	5
7. 將課程分為不同科目在不同的時間教授 是 ___	1	2	3	4	5
8. 師生間的互動對於幫助幼兒建立自尊心和對學習的積極感 是 ___	1	2	3	4	5
9. 老師提供機會讓幼兒選擇許多他們自己的活動 是 ___	1	2	3	4	5
10. 採用單一方式來教閱讀和寫作 是 ___	1	2	3	4	5
11. 在幼稚園教導注音和認字 是 ___	1	2	3	4	5
12. 老師在各學習區（寫作角,科學角,數學角,等等）提供各式各樣可實際操作的用具 是 ___	1	2	3	4	5

1 2 3 4 5
根本不重要 不是很重要 普通重要 很重要 非常重要

13. 幼兒創造他們自己的學習活動 (例如: 剪貼,做實驗,計畫他們自己創造的戲劇、美術和電腦活動) 是 ___	1	2	3	4	5
14. 讓小朋友大部分的時間獨自在桌上操作學習 是 ___	1	2	3	4	5
15. 在我的教室裏裡, 作業本和(或)抄寫本 是 ___	1	2	3	4	5
16. 按部就班的閱讀或預備閱讀課程對所有幼兒 是 ___	1	2	3	4	5
17. 老師對全班講話和讓幼兒在同一時間參與同一活動 是 ___	1	2	3	4	5
18. 老師在幼兒的團體和個人間走動, 並且對幼兒提供建議,問問題, 和促進幼兒對工具的使用、活動的參與度和同儕的介入 是 ___	1	2	3	4	5
19. 老師使用獎品,貼紙,和/或星星,說服幼兒參與他們真的不想參與的活動 是 ___	1	2	3	4	5
20. 當幼兒不參與活動時, 老師經常使用懲罰和/或責罵 是 ___	1	2	3	4	5
21. 老師建立個別行為處理計畫, 以應對嚴重行為問題 是 ___	1	2	3	4	5
22. 分配一段較長的時間讓幼兒參與遊戲和計畫主題 是 ___	1	2	3	4	5
23. 幼兒利用他們自己創造的注音符號來寫字 是 ___	1	2	3	4	5
24. 幼兒在事先畫好的圖案中塗顏色 是 ___	1	2	3	4	5
25. 每天以一對一和/或對團體的方式為幼兒念故事 是 ___	1	2	3	4	5
26. 幼兒對老師重述故事 是 ___	1	2	3	4	5

27. 老師繼續在幼兒教育專業領域中進修(例如,參加專業研習,閱讀專業文獻)是___	1	2	3	4	5
28. 幼兒知道且使用「功能性印刷品」(像電話簿及雜誌如電話簿、雜誌)和「環境印刷品」(像如食品紙盒及包裝袋)是___	1	2	3	4	5
29. 在日常生活中,提供許多機會給讓幼兒在教室裡發展與同儕的社交技能(例如合作,互助,談話)是___	1	2	3	4	5
30. 在教室裏裡的書籍、照片和教材的內容包括不同種族、年齡和能力的人物,同時也包含兩性所扮演的不同角色是___	1	2	3	4	5
31. 老師事先計畫好戶外時間的活動是___	1	2	3	4	5
32. 家長或監護人被以他們覺得自在的方式加入在課程中是___	1	2	3	4	5
33. 使用諸如設定範圍,問題解決,和行爲調整的策略來幫助指導幼兒的行爲是___	1	2	3	4	5
34. 老師將幼兒的家庭文化及語言融入整學期的課程中是___	1	2	3	4	5
35. 老師在制訂對小朋友的檢核表評價、評量、分班和課程制定方面時,尋求並加入家長的意見是___	1	2	3	4	5
36. 與所有幼兒的家長,包括有特殊需求幼兒的家長和來自不同文化團體的家長,建立合作夥伴關係/人際關係是___	1	2	3	4	5
37. 老師為有特殊需求的幼兒修改和調整一些特別的室內和戶外學習經驗是___	1	2	3	4	5
38. 在一般日常活動中,專業人員在普通教室裏裡提供支援服務給有特殊需求的幼兒是___	1	2	3	4	5
39. 老師維持一個安靜的學習環境是___	1	2	3	4	5
40. 提供相同的課程和環境給幼稚園裡每一班的幼兒是___	1	2	3	4	5
41. 用重複教導和熟背的方式教導幼兒單獨的技能(例如,背誦ㄅㄆㄇ)是___	1	2	3	4	5
42. 採用既定的課程計畫,不受小朋友的興趣或當下環境影響是___	1	2	3	4	5
43. 計畫以趣味為主,沒有與課程目標連結的活動是___	1	2	3	4	5

在下列的問題中,請想想在您教室裡,幼兒參與下列活動的頻率。

1 幾乎沒有 (少於每月一次)	2 很少 (每月一次)	3 有時 (每週一次)	4 經常 (一週 2~4 次)	5 非常頻繁 (每天)
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1. 堆積木	1	2	3	4	5
2. 從多樣化的學習角落和主題中挑選活動 (例如: 扮演遊戲,建造,美術,音樂,科學實驗等等)	1	2	3	4	5
3. 幼兒的作品展示在教室內	1	2	3	4	5
4. 經由畫畫,抄寫和使用他們自己創造的字和句子練習寫字	1	2	3	4	5
5. 玩益智遊戲,拼圖和建造玩具	1	2	3	4	5
6. 探索科學事物 (例如動物,植物,輪子,齒輪等等)	1	2	3	4	5
7. 跟著音樂唱,聽和/或移動	1	2	3	4	5
8. 用大肌肉做計畫好的運動活動 (例如平衡,跑步,跳躍)	1	2	3	4	5
9. 使用用手操控的玩具 (例如樂高,立體方塊)	1	2	3	4	5
10. 使用市售以注音為基礎而進行教認字的活動	1	2	3	4	5
11. 在按能力程度分配的小組中工作	1	2	3	4	5
12. 在練習本中的練習題上畫圈,底下畫線和/或做記號	1	2	3	4	5
13. 使用ㄅ,ㄆ,ㄇ,字彙和/或數學教學卡片	1	2	3	4	5
14. 參與死背的數數	1	2	3	4	5
15. 在練習本的格子中練習寫字	1	2	3	4	5
16. 將著色本中的圖案塗上顏色和剪貼	1	2	3	4	5

	1 幾乎沒有 (少於每月一次)	2 很少 (每月一次)	3 有時 (每週一次)	4 經常 (一週 2~4 次)	5 非常頻繁 (每天)
17. 參與老師指導的全班性的教學	1	2	3	4	5
18. 很長一段時間坐著聽講，直到他們變得煩躁不安	1	2	3	4	5
19. 有機會學習有關有特殊需求的人的事情 (例如邀請有身心障的人來演講或書裡描述的殘障人士角色)	1	2	3	4	5
20. 在他們不情願參與教室活動時, 收到刺激性的獎勵	1	2	3	4	5
21. 看到他們自己的種族,文化,語言反映在教室裡	1	2	3	4	5
22. 被處罰暫停參與遊戲 (例如被隔離, 坐在椅子上或角落, 或者被送出教室)	1	2	3	4	5
23. 家長在班上講故事或是分享一個技能或嗜好	1	2	3	4	5
24. 參與小朋友自己選擇的, 且有老師支持的遊戲活動	1	2	3	4	5
25. 繪畫, 塗色, 玩黏土和使用其他美術工具	1	2	3	4	5
26. 在教室裡使用實物解決數學問題, 且將這些活動與其他課程整合在一起	1	2	3	4	5
27. 與他們的朋友分開, 以便維持教室秩序	1	2	3	4	5
28. 體驗同學間互相關懷的經驗 (例如寫卡片給生病的同學)	1	2	3	4	5
29. 操作經過適應或修改過已符合他們需求的用具	1	2	3	4	5
30. 參與統整多項科目的活動(閱讀, 數學, 自然科學, 社會學科等等)	1	2	3	4	5

非常感謝您撥空參加此項研究!
現在, 請您將此問卷放入所附的回郵信封寄回給研究者.

APPENDIX B
INFORMATIONAL TABLES

Table B.1

Demographic Characteristics for the Taiwan Private Group

Teacher characteristics		<i>N</i> = 99	%
Gender	Female	97	98
	Male	0	0
	Missing	2	2
Education	High school	12	12.1
	Two/five-year college	34	34.3
	Bachelors	49	49
	Master	1	1
	Missing	3	3
Major	Non-major	4	4.9
	Early childhood education	60	60.6
	Child development	1	1.0
	Education related	1	1.0
	Others	13	13.1
	Missing	20	20.2
Minor	Non-minor	70	70.7
	Early childhood education	2	2.0
	Early childhood to grade 4	2	2.9
	Special education	4	4.0
	Others	1	1.0
	Missing	20	20.2
Certification	No certification	50	50.5
	Certification	44	44.4
	Missing	5	5.1
Teach disabled	No	30	30.3
	Yes	68	68.7
	Missing	1	1
Taught other grades	No	61	61.6
	Yes	38	38.4
Position	Full-time	98	99
	Part-time	1	1
Child-age	4-year-old	23	23.2
	5-year-old	36	35.4
	6-year-old	40	40.4

Table B.2

Demographic Characteristics for the Taiwan Public Group

Teacher Characteristics		<i>N</i> = 87	%
Gender	Female	87	100
	Male	0	
Education	High school	1	1.1
	Two/five-year college	18	20.7
	Bachelors	62	71.3
	Master	5	5.7
	Missing	1	1.1
Major	Non-major	1	1.1
	Early childhood education	75	86.2
	Others	3	3.4
	Missing	8	9.2
Minor	Non-minor	71	81.6
	Early childhood education	2	2.3
	Special education	5	5.7
	Education related	1	1.1
	Missing	8	9.2
Certification	No certification	6	6.9
	Certification	81	93.1
Teach disabled	No	17	19.5
	Yes	70	80.5
Taught other grades	No	70	80.5
	Yes	17	19.5
Position	Full-time	86	98.9
	Part-time	1	1.1
Child age	4-year-old	9	10.3
	5-year-old	57	65.5
	6-year-old	21	24.1

Table B.3

Demographic Characteristics for the United States Private Group

Teacher Characteristics		<i>N</i> = 52	%
Gender	Female	47	90.4
	Male	5	9.6
Education	High school	6	11.5
	Two/five-year college	5	9.6
	Bachelors	36	69.2
	Master	4	7.7
	Doctoral	1	1.9
Major	Non-major	9	17.3
	Early childhood education	1	1.9
	Child development	5	9.6
	Early childhood to grade 4	1	1.9
	Curriculum & instruction	1	1.9
	Interdisciplinary/Elementary	2	3.8
	Special education	1	1.9
	Education related	10	19.2
	Others	22	42.3
Minor	Non-minor	42	80.8
	Child development	1	1.9
	Gifted education	1	1.9
	Others	7	13.5
	Curriculum and instruction	1	1.9
Certification	No certification	37	71.2
	Certification	15	28.8
Teach disabled	No	13	25
	Yes	39	75
Teach other grades	No	42	80.8
	Yes	10	19.2
Position	Full-time	43	82.7
	Part-time	9	17.3
Child age	4-year-old	3	5.8
	5-year-old	49	94.2

Table B.4

Demographic Characteristics for the United States Public Group

Teacher characteristics		<i>N</i> =53	%
Gender	Female	43	81.1
	Male	10	18.9
Education	Bachelors	43	81.1
	Master	10	18.9
Major	Early childhood education	4	7.5
	Early childhood to grade 4	15	28.3
	Curriculum & instruction	6	11.3
	Interdisciplinary/Elementary	19	35.8
	Special education	2	3.8
	Education related	5	9.4
	Others	2	3.8
Minor	Non-minor	39	73.6
	Early childhood education	1	1.9
	Child development	3	5.6
	Special education	3	5.7
	Gifted education	1	1.9
	Education related	2	3.8
	Others	4	7.5
Certification	No certification	0	0
	Certification	53	100
Teach disabled	No	8	15.1
	Yes	45	84.9
Teach other grades	No	39	73.6
	Yes	14	26.4
Position	Full-time	52	98.1
	Part-time	1	1.9

Table B.5

Correlational Matrix of the Demographic Variables for the Taiwan Private Group

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	-											
2. Education	.07	-										
3. Major	.04	.07	-									
4. Certification	.43 ^c	.32 ^b	.11	-								
5. Teaching years	.83 ^c	-.17	.09	.28 ^b	-							
6. Teach public-K	.21	.11	-.09	.10	.20	-						
7. Teach private-K	.82 ^c	-.17	.12	.27 ^b	.99 ^c	.10	-					
8. Teach disabled	.09	-.16	.00	-.02	.12	.04	.13	-				
9. Teach other grades	.28 ^b	.14	-.08	.12	.10	.31 ^b	.09	.11	-			
10. Child age	.23 ^a	-.15	-.17	.06	.28 ^b	-.07	.28 ^b	-.21 ^a	.09	-		
11. Child-Boy	.08	.08	-.14	.09	.14	.24	.11	.07	.00	.15	-	
12. Child-Girl	-.08	-.11	-.10	.06	-.09	-.07	-.10	.01	-.13	.09	.19	-

Note: The correlations between continues variables were estimated based on Pearson product-moment correlation, other correlations were estimated by Spearman's rho. K = kindergarten. $a = p < .05$, $b = p < .01$, $c = p < .001$.

Table B.6

Correlational Matrix of the Demographic Variables for the Taiwan Public Group

	1	2	3	4	5	6	7	8	9	10
1. Age	-									
2. Education	-.25 ^a	-								
3. Teaching years	.89 ^c	-.31 ^b	-							
4. Teach public-K	.88 ^c	-.34 ^b	.93 ^c	-						
5. Teach disabled	-.11	.30 ^b	-.17	-.10	-					
6. Teach other grades	.14	.12	.03	.04	.02	-				
7. Child age	.01	.03	-.02	-.01	.12	.08	-			
8. Child-Boy	-.11	-.04	-.10	-.08	-.20	-.14	-.08	-		
9. Child-Girl	.04	-.06	.01	.05	-.07	.06	.25 ^a	.15	-	
10. Teach private-K	-.08	.03	-.09	-.26 ^a	-.02	-.09	.07	.11	.09	-

Note: 1. the correlations between continues variables were estimated based on Pearson product-moment correlation, other correlations were estimated by Spearman's rho. K = kindergarten. $a = p < .05$, $b = p < .01$, $c = p < .001$.

Table B.7

Correlational Matrix of the Demographic Variables for the United States Private Group

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	-												
2. Education	.16	-											
3. Major	.03	.33 ^a	-										
4. Minor	.05	.13	.00	-									
5. Certification	.29 ^a	.33 ^a	.60 ^c	-.20	-								
6. Teaching years	.63 ^c	.20	.34 ^a	.14	.40 ^b	-							
7. Teach public-K	.60 ^c	.19	.37 ^b	.06	.65 ^c	.53 ^c	-						
8. Teach private-K	.61 ^c	-.05	-.09	.08	-.05	.60 ^c	.02	-					
9. Teach disabled	.41 ^b	.14	.29 ^a	-.06	.27	.47 ^c	.34 ^a	.30 ^a	-				
10. Teach other grades	.45 ^b	.25	.29 ^a	.13	.55 ^c	.43 ^b	.83 ^c	-.15	.28 ^a	-			
11. Position	.15	-.14	-.07	-.09	.05	.00	.13	-.07	-.09	.03	-		
12. Child-Boy	-.03	.00	-.15	.15	-.15	.04	-.17	.02	.08	-.07	-.20	-	
13. Child-Girl	-.12	-.21	-.03	.13	-.16	.06	-.27	.05	.04	-.15	-.39 ^b	.66 ^c	-

Note: The correlations between continues variables were estimated based on Pearson product-moment correlation, other correlations were estimated by Spearman's rho. K = kindergarten. $a = p < .05$, $b = p < .01$, $c = p < .001$.

Table B.8

Correlational Matrix of the Demographic Variables for the United States Public Group

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	-											
2. Gender	.21	-										
3. Education	.54 ^c	.11	-									
4. Major	.45 ^b	.20	.45 ^b	-								
5. Minor	.31 ^a	.07	.48 ^c	.19	-							
6. Teaching years	.72 ^c	.30 ^a	.39 ^b	.34 ^a	.22	-						
7. Teach disabled	.12	.20	.07	.03	.01	.30 ^a	-					
8. Teach other grades	.68 ^c	.07	.48 ^c	.48 ^c	.42	.49 ^c	.13	-				
9. Child-Boy	.05	.32 ^a	.00	-.07	.13	.09	.23	-.04	-			
10. Child-Girl	.26	.16	.16	.35 ^a	.07	.39 ^b	.25	.11	.10	-		
11. Teach public-K	.87 ^c	.36 ^b	.54 ^c	.30 ^a	.31 ^a	.78 ^c	.25	.55 ^c	.03	.19	-	
12. Teach private-K	.25	.03	-.05	-.02	-.02	.36 ^b	.13	.32 ^a	-.06	.00	-.07	-

Note: The correlations between continues variables were estimated based on Pearson product-moment correlation, other correlations were estimated by Spearman's rho. K = kindergarten. $a = p < .05$, $b = p < .01$, $c = p < .001$

Table B.9

Model Summary for the Backward Regression for the Taiwan Private Group

Depend Variables		<i>R</i>	<i>R</i> ²	<i>R</i> _{adj} ²
Developmentally Appropriate Practice Beliefs	Model 1	.39	.15	.04
	Model 2	.39	.15	.05
	Model 3	.39	.15	.06
	Model 4	.38	.15	.07
	Model 5	.38	.14	.08
	Model 6	.37	.14	.08
	Model 7	.34	.11	.07
	Model 8	.29	.08	.05
	Model 9	.24	.06	.04
Developmentally Inappropriate Practice Beliefs	Model 1	.53	.28	.19
	Model 2	.53	.28	.20
	Model 3	.53	.28	.21
	Model 4	.53	.28	.22
	Model 5	.52	.27	.21
	Model 6	.50	.25	.21
	Model 7	.48	.23	.20
	Model 8	.46	.21	.18
Family, Culture, and Inclusion	Model 1	.37	.13	.02
	Model 2	.36	.13	.03
	Model 3	.36	.13	.04
	Model 4	.36	.13	.05
	Model 5	.35	.12	.06
	Model 6	.33	.11	.06
	Model 7	.31	.09	.05
	Model 8	.28	.08	.04
	Model 9	.24	.06	.04
	Model 10	.20	.04	.03
Developmentally Appropriate Practice Instructional Activities	Model 1	.43	.18	.08
	Model 2	.43	.18	.09
	Model 3	.43	.18	.10
	Model 4	.42	.18	.11
	Model 5	.41	.17	.11
	Model 6	.39	.15	.10
	Model 7	.37	.14	.10
	Model 8	.35	.12	.09
	Model 9	.33	.11	.09
	Model 10	.29	.09	.08
Developmentally Inappropriate Practice Instructional Activities	Model 1	.56	.31	.22
	Model 2	.56	.31	.23
	Model 3	.56	.31	.24
	Model 4	.55	.30	.24
	Model 5	.54	.29	.24
	Model 6	.52	.27	.22

Table B.10

Model Summary for the Backward Regression for the Taiwan Public Group

Depend Variables		<i>R</i>	<i>R</i> ²	<i>R</i> _{adj} ²
Developmentally Appropriate Practice Beliefs	Model 1	.35	.12	.02
	Model 2	.34	.12	.03
	Model 3	.34	.11	.04
	Model 4	.32	.10	.05
	Model 5	.31	.09	.05
	Model 6	.29	.08	.05
	Model 7	.27	.07	.05
	Model 8	.22	.05	.04
Developmentally Inappropriate Practice Beliefs	Model 1	.34	.12	.02
	Model 2	.34	.12	.03
	Model 3	.34	.12	.04
	Model 4	.34	.11	.06
	Model 5	.31	.10	.05
	Model 6	.29	.08	.05
	Model 7	.25	.06	.04
	Model 8	.18	.03	.02
Family, Culture, and Inclusion	Model 1	.39	.15	.06
	Model 2	.38	.15	.07
	Model 3	.38	.15	.08
	Model 4	.38	.14	.09
	Model 5	.37	.14	.09
	Model 6	.33	.11	.08
	Model 7	.29	.09	.06
Developmentally Appropriate Practice Instructional Activities	Model 1	.37	.14	.04
	Model 2	.37	.14	.05
	Model 3	.37	.13	.06
	Model 4	.36	.13	.07
	Model 5	.35	.13	.08
	Model 6	.34	.11	.08
	Model 7	.31	.10	.07
Developmentally Inappropriate Practice Instructional Activities	Model 1	.36	.13	.04
	Model 2	.36	.13	.05
	Model 3	.36	.13	.06
	Model 4	.36	.13	.07
	Model 5	.36	.13	.08
	Model 6	.36	.13	.09
	Model 7	.34	.11	.09

Table B.11

Model Summary for the Backward Regression for the US Private Group

Depend Variables		<i>R</i>	<i>R</i> ²	<i>R</i> ² _{adj}
Developmentally Appropriate Practice Beliefs	Model 1	.69	.48	.35
	Model 2	.69	.48	.37
	Model 3	.69	.48	.38
	Model 4	.68	.46	.38
	Model 5	.66	.44	.37
	Model 6	.65	.42	.35
	Model 7	.63	.40	.35
Developmentally Inappropriate Practice Beliefs	Model 1	.61	.37	.22
	Model 2	.61	.37	.23
	Model 3	.61	.37	.25
	Model 4	.61	.37	.27
	Model 5	.60	.36	.28
	Model 6	.60	.36	.29
	Model 7	.59	.35	.29
	Model 8	.58	.34	.30
	Model 9	.56	.31	.28
Family, Culture, and Inclusion	Model 1	.52	.27	.09
	Model 2	.52	.27	.11
	Model 3	.52	.27	.13
	Model 4	.52	.27	.15
	Model 5	.51	.26	.16
	Model 6	.49	.24	.16
	Model 7	.48	.23	.17
	Model 8	.45	.20	.15
	Model 9	.40	.16	.13
Developmentally Appropriate Practice Instructional Activities	Model 1	.53	.28	.11
	Model 2	.53	.28	.13
	Model 3	.53	.28	.15
	Model 4	.53	.28	.16
	Model 5	.53	.28	.18
	Model 6	.52	.27	.19
	Model 7	.51	.26	.20
	Model 8	.50	.25	.20
	Model 9	.47	.23	.19
Developmentally Inappropriate Practice Instructional Activities	Model 1	.35	.12	-.09
	Model 2	.35	.12	-.06
	Model 3	.35	.12	-.04
	Model 4	.35	.12	-.02
	Model 5	.35	.12	.00
	Model 6	.35	.12	.02
	Model 7	.34	.11	.04
	Model 8	.31	.10	.04
	Model 9	.29	.08	.05
	Model 10	.23	.05	.04

Table B.12

Model Summary for the Backward Regression for the US Public Group

Depend Variables		<i>R</i>	<i>R</i> ²	<i>R</i> _{adj} ²
Developmentally Appropriate Practice Beliefs	Model 1	.32	.10	-.09
	Model 2	.32	.10	-.06
	Model 3	.32	.10	-.04
	Model 4	.32	.10	-.02
	Model 5	.32	.10	.01
	Model 6	.31	.10	.02
	Model 7	.29	.09	.03
	Model 8	.28	.08	.04
	Model 9	.17	.03	.01
Developmentally Inappropriate Practice Beliefs	Model 1	.35	.12	-.06
	Model 2	.35	.12	-.04
	Model 3	.34	.12	-.02
	Model 4	.34	.12	.00
	Model 5	.33	.11	.02
	Model 6	.31	.10	.02
	Model 7	.29	.08	.03
	Model 8	.26	.07	.03
	Model 9	.18	.03	.01
Family, Culture, and Inclusion	Model 1	.33	.11	-.07
	Model 2	.33	.11	-.05
	Model 3	.33	.11	-.03
	Model 4	.32	.10	-.01
	Model 5	.32	.10	.01
	Model 6	.31	.10	.02
	Model 7	.28	.08	.02
	Model 8	.23	.05	.01
	Model 9	.17	.03	.01
Developmentally Appropriate Practice Instructional Activities	Model 1	.48	.23	.07
	Model 2	.48	.23	.09
	Model 3	.48	.23	.11
	Model 4	.48	.23	.13
	Model 5	.47	.22	.14
	Model 6	.45	.20	.14
	Model 7	.43	.19	.14
	Model 8	.40	.16	.12
Developmentally Inappropriate Practice Instructional Activities	Model 1	.25	.06	-.13
	Model 2	.25	.06	-.11
	Model 3	.25	.06	-.08
	Model 4	.25	.06	-.06
	Model 5	.25	.06	-.04
	Model 6	.25	.06	-.02
	Model 7	.22	.05	-.01
	Model 8	.20	.04	.00
	Model 9	.12	.01	-.01
	Model 10	.00	.00	.00

Table B.13

Intercorrelations among the Subscales of the Developmentally Appropriate and Inappropriate Practice Instructional Activities in TW Private Group

Variable	1	2	3	4	5	6	7	8	9	10
1. Education	-									
2. Teach disabled	-.17	-								
3. Teach other grades	.14	.09	-							
4. Major	.07	.02	-.08	-						
5. Certification	.32**	-.02	.12	.11	-					
6. Teaching years	-.17	.12	.10	.09	.28**	-				
7. Number of boys	.08	.07	.00	-.14	.09	.14	-			
8. Number of girls	-.11	.00	-.13	-.10	.06	-.09	.19	-		
9. DAPB_FCI	.14	.12	-.09	.15	.03	.01	-.07	.14	-	
10. DIPB	-.26**	-.09	.20*	-.32**	-.22*	.04	.05	.04	-.15	-

Note: DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion. * $p < .05$, ** $p < .01$.

Table B.14

Intercorrelations among the Subscales of the Developmentally Appropriate and Inappropriate Practice Instructional Activities in TW Public Group

Variable	1	2	3	4	5	6
1. Teaching years	-					
2. Number of boys	-.10	-				
3. Number of girls	.01	.09	-			
4. Education	-.31**	-.04	-.06	-		
5. DAPB_FCI	-.19	-.08	.14	.13	-	
6. DIPB	.09	.18	.19	-.15	.04	-

Note: DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion. ** $p < .01$.

Table B.15

Intercorrelations among the Subscales of the Developmentally Appropriate and Inappropriate Practice Instructional Activities in US Private Group

Variable	1	2	3	4	5	6	7
1. Certification	-						
2. Position	.05	-					
3. Number of boys	-.15	-.20	-				
4. Teach other grades	.55***	.03	-.07	-			
5. Number of girls	-.16	-.39**	.66***	-.15	-		
6. DAPB_FCI	.12	.25	-.41**	-.15	-.41**	-	
7. DIPB	-.01	-.05	.05	-.11	-.12	.29*	-

Note: DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table B.16

Intercorrelations among the Subscales of the Developmentally Appropriate and Inappropriate Practice Instructional Activities in US Public Group

Variable	1	2	3	4	5	6	7
1. Teach disabled	-						
2. Major	.03	-					
3. Teach private-K	.15	-.02	-				
4. Number of boys	.23	-.07	-.06	-			
5. Number of girls	.24	.35*	.00	.10	-		
6. DAPB_FCI	-.22	.02	.17	-.04	.09	-	
7. DIPB	.25	-.08	-.03	-.04	.18	.18	-

Note: DAPB = developmentally appropriate practice beliefs; DIPB = developmentally inappropriate practice beliefs; FCI = family, culture, and inclusion. * $p < .05$.

APPENDIX C

SELECTED PROFILE PLOTS FOR TWO-WAY ANOVAS

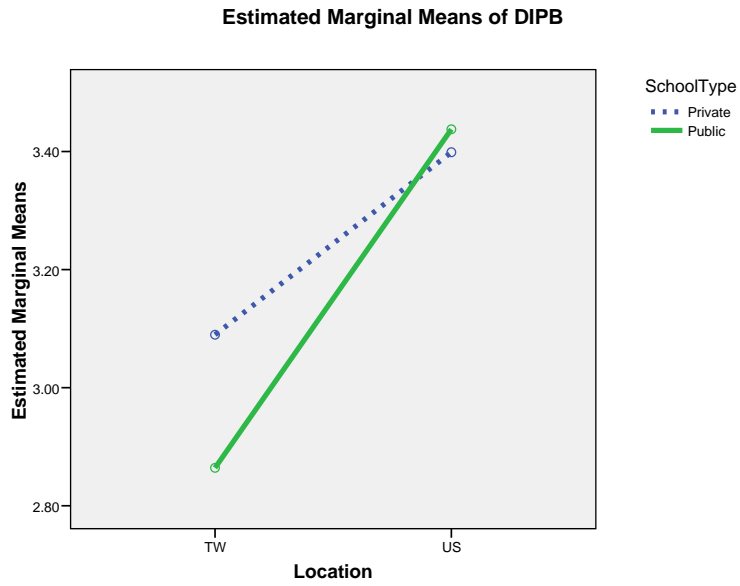


Figure 1. Profile plot for DIPB.

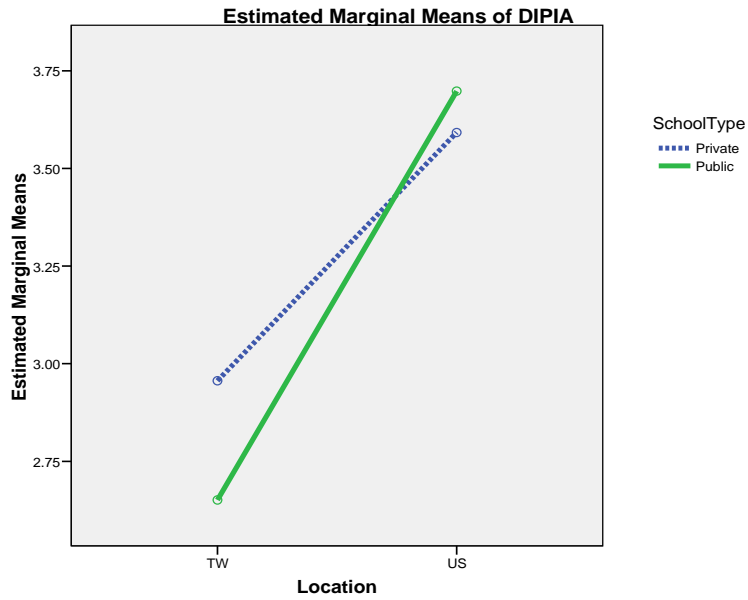


Figure 2. Profile plot for DIPIA.

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