EARLY CHILDHOOD EDUCATORS' QUALIFICATIONS AND BELIEFS ABOUT DEVELOPMENTALLY APPROPRIATE PRACTICE

by

NAKHEUNG KIM

(Under the Direction of Stacey Neuharth-Pritchett)

ABSTRACT

A number of research studies in early childhood education have examined the relationship between teachers' qualifications and teachers' beliefs about developmentally appropriate practice, and demonstrated that teachers' educational background and professional development experience are primary predictors of endorsement of developmentally appropriate beliefs. However, the majority of the existing studies have focused on the effect of the qualifications of lead teachers in private preschool settings. For this reason, in this dissertation study, I investigated how publicly operated prekindergarten teachers' beliefs about developmentally appropriate practice relate to the teachers' educational background, their professional development experience, and their teaching position.

To conduct this research, a measure of teachers' beliefs about developmentally appropriate practice was utilized as the dependent variable. Predictor variables were teachers' educational level, professional development experience, and teaching position (lead teachers and paraprofessionals). Data were analyzed by one-way analysis of variance as well as two-way analysis of variance.

The results of the present study indicated that lead teachers agreed more with beliefs about developmentally appropriate practice than did paraprofessionals. In terms of professional development experiences, the present study revealed that teachers who had engaged in professional development agreed more with beliefs about developmentally appropriate practice than teachers who had not engaged in professional development. In terms of educational level, the results indicated that there was not a significant difference between teachers with a master's or a specialist degree and teachers with an associate's or a bachelor's degree on their beliefs about developmentally appropriate practice.

INDEX WORDS: Teacher qualifications, Teacher beliefs, Early childhood teachers, Developmentally appropriate practice, Prekindergarten program

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CHAPTER 1

INTRODUCTION

The number of early childhood programs for 4- and 5-year-olds has increased considerably over the past decade in the United States as the value of early childhood education has been advanced as a means to foster school readiness and to minimize the negative effects of poverty. With this national focus, the need for improvements in the quality of early childhood programs has also been recognized. The emphasis on program quality is a result of recent research that has demonstrated a positive relationship between higher quality child-care environments and later developmental and academic outcomes (Burchinal, Roberts, Nabors, & Bryant, 1996; Lamb, 1998; Peisner-Feinberg & Burchinal, 1997). Among the variables that predict the quality of child care (Abbott-Shim, Lambert, & McCarty, 2000; Howes & Brown, 2000; Saluja, Early, & Clifford, 2002), the qualifications of teachers, which include teachers' educational background and professional development experience, are a primary indicator of program quality. As a consequence, teacher qualifications in early childhood education have been a major concern for researchers and educators in the United States.

Traditionally, early childhood programs in the United States have generally required only minimal teacher qualifications (Bredekamp, 1996). According to data from the 1990 Profile of Child-Care Settings (Kisker, Hofferth, Phillips, & Farquhar, 1991), 47% of early childhood lead teachers had a 4-year college degree, 13% had an associate's degree, 26% had some college experience but no degree, 13% had only a high school diploma, and 1% had less than a high school diploma. While all 50 states require kindergarten teachers to have a bachelor's degree,

only one state requires teachers in child-care centers to have a bachelor's degree (Ackerman, 2003). Thus, the number of teachers in child-care centers who have a degree in early childhood education is dramatically lower than the number of kindergarten teachers in public schools who hold a bachelor's degree.

Recently, the federal and state governments have increased requirements for early childhood teachers in order to improve their qualifications. A primary example is the mandate in place since 2003 in Early Head Start and Head Start that lead teachers have a minimum of an associate's degree. In the last 5 years, some states, such as Alabama, Florida, Massachusetts, and Washington, have raised the minimum preservice training requirements in private early childhood education settings, while other states have increased the number of required annual in-service training hours (Azer, 1999; Azer, LeMoine, Morgan, Clifford, & Crawford, 2002; LeMoine, 2002).

In spite of federal and state efforts to raise preservice and in-service education requirements, there are barriers to improving the qualifications of early childhood teachers. As Bowman, Donovan, and Burns (2001) pointed out, no universal national standards or certification processes exit for teachers of young children. Therefore, the regulations on teacher qualifications have varied from state to state (Morgan, Azer, Costley, Genser, Goodman, Lombardi, & McGimsey, 1993). Most states do not require any college coursework related to early childhood education for teachers in child-care centers to enter the field. Some states have no requirements for teachers in private child-care centers or have just a minimum requirement to pass a criminal background check. The state of Rhode Island is the only state that requires a bachelor's degree for lead teachers to begin teaching in child-care centers (Azer et al., 2002; LeMoine, 2002). Teacher qualification requirements also vary across early childhood education

programs. For example, while public prekindergarten (pre-k) programs have usually required a baccalaureate degree or teacher certification for lead teachers, child-care centers have required only a high school diploma as the minimum requirement in most states (Morgan et al., 1993; Bredekamp, 1996).

In addition to diverse educational backgrounds for early childhood teachers, in-service education requirements (i.e., the requirements for the continuing professional development of individuals in teaching positions) also vary from state to state. Some states have made efforts to increase the number of ongoing training hours that early childhood teachers are expected to complete on an annual basis. However, in many states, the average number of hours of ongoing teacher training in private settings has been just over 10 clock hours (Azer, 1999; Azer et al., 2002; LeMoine, 2002). In addition to the limited number of required hours, in-service education has taken the form of workshops, conferences, and sessions that provide teachers with limited information that does not reflect and fulfill early childhood teachers' needs and concerns (Bowman, et al., 2001). Furthermore, much of the work includes required annual training on issues such as first aid, fire safety, and mandatory child abuse reporting laws, and leaves little room for other substantive training such as working with parents, early literacy experiences, and positive child guidance. Therefore, early childhood teachers often do not have sufficient and effective ongoing professional development opportunities.

There are also substantial differences in terms of both educational background and professional development between lead teachers and paraprofessionals in early childhood education settings. That is, the qualifications of paraprofessionals are notably lower than that of lead teachers. For example, for the public and private pre-k programs in most states, minimum preservice requirements for paraprofessionals include a high school diploma and work

experience with young children (Bellm, Burton, Whitebook, Broatch, & Young, 2002). While federal and state governments have made efforts to raise the qualifications of lead teachers, they have not focused on improving the qualifications of paraprofessionals. In other words, they have not recognized the important roles of paraprofessionals in early childhood classrooms.

These differences in the qualifications of lead teachers and paraprofessionals are important because, in early childhood classrooms, paraprofessionals have been given vital roles and responsibilities in recent years. That is, the roles of paraprofessionals are no longer limited to housekeeping tasks such as preparing materials, monitoring students in lunchrooms and classrooms, or maintaining equipment (Pickett, 1999). Today, paraprofessionals, though they continue to work with children under the supervision of a lead teacher, participate in planning and implementing instructional activities, not just housekeeping (Ashbaker & Morgan, 2000).

Despite the changes in their roles, paraprofessionals often do not have the formal educational backgrounds and opportunities for systematic training and professional development on the job that are necessary to develop appropriate knowledge and beliefs about teaching and learning. In particular, even though people in the field of early childhood education have been concerned about providing ongoing professional development opportunities for paraprofessionals to increase their knowledge of children's growth and development (Indiana State Department of Education, 2000), states and schools have not made much progress in improving the qualifications of paraprofessionals in early childhood settings.

Rationale for the Study

As mentioned above, the qualifications of many early childhood teachers, both lead teachers and paraprofessionals, reflect a minimal level of preparation for teaching. This situation is especially unfortunate because researchers have suggested that teachers with knowledge and

skills related to teaching and learning are generally more successful with students than teachers who have little or no preparation (Darling-Hammond, 2000). Over the last 2 decades, research studies in early childhood education have demonstrated the relationship between teacher qualifications and program quality. Teacher qualifications are one of the critical factors that determine the quality of early childhood programs. Specifically, researchers have consistently found that teachers' preservice and in-service education related to early childhood education is an important predictor of classroom quality, teaching quality, and children's learning and development (Arnett, 1989; Dunn, 1993; Howes, 1997; Phillipsen, Burchinal, Howes, & Cryer, 1997; Whitebook, Howes, & Phillips, 1990).

Researchers have emphasized the crucial role of beliefs as teachers develop new knowledge and skills and attempt to use such knowledge and skills in their classroom practices (Fang, 1996; Kagan, 1992; Richardson, 1996). For example, conceptualizing teachers' beliefs as implicit assumptions about students, learning, classrooms, and content, Kagan has argued that teachers' beliefs influence the instructional judgments and decisions teachers make in their classroom practices. Other early childhood researchers (e.g., Stipek & Byler, 1997; Vartuli, 1999) have attempted to measure the relationship between teachers' beliefs and their classroom practices. In particular, these researchers have calculated the correlation between teachers' beliefs about developmentally appropriate practice and their classroom practices. In the field of early childhood education, it is important to examine teachers' beliefs about developmentally appropriate practice because the concept is supposed to represent "best practices" for young children (McMullen, 1997). Thus, early childhood researchers have focused on teachers' beliefs about developmentally appropriate practice and have found a high correlation between teachers' beliefs and their use of such practices in the classroom.

Early childhood researchers have also attempted to identify factors that are related to teachers' beliefs. Teachers' educational background has been identified as an important mediator in the adoption of the concept of developmentally appropriate practice (Cassidy, Buell, Pugh-Hoese, & Russell, 1995; Haupt, Larsen, Robinson, & Hart, 1995; McMullen, 1997; Smith, 1997; Snider & Fu, 1990). Some researchers have reported that teachers tend to hold their prior beliefs and assumptions about teaching rather than to confront or change their beliefs (Hoy & Woolfolk, 1990; Tillema & Knol, 1997; Zeichner, Tabachnick, & Densmore, 1987). That is, even after teachers receive instruction on teaching practices, it is difficult for them to change their prior beliefs that are based on their personal schooling experiences. However, studies on developmentally appropriate practice in early childhood education have reported that early childhood teachers who have acquired knowledge and skills related to such practice in preservice and in-service education programs have more developmentally appropriate beliefs and engage in more behaviors consistent with those beliefs than teachers who have not had such preparation (e.g., Smith, 1997; Cassidy et al., 1995).

Statement of the Problem

A number of researchers in early childhood education have investigated the relations between teacher qualifications and teachers' beliefs and practices as well as between teacher qualifications and program quality. However, most of the research studies have been conducted with teachers in private child-care settings (e.g., Cassidy et al., 1995; Smith, 1997; Snider & Fu, 1990; McMullen, 1997). Although researchers have reported the findings about the qualifications of pre-k teachers, those studies have generally presented statistical reports that show the current status of teacher qualifications in pre-k programs (Bellm et al., 2002; Whitebook, Bellm, Sakai, Kipnis, Voisin, & Young, 2004). That is, there has been little research that has focused on the

relation between the qualifications of pre-k teachers and their beliefs or program quality. Only a few studies have examined the relationship between pre-k teachers' qualifications and children's development (Gormley & Phillips, 2003).

Moreover, in the literature, most studies of how qualifications are related to beliefs and practices have focused on lead teachers, comparing lead teachers with higher qualifications with lead teachers with limited qualifications. There is little research that includes both lead teachers and paraprofessionals. There is at least one research study that included both groups and examined the relation between educational background and beliefs about developmentally appropriate practice (Abbott-Shim et al., 2000); that study, however, did not specifically compare lead teachers with paraprofessionals. No research that examined teachers' beliefs about developmentally appropriate practice by teaching position (lead teacher and paraprofessional) was found.

Therefore, the primary purpose of this study was to examine the relationship between teaching position and pre-k teachers' beliefs about developmentally appropriate practice, comparing lead teachers with paraprofessionals (who referred to as teacher in this study) in public pre-k programs. Another purpose of the study was to compare the beliefs about developmentally appropriate practice of teachers who have had recent in-service education with the beliefs of teachers who have not had recent in-service education. A third purpose of the study was to compare the beliefs about developmentally appropriate practice of teachers who have advanced degrees in early childhood education with the beliefs of teachers who have associate's or bachelor's degrees in early childhood education.

Research Questions

There was one overarching question that guided this study: How are teachers' beliefs about developmentally appropriate practice related to their teaching position, their professional development experiences, and their educational background? Four more specific questions guided the analyses of data:

1. How do lead teachers in early childhood classrooms compare to paraprofessionals in early childhood classrooms in terms of their beliefs about developmentally appropriate practice?
2. How do early childhood teachers who have had professional development experiences within the last 5 years compare to early childhood teachers who have not had such experiences in terms of their beliefs about developmentally appropriate practice?
3. How do lead teachers who have had professional development experiences within the last 5 years, lead teachers who have not had such experiences, paraprofessionals who have had professional development experiences within the last 5 years, and paraprofessionals who have not had such experiences compare to each other in terms of their beliefs about developmentally appropriate practice?
4. How do teachers with advanced degrees in early childhood education compare to teachers with baccalaureate or associate's degrees in early childhood education in terms of their beliefs about developmentally appropriate practice?

Significance of the Study

One of the significances of this research study was to fill the gap in the information on the qualifications of teachers in pre-k programs. As mentioned before, over the last 2 decades,

state-funded pre-k programs have dramatically grown in the United States. In particular, the state of Georgia has expanded its pre-k program since 1993 in order to serve 4-year-old children to the point where it was serving 53% of all 4-year-old children in 2002 (Bellm et al., 2002). Despite the increasing number of pre-k programs around the country, there has been little information about the qualifications of pre-k teachers, in particular, the relation between teachers' qualifications and teachers' beliefs about teaching practices. Although researchers have reported that the qualifications of teachers in state-funded pre-k program are higher than the qualifications of early childhood teachers in other settings, they have not examined the relation between the qualifications of pre-k teachers and their beliefs about developmentally appropriate practice. Thus, this research study addressed this limitation in the research on early childhood education.

The most significant aspect of this research study is that it provides an in-depth understanding of differences in beliefs about teaching practices between lead teachers and paraprofessionals. As educators have emphasized the collaborative relationship between lead teachers and paraprofessionals, it is important for lead teachers and paraprofessionals as an instructional team to share their knowledge and beliefs about teaching practice in order to effectively and collaboratively improve their classroom quality. However, there has been no research that has examined the relationship between teaching positions and teachers' beliefs about developmentally appropriate practice, comparing lead teachers and paraprofessionals. Thus, the findings of the study provide a valuable opportunity to look at differences and similarities in beliefs about teaching practices between lead teachers and paraprofessionals in publicly operated pre-k programs.

CHAPTER 2

LITERATURE REVIEW

The literature review is divided into five sections. The first section briefly describes a general overview of preservice and in-service education in early childhood education. The second section presents a critical review of teacher qualifications in early childhood education. The third section describes the general meaning of teachers' beliefs and reviews research on the effect of teacher education on teachers' beliefs. The fourth section deals with beliefs about developmentally appropriate practice and then reviews research on the relationship between teacher education and teachers' beliefs about developmentally appropriate practice. The fifth section describes the state of teacher qualifications in the Georgia pre-k program and reviews related research studies about pre-k teachers.

Teacher Education in Early Childhood Education

In recent years, more attention has been paid to the quality of early childhood programs and developmental outcomes for young children. This attention has led to public concern with improving the quality of teachers in early childhood classrooms. Expanding the knowledge and skills of teachers has been identified as one of the most important factors in improving the quality of teachers and, eventually, determining children's learning and development (Bowman et al., 2001). Thus, early childhood teachers have been asked to develop the knowledge and skills necessary for promoting children's achievement (Saracho & Spodek, 1993). Teacher education programs have provided preservice and in-service education for improving the qualifications of early childhood teachers. The provision of preservice and in-service education has been

considered the primary mechanism to increase the qualifications of early childhood teachers (both lead teachers and paraprofessionals).

In this review, therefore, I examine preservice and in-service education for early childhood teachers. Specifically, I present an overview of different levels of preservice education and different types of in-service education for early childhood teachers.

Preservice Education in Early Childhood Education

During the last decades, the field of early childhood education has been served by teachers who have different levels of preparation, "characterized by varied state and local requirements across types of programs, auspices, and roles" (Bowman et al., 2001, p. 270). That is, early childhood teachers have been able to begin to teach with varied preservice requirements ranging from little or no preparation to a bachelor's degree. For example, early childhood teachers in some publicly operated pre-k programs have been required to have the same level of preparation as teachers in elementary schools. Teachers in other early childhood programs have only been required to complete a preparation program at 2-year colleges or vocational centers, or to have no preservice education. Below, I briefly describe the different levels of preservice education in early childhood education.

Four-Year Teacher Education Programs

In the field of early childhood education, the demand of having a bachelor's degree has increased to improve the qualifications of early childhood teachers. The Committee on Early Childhood Pedagogy recently suggested that early childhood programs for children (ages 2 to 5) need to assign a teacher with at least a bachelor's degree for all children (Bowman et al., 2001). As an example, publicly operated pre-k programs have required teachers to have a bachelor's degree to work with children in the programs.

Traditionally, 4-year teacher education programs have provided a strong knowledge base to develop the knowledge and skills required to work with young children. While 2-year college programs focus more on technical or practical content, 4-year programs tend to focus more on professional or theoretical content (Saracho & Spodek, 2003). According to Saracho and Spodek, generally, 4-year teacher education programs consist of four components: general education, professional foundation, instructional knowledge, and practice.

Educators believe that general education in 4-year programs provides an essential frame from the scholarly disciplines. Through general education such as humanities, language, mathematics, sciences, social science, and social studies, preservice teachers can gain a unique point of view, style of thinking, and organization of ideas. Through professional foundation courses such as history, philosophy, sociology, and psychology, preservice teachers can learn underlying cultural, social, and political conditions of the educational system as well as basic principles of children's learning and development. Instructional knowledge can help preservice teachers to gain knowledge of teaching as well as knowledge of theories and teaching methods. Within the instructional knowledge courses, preservice teachers can learn knowledge and skills to be used in their classroom practice, planning, and evaluation. In early childhood education, teachers' practice is composed of field experiences through observation, practicum, and student teaching. Those field experiences can provide opportunities for preservice teachers to learn practical knowledge and teaching methods, observe classroom teachers, children, and classrooms, and apply theoretical knowledge to actual classroom situations.

Associate Degree and Vocational Education Programs

While publicly operated pre-k programs have required teachers to have a bachelor's degree, most early childhood programs do not require a bachelor's degree or any professional

degree for classroom teachers. For example, the Head Start program requires an associate's degree and most child-care centers require a high school diploma as the minimum requirements for teachers to enter the educational programs. Thus, in the field of early childhood education, associate degrees in 2-year colleges and vocational programs in high schools have been the major educational systems for professional preparation (Spodek & Saracho, 1990).

According to the guidelines documented by the National Association for the Education of Young Children (NAEYC) (1985), associate degree programs are composed of general education curriculum and professional studies curriculum that include courses related to theoretical knowledge and skills and field experiences. Associate's degree programs generally provide a limited number of courses in professional foundations, but child development is taught as a required course in the area of study (Saracho & Spodek, 2003).

Vocational programs have also provided training for early childhood personnel to enter the field. Vocational training offered at the high school, vocational school, and community college level is "intended to prepare students to assume the roles of child care assistants or aides in early childhood settings under the supervision of more experienced or educated staff members" (Powell & Dunn, 1990, p. 56). Vocational education programs generally include instruction in child growth and development and laboratory experience with young children in nursery schools or child-care centers.

In-Service Education in Early Childhood Education

In addition to the concerns of teacher qualification through preservice education, early childhood educators have emphasized the importance of in-service education for teachers' professional development. Epstein (1993) explained the reasons why effective in-service education is important in the field of early childhood education. The first reason is that

preservice education alone cannot satisfy the increased demand for early childhood teachers. She argued that “community colleges and other facilities are not prepared to train such a large cadre of care providers” (p. 5). Another reason is that early childhood teachers have urgent training needs because many early childhood teachers come to the field without or with limited preservice education related to early childhood education. She asserted that even when the teachers have preservice education related to early childhood education, the preservice education might be insufficient or outdated and therefore inadequate to fulfill teachers’ current needs in their teaching practices. Katz (1979) also emphasized the importance of in-service education, arguing that “preservice education has had only a minor influence on what teachers do day-to-day in their classrooms, which suggests that strategies acquired before employment will often not be retrieved under pressure of concurrent forces and factors in the actual job situation” (p. 12).

In-service education has been offered in different forms with various content, scope, and intensity (National Research Council, 2001). In-service education in the early childhood education field has been typically delivered in three forms: (a) short “one-shot” workshops, (b) long-term training, or (c) post high school coursework at community colleges or universities (Burchinal, Cryer, Clifford, & Howes, 2002). Burchinal et al. described the different types of in-service education as follows: Short workshops, which are provided at child-care conferences, by resource and referral agencies, or by child-care centers as on-site training for staff, often provide participants with limited information on topics. Longer training institutes usually provide more comprehensive and systematic training than short workshops. Finally, post high school coursework though community colleges or universities provide “a structured program that is designed to cover the major areas required for competence in the early childhood field” (Burchinal et al., p. 3).

Although there is variability in form, content, and duration, it is still accepted that professional development opportunities in early childhood education take place primarily at workshops, or conferences that occur outside the teacher's own classroom for a short period. Those workshops and conferences have provided a powerful process through which large numbers of teachers have enhanced their knowledge and skills. However, educators have criticized the limitations in these forms of in-service education. Ball and Cohen (1999) argued that workshops and conferences are "intellectually superficial, disconnected from deep issues of curriculum and learning, fragmented, and noncumulative," taking the form of one-shot sessions without follow-up (pp. 3-4). Others have raised concern about teachers' passive roles in traditional in-service education (Darling-Hammond & McLaughlin, 1995; Lieberman, 1995).

Educators have argued that in-service education should go beyond the superficial and fragmented workshop format. Epstein (1993) suggested that well-designed in-service education could improve program quality. Bowman et al. (2001) concluded that "effective in-service education must be intensive and continuous, with opportunities to apply knowledge and receive individualized feedback and mentoring in order to support improved teaching practices and positive outcomes for children" (p. 276).

Summary

The qualifications of early childhood teachers have been improved by different levels of preservice education and different types of in-service education in this field. Preservice education has been provided by 4-year colleges, 2-year colleges, and vocational training programs in high schools. While 4-year teacher education programs provide a professional and theoretical knowledge base related to early childhood education, 2-year teacher education programs and vocational training programs provide technical or practical knowledge and skills.

In-service education has also been offered in different ways and includes structures such as short workshops, long-term training, and college coursework. In the field of early childhood education, in-service education has been mainly delivered through workshops or conferences. Although there are some criticisms in terms of the form, content, and duration, in-service education still relies on those professional development activities that take place outside of teachers' own classrooms for a limited period.

Teacher Qualifications and Relationships to Child and Classroom Quality Outcomes

Early childhood educators have discussed teacher qualifications and ways to encourage teachers who have a variety of qualifications to implement best practices in their classrooms (Kontos & Wilcox-Herzog, 2003). Thus, many research studies have focused on the relationships between preservice education and in-service education and teaching quality, program quality, and children's development. The research findings have generally suggested that preservice education and in-service education might play a significant role in improving teacher behaviors, classroom quality, and children's outcomes. In this review, I examine the relationship between teacher qualifications and teaching quality, program quality, and children's development. In particular, I examine the effects of preservice education with regard to the level of formal education and specialized education. Next, I examine the effect of in-service education in terms of the types of in-service education (college coursework, long-term training, and short workshop).

Preservice Education

Researchers have found that preservice education of early childhood teachers is a critical determinant of the quality of early childhood programs (Whitebook et al., 1990). Research

studies have consistently demonstrated the positive effect of teachers' education on program quality (NICHD Early Child Care Research Network, 1996; NICHD Early Child Care Research Network, 2000; Phillipsen et al., 1997). However, some studies have emphasized the importance of the level of general education, regardless of the content, in improving the quality of early childhood education programs (Berk, 1985; Howes, Whitebook, & Phillips, 1992), while other studies have emphasized the effect of the level of specialized education in child development and early childhood education (Layzer, Goodson, & Moss, 1993; Snider & Fu, 1990). Thus, the literature was reviewed regarding the level of specialized education and general education.

Specialized Education

Many studies have investigated the relations between specialized education in child development or early childhood education and teacher behaviors in the classroom (Howes, 1983; McCartney, Scarr, Phillips, Grajek, & Schwartz, 1982; Vandell & Powers, 1983). The studies reported that teachers with specialized education were more likely to be interactive, helpful, talkative, playful, positive, and affectionate in interactions with children than other teachers.

Howes (1983) explored differences in caregivers' behaviors in terms of the levels of specialized education ranged from no training to a bachelor's or master's degree in child development. In the study, Howes found that caregivers in child-care centers who had higher level of specialized education played more with children and showed more responsive and affective, and fewer restrictive behaviors. Layzer et al. (1993) also indicated that teachers with specialized education in early childhood education were found to be more positive and nurturing in their interactions with children. Howes (1997) supported the position that teachers with a bachelor's degree in early childhood education had more positive behaviors. The results indicated that teachers who had a bachelor's degree or beyond in early childhood education

engaged in more sensitive and responsive teaching than teachers with associate's degrees. The study also revealed that children in the classroom with teachers who had at least a bachelor's degree in early childhood education engaged in more complex play and more creative activities.

In the study that examined the relationship between teacher qualification and the quality of care, researchers (Ruopp, Travers, Glantz, & Coelen, 1979) reported that there was a relationship between the level of teachers' formal education and their classroom behaviors. That is, they indicated that there was a much stronger relationship between specialized education and the appropriateness of teachers' classroom behaviors. Howes et al. (1992) also revealed that even though, for preschool teachers, both more formal education and specialized education at the college level were associated with more effective teaching, for infant and toddler teachers, high levels of specialized education was a more important predictor for competent teaching.

Snider and Fu (1990) examined the effect of specialized education on teachers' knowledge of developmentally appropriate practice. The results showed that teachers with degrees in child development or early childhood education had more knowledge of developmentally appropriate practice than teachers with academic degrees in other fields of study. The results also showed that supervised practical experience as well as specialized education in child development or early childhood education was associated with teachers' knowledge of developmentally appropriate practice. Based on the results, Snider and Fu suggested that teachers could effectively acquire knowledge regarding developmentally appropriate practice through specialized education combined with supervised experience.

General Education

Several research studies have supported the argument that general education, regardless of the specialization, has a positive impact on teacher behavior and child development. In the

research that examined the relationship between levels of teachers' general education and their behaviors in child-care settings, Berk (1985) revealed that teachers with college degrees engaged in higher quality teacher behaviors such as encouragement, development of children's verbal skills, and indirect guidance than teachers with a high school diploma. Berk also compared teachers who had child-related degrees with teachers who had not, and found that there were no significant differences between the teacher groups. Thus, the findings showed that general education, regardless of the area of specialization, could have a positive impact on teachers' attitudes and behaviors.

In the National Child-Care Staffing Study, Whitebook et al. (1990) also investigated the relationship between levels of general education and teacher behaviors in child-care settings. In the findings, they reported that teachers with bachelor's degrees or more, regardless of the field of study, demonstrated more sensitive and less harsh behaviors in their interactions with children. They indicated that the association between specialized education and program quality was not as strong as the association between general education and program quality.

Smith and Dickinson (1994) examined the relationship between Head Start teachers' educational background, which ranged from no formal education to a master's degree, and teacher talk known to promote children's language and literacy development. The findings indicated that teachers with higher level of general education spent more time on cognitively challenging talk than did teachers with lower level of general education. Phillipsen et al. (1997) also found a correlation between the amount of general education and classroom quality in a study that assessed the quality of preschool classrooms.

In-Service Education

Research studies have been conducted in order to examine the relationship between in-service education and teacher behavior, children's development, and program quality. In particular, researchers have explored the effect of in-service education in terms of the types of in-service education. This review of literature classifies the studies regarding the different types of in-service education such as college coursework, long-term training, and short workshops.

College Coursework

Many studies on the effect of in-service education have shown the relationship between college coursework and child-care quality (Arnett, 1989; Cassidy et al., 1995). In those studies, child-care teachers attended college coursework provided by community colleges for several years. They generally took several college courses during the period that covered the major areas in the early childhood field, even though each college provided somewhat different coursework.

Cassidy et al. (1995) investigated the effect of community college coursework on the beliefs and on the classroom practices of teachers in child-care centers. Using a pretest and a posttest, they reported that after completing at least 12-20 credit hours of community college coursework, teachers who attended the college coursework had more developmentally appropriate beliefs and practices compared to teachers who did not attend the college coursework. Based on the findings, they interpreted that through the community college coursework, teachers could gain knowledge of developmentally appropriate practices and apply the increased knowledge into their classroom practices. Arnett (1989) also investigated the relation between college training for caregivers and caregivers' attitudes toward children, as well as their behavior in interactions with children. She compared caregivers' attitudes and behaviors in terms of four different levels of training: (a) no training, (b) two courses in a college training program, (c) four

courses in a college training program, and (d) extensive training- 4 year college degree in early childhood education. Arnett found that caregivers who had the college training were less authoritarian in their childrearing attitudes and more positive in interactions with children, with less punitiveness and detachment than caregivers with no training. Based on the results, she concluded that whether caregivers had a brief training or extensive training, the training experiences had important influences on their attitudes and behaviors.

Long-Term Training

Researchers (Cassidy, Hicks, Hall, Farran, & Gray, 1998; Epstein, 1993; Kaplan & Conn, 1984; Rhodes & Hennessy, 2001) have examined the effect of long-term training in intensive institutes. The studies have been conducted with teachers in child-care centers. Teachers in the studies usually spent at least 20 hours on completing the in-service training. Teachers generally participated in more comprehensive and systematic training than short workshops. Many specific topics were covered in depth, such as child development, curriculum, children with disabilities, children's play, and so on. Most studies have employed pre- and post-training evaluation to examine the effect of training.

Rhodes and Hennessy (2001) examined the effect of a 120-hour preschool training course provided by the Irish Preschool Playgroups Association. Through pre- and post-training evaluation, they found that caregivers who participated in the training course showed positive interactions with children and reduction in levels of detachment. They also found that the children in their care made significant gains in levels of complex social and cognitive play. Cassidy et al. (1998) also documented the impact of four weeks of intensive training by national service volunteers. The results indicated that after training, teachers made significant gains in child development knowledge and developmentally appropriate beliefs and practices. Kaplan and

Conn (1984) conducted a research study to examine the effect of 20 hours of training. After training, caregivers improved their classroom environments and increased their caregiving activities and behaviors.

Epstein (1993) investigated the effect of in-service education on program quality for young children and on children's development in an evaluation of a High/Scope trainer of trainers project. Based on the results, she suggested that in-service training could significantly improve early childhood program quality if it includes the following: (a) workshops with an emphasis on active participation by adults, (b) specific coverage of curriculum issues and teaching practices, (c) classroom visits to observe and give feedback to teachers, and (d) follow-up sessions that encourage staff to share problems and solutions.

Short Workshops

Until recently, it has been accepted that teachers' professional development occurs primarily through a series of workshops and conferences (Lieberman, 1995). But there are few research studies that evaluate the effect of short workshops or conferences on early childhood program quality. There is a research study to examine the relationship between different levels of training, different types of workshops, and classroom quality (Burchinal et al., 2002). In this study, Burchinal et al. reported that both the higher level of formal education and in-service education through workshops were associated with classroom quality and caregiver sensitivity. Based on the results, the authors concluded that "workshops may be an effective mechanism for improving child-care quality" (p. 10). Unlike the literature that criticizes the effectiveness of workshops or conferences for professional development (Ball & Cohen, 1999; Fullan, 1991), this study provided evidence that "caregivers were benefiting from the workshops, regardless of their educational level" (Burchinal et al., p. 10).

Summary

As seen above, the literature about the effect of general education has supported two different positions, one position emphasizing the effect of general education and the other position emphasizing the effect of specialized education. Although there has been a disagreement in the literature, the studies from both positions have consistently shown that level of education has a strong relationship with teacher knowledge (Snider & Fu, 1990), teacher behaviors (Berk, 1983; Layzer et al., 1993; Whitebook et al., 1990), and children's development (Coplan et al., 1999).

As Roupp et al. (1979) reported in The National Day Care Study, the literature reviewed above support the finding that in-service education in child development and early childhood education is one of the significant predictors that affected child-care quality. In particular, many studies have provided evidence that show the positive influence of attending college coursework and long-term training. Moreover, the literature showed that in-service education has a positive effect on child-care teachers' beliefs and behaviors (Arnett, 1989; Burchinal et al., 2002; Cassidy et al., 1995; Cassidy et al., 1998; Kaplan & Conn, 1984; Ruopp et al.), children's development (Epstein, 1993; Rhodes & Hennessy, 2001), and classroom quality (Burchinal et al.; Kaplan & Conn).

Teacher Qualifications and Teacher Beliefs

Researchers have recognized the importance of understanding teacher thinking which is essential to improving teaching practice (Isenberg, 1990). Research studies on teacher thinking have focused on teachers' belief systems that invisibly influence teachers' planning, decision-making, and action, and have examined what affects teachers' beliefs (Einarsdottir, 2003). In particular, the effect of preservice and in-service education on teacher belief about teaching

practices has been an important issue in the literature. In this section, I begin with a review of the general meaning of teachers' beliefs. I also review the literature looking at the effect of preservice and in-service education on teachers' beliefs about teaching and learning.

Teachers' Beliefs about Teaching in General

While researchers have focused on teacher behaviors in traditional research on teaching, ignoring teachers' thinking processes, other researchers have been interested in teachers' beliefs about teaching (Isenberg 1990; Pajares, 1992; Spodek, 1988). However, there has been no consensus on the definition of teacher beliefs (Einarsdottir, 2003). Thus, the meaning of beliefs is conceptualized and described in many different terms such as values, implicit theories, explicit theories, metaphors, images, and ideologies. Kagan (1992) described teacher beliefs as implicit assumptions about students, learning, classrooms, and the content material that preservice and in-service teachers hold. Spodek (1988) explained teachers' beliefs as teachers' implicit and explicit theories. That is, teachers' implicit theories are those beliefs constructed from their personal experiences and practical knowledge, while explicit theories are those gained through college courses and professional literature.

According to Richardson (1996), teachers' beliefs about teaching are developed through personal experience, experience with schooling and instruction, and experience with formal knowledge. That is, teachers shape their beliefs about teaching through their personal, familiar, and cultural experiences. As Lortie (1975) refers to early school experiences as an "apprenticeship of observation," teachers form their beliefs about teaching and images of teachers through experiences as students. Teachers also develop their beliefs as "they experience formal knowledge in their school subjects, outside readings, television, religion classes, and so forth" (Richardson, p. 106).

The literature has stressed the important role of teachers' theories and beliefs in understanding teachers' thought process, classroom practice, and learning to teach (Pajares, 1992; Richardson, 1996). Many researchers have suggested that it is important to understand what teachers believe in order to understand how teachers make decisions in planning, teaching, managing, and assessing (Charlesworth, Hart, Burts, Thomasson, Mosley, & Fleege, 1993; McMullen, 1997). Kagan (1992) argued that teacher beliefs function as a filter that influences how teachers make instructional judgments and decisions in their classroom practices. Fang (1996) also claimed that teachers' theories and beliefs influence "their planning and their interactive thought and decisions, as well as their classroom behavior" (p. 49).

Teacher Qualifications and Teachers' Beliefs

Although many researchers have conducted studies about the effects of teacher education programs on beliefs in preservice and in-service teachers, the findings of the research about teacher beliefs have been controversial in the literature (Richardson, 1996). Some researchers have argued that it is difficult for teachers to change their beliefs through teacher education programs, while other researchers have insisted that teachers can change their beliefs and practices through teacher education programs. In this context, I review the literature related to the effect of teacher education programs (preservice and in-service education) on teacher beliefs below. I also review the literature demonstrating the effect of teaching experience on teacher beliefs.

Preservice Education and Teacher Beliefs

A great number of studies demonstrate that teacher education programs have little effect on the shaping of teachers' beliefs and concepts. For example, Goodman (1988) examined how preservice teachers construct their perspectives of teaching. In the research, preservice teachers

were asked to develop their teaching philosophy as they participated in early field experiences, student teaching, university education courses, and weekly seminar meetings. Goodman suggested that preservice teachers' professional perspectives of teaching were established through their own early childhood and schooling experiences rather than their teacher preparation program experiences. Goodman also argued that preservice teachers' pre-professional images function as an "intuitive screen" to interpret viewpoints and experiences in preservice teacher education. Feiman-Nemser and Buchmann (1989) also showed the difficulty in changing preservice teachers' beliefs during teacher education programs. That is, in a case study, they indicated that a student "combined past experience with ideas she encountered in formal preparation in a way that reinforced earlier beliefs and reversed the intended message of her assigned readings on the inequitable distribution of school knowledge" (p. 371).

Researchers have also explored the effect of student teaching experience on preservice teachers' beliefs and perspectives. For example, Zeichner et al. (1987) asked student teachers to solve dilemmas in classrooms using 18 vignettes before and after student teaching experiences. The findings indicated that student teaching experience tended to reinforce preservice teachers to solidify their existing perspectives rather than to change them fundamentally. In a study that investigated the influence of student teaching experience on preservice teachers' perspectives, Hoy and Woolfolk (1990) also found that, as preservice teachers completed their student teaching, they held a more custodial pupil-control perspective. They also found that student teachers had a more controlling orientation toward social problem solving through the process of socialization within the school. More recently, Tillema and Knol (1997) also investigated changes in beliefs of student teachers who participated in a conceptual change program. In the program, student teachers were asked "to explicate their beliefs, search for new knowledge, and

enact what had been learned in their practice teaching" (p. 579). Through the pre- and post-test, the researchers measured student teachers' teaching beliefs and teaching performance and found that students in the conceptual change program could improve their teaching performance, compared with students in the direct instruction program. However, the results also showed that student teachers had no substantial belief change through the conceptual change program.

In contrast to studies demonstrating the difficulty in changing preservice teachers' beliefs in teacher education programs, some studies have examined the positive effect of preservice teacher education on students' beliefs. In a qualitative study, Hollingsworth (1989) examined preservice teachers' changes in conceptions about teaching and learning by comparing preservice teachers' preprogram beliefs with postprogram beliefs. Hollingsworth found that a teacher education program emphasizing constructivist concepts of learning influenced some preservice teachers' beliefs about reading instruction through providing coursework and student teaching experience in classrooms. Based on the findings, Hollingsworth suggested that teacher education programs should understand preservice teachers' incoming beliefs in order to help preservice teachers change their prior beliefs. Feiman-Nemser, McDiarmid, Melnick, and Parker (1989) examined how preservice teachers changed their views of teaching through taking an introductory course in a teacher education program which was designed to challenge students' prior beliefs and assumptions about teaching. In the findings, Feiman-Nemser et al. reported that, "through personal reflection, analysis of case studies and videotapes of classroom teaching, discussions, readings, simulations, and field assignments" (p. 1), preservice teachers explored and transformed their prior images of teaching.

In-Service Education and Teacher Beliefs

Recent studies have demonstrated the positive impact of in-service education on teachers' changes in beliefs. For example, Tobin (1990) conducted a study that examined how teachers' changes in metaphors were associated with reconceptualizing roles and beliefs about teaching and learning. He found that as teachers changed their metaphors of teachers' roles through staff development programs designed to help teachers reflect on prior metaphors and construct new metaphors, they reconceptualized their roles, switched their beliefs, and changed their teaching practices along with the new metaphors. Tobin emphasized the importance of providing opportunities for teachers to observe one another, discuss observations, and reflect on action in order to help teachers change their beliefs. Weinstein, Madison, and Kuklinski (1995) conducted a study to investigate the effect of an expectancy-enhancement intervention to raise teachers' expectations for at-risk students in high school. In the intervention, teachers, administrators, and researchers had opportunities to read the research literature and design, implement, and evaluate alternative educational practices. As teachers participated in the collaborative project for 2 years, they appeared to change their beliefs about the students. That is, in the beginning of the project, teachers attributed students' poor achievement to external factors such as students' low motivation and lack of support for collaboration. However, over time, teachers began to take responsibility and had positive expectations for students. Those positive changes were eventually made in practices that provided more learning opportunities for students. Wood, Cobb, and Yackel (1990) investigated the effect of a project that attempted to implement a constructivist approach of learning and teaching mathematics in traditional public school classrooms on teachers' beliefs and practices. Through participating in developing instructional materials based

on a constructivist theory of learning, one of the teachers who had taught mathematics in a traditional way changed her beliefs and practices about teaching mathematics.

McDiarmid (1992), however, revealed little effect of in-service education in a study that examined beliefs of teacher trainees who participated in a series of presentations on multicultural education. McDiarmid analyzed teacher trainees' views of stereotypes and of teaching culturally diverse children, examining their responses to different scenarios about multicultural issues in classrooms before and after the presentations. The multicultural education through a series of presentations lectured by district administrators and specialists, teachers, and consultants was found to have little effect on teachers' views.

Summary

Different terms have been used to conceptualize the meaning of teacher beliefs. Although there has been no consensus on the definition, researchers have commonly accepted the idea that it is important to understand teachers' beliefs because teacher beliefs affect teachers' perceptions, plans, and actions. Researchers have claimed that teachers' beliefs, in general, are constructed and developed through their personal, familiar, and cultural experiences as well as through experience with formal knowledge gained from preservice and in-service teacher education.

Research studies, however, have shown inconsistent findings about the effect of preservice and in-service education on teacher beliefs about teaching and learning. A number of research studies have shown that preservice teachers bring their beliefs constructed from their early childhood and school experiences, and interpret knowledge and experiences provided by teacher education programs, holding their prior beliefs and assumptions about teaching and learning rather than changing their beliefs and accepting new knowledge (Goodman, 1988; Tillema & Knol, 1997; Zeichner et al., 1987). In contrast, a few research studies have indicated

that preservice teachers can change their initial beliefs as they obtain knowledge about teaching and learning, and have student teaching experiences in teacher education programs (Feiman-Nemser et al., 1989; Hollingsworth, 1989). The research studies about the effects of in-service education on teacher beliefs have also revealed inconsistent results. That is, Tobin (1990), Weinstein et al. (1995), and Wood et al. (1990) found a positive impact of in-service education on teachers' beliefs, while McDiarmid (1992) concluded that in-service education could not change teachers' deep-seated beliefs.

Teacher Qualifications and Beliefs About Developmentally Appropriate Practice

Over the last decade, the notion of developmentally appropriate practice has been a dominant concept in early childhood education in the United States. Since the guidelines for developmentally appropriate practice were published by NAEYC, it has become the most influential document guiding early childhood classroom practice (Charlesworth, 1998). Thus, a number of early childhood professionals have considered the notion as "best practice" for young children in the field of early childhood education, even though others criticize the notion. Because developmentally appropriate practice has been considered "best practice," the effect of teacher education on teacher beliefs about developmentally appropriate practice has been also an important issue in the field of early childhood education. In this review, I summarize the beliefs about developmentally appropriate practice and critics' arguments of the notion. I also review the literature demonstrating the positive effects of developmentally appropriate practice on children's development. Finally, I specifically review the literature examining the relationship between teacher qualifications and teacher beliefs about developmentally appropriate practice, and the relationship between teacher beliefs and classroom practices.

Beliefs about Developmentally Appropriate Practice

The concept of developmentally appropriate practice was originally addressed in a policy statement by NAEYC (Bredekamp, 1987). According to the policy statement, developmentally appropriate practice is one that involves all aspects of development of children, including their social, emotional, aesthetic, moral, language, cognitive, and physical development. Based on the common position presented by national professional organizations (e.g., NAEYC, National Association of Early Childhood Specialists in the State Department of Education), Charlesworth, Hart, Burts, and DeWolf (1993) explained that "appropriate practices are those that fit young children's stages of development both relative to their age and to their individual development level and their family and cultural backgrounds" (p. 257). They also mentioned that "appropriate practice provides an environment for young children where knowledge can be constructed through the children's own actions during concrete, authentic experiences in contrast to inappropriate practice that relies on paper and pencil workbook or worksheet, lecture, and other abstract experiences" (p. 257).

As seen above, developmentally appropriate practice is based on constructivist theories of cognitive learning and development (Stipek, 1993) that emphasize that "children construct their own knowledge by confronting and solving problems, and therefore learn best through direct experience with their environment in situations in which they are free from pressure to arrive at adult-determined solutions" (p. 32). Bredekamp and Copple (1997) provided 12 principles of child development and learning that guide developmentally appropriate practice as follows (pp. 10-15).

1. Domains of children's development-physical, social, emotional, and cognitive are closely related. Development in a domain influences and is influenced development in other domains.
2. Development occurs in a relatively orderly sequence, with later abilities, skills, and knowledge building on those already acquired.
3. Development proceeds at varying rates from child to child as well as unevenly within different areas of each child's functioning.
4. Early experiences have both cumulative and delayed effects on individual children's development; optimal periods exit for certain types of development and learning.
5. Development proceeds in predictable directions toward great complexity, organization, and internalization.
6. Development and learning occur in and area influenced by multiple social and cultural context.
7. 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.
8. Development and learning result from interaction of biological maturation and environment, which includes both the physical and social worlds that children live in.
9. Play is an important vehicle for children's social, emotional, and cognitive development, as well as a reflection of their development.

10. 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.
11. Children demonstrate different modes of knowing and learning and different ways
12. Children development 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.

In order to explain the concept of developmentally appropriate practice, the literature has compared developmentally appropriate practice with traditional classroom practice where knowledge and skills are transmitted by teachers (Stipek, 1993; Wakefield, 1993). Stipek argued that developmentally appropriate practice instruction is "informal, embedded in everyday activities, and explicitly connected to children's own life experiences," while teacher-directed instruction focuses on "tasks involving one right answer and memorization" (p. 30). Wakefield also argued that developmentally appropriate classrooms provide integrated, meaning-driven, and child-centered curriculum, while a teacher in a traditional classroom plans separate, skill-driven, and teacher-directed curriculum. Thus, teachers in developmentally appropriate classrooms try to integrate subjects into an overall theme rather than teach them through isolated lessons, and teach knowledge and skills within the "whole" rather than teach skills that are unrelated to the overall purpose or learners' interests. The teachers also give more opportunity for children to explore their interests and function as facilitators in the classes rather than directors of the classes.

Criticism of Developmentally Appropriate Practice

There is not a complete consensus within the early childhood community about the value of developmentally appropriate practice. Since NAEYC published guidelines for

developmentally appropriate practice for young children in 1987, researchers have criticized the notion of developmentally appropriate practice (Fowell & Lawton, 1992; Lubeck, 1996, 1998; Walsh, 1991). Walsh critiqued the dominant discourse of developmentally appropriate practice, questioning the perspective of development. He questioned the assumption of development in the developmentally appropriate practice that there are universal and predictable changes in all domains of children's development. He pointed out that the developmentally appropriate practice has overemphasized the idea of maturation in cognitive development. He stated that "for Piaget, the primary mechanism for developmental change is the equilibration or self-regulatory process" rather than maturation (p. 112).

Walsh (1991) and Lubeck (1996) both suggested that children's development needs to be understood in cultural and historical contexts. Lubeck (1998) particularly argued that because the world is becoming increasingly diverse and complicated, it is difficult to imagine that developmentally appropriate practice would fit for everyone. She also pointed out that even though, in the revised guidelines, the NAEYC recognized the diversity and complexity in human development and learning, the guidelines still retained "many of the normative and universal features that characterized the initial version" (p. 286).

Other critics who advocate teacher-directed instruction have criticized the notion of developmentally appropriate practice, arguing that child-centered programs do not meet poor children's needs to prepare for academic achievement in elementary schools. Critics have insisted that poor, minority children might need more structured, basic skills-oriented programs in order to succeed in the mainstream culture. For example, Delpit (1988) suggested that skills-oriented, teacher-directed instruction has value because poor, minority children can learn new and useful information that they have not acquired at home. Gersten, Darch, and Gleason (1988)

also argued that academically oriented programs can provide opportunities for poor children to gain basic skills that most advantaged children gain in their homes.

Positive Effects of Developmentally Appropriate Practice on Children's Development

In spite of those critiques, studies have consistently shown that developmentally appropriate practice has positive effects on children's development and learning (Dunn & Kontos, 1997; Mantzicopoulos, Neuharth-Pritchett, & Morelock, 1994). As the importance of early childhood education during the earliest years of life has been recognized, the literature has reported that developmentally appropriate early childhood programs have short- and long-term positive impacts on children's development (Barnett, 1995).

Several studies have revealed the positive effects of developmentally appropriate practice on children's emotional development (Burts, Hart, Charlesworth, & Kirk, 1992; Hyson, Hirsh-Pasek, & Rescorla, 1990). In those studies, researchers especially examined the effect of developmentally appropriate practices on children's stress in classrooms and found that children decreased their stress behaviors in classrooms where children could build knowledge through their own actions. In addition, studies have reported that developmentally appropriate practices increase children's cognitive development. Those studies have indicated that children in child-centered or developmentally appropriate programs had better language outcomes (Hyson et al.), were more confident in their own cognitive competence (Mantzicopoulos et al., 1994), and made more positive progress in mathematics and science (Marcon, 1992). Researchers have also demonstrated that developmentally appropriate teaching in preschool and kindergarten has the potential for producing greater success in the early grades (Frede & Barnett, 1992; Marcon, 1992; Charlesworth et al., 1993). For example, Frede and Barnett's study showed that children

who attended developmentally appropriate preschool programs did well academically in first grade.

As a response to the critique of whether developmentally appropriate practice could apply to the education of children from diverse cultures, Charlesworth (1998) insisted that research has shown that developmentally appropriate curriculum improves children's development regardless of SES, racial background, or gender. In the LSU studies that investigated the effects of developmentally appropriate and inappropriate practices on children's behaviors and achievement, Charlesworth et al. (1993) found that lower SES students who experienced developmentally appropriate practices in kindergartens had lower stress levels and better academic achievement. They also found that low SES African-American students in developmentally appropriate kindergartens had lower stress levels and gained an academic advantage. Other researchers also have supported the beneficial effect of developmentally appropriate classroom settings on the emotional and cognitive development of children from diverse cultural backgrounds (Marcon, 1992; Mantzicopoulos et al., 1994).

The Effect of Teacher Qualifications on Beliefs About Developmentally Appropriate Practice

As discussed in a previous section, there have been a number of studies demonstrating that teacher education may have little impact on teachers' beliefs about how children learn and about what role the teacher has in that process (Calderhead & Robson, 1991; Tabachnick & Zeichner, 1984). However, according to McMullen (1997), although the literature has shown that the impact of teacher education on classroom practices is not positive, "the literature supporting teachers' learning of DAP is more hopeful" (p. 60). That is, there has been some evidence that teachers' beliefs about developmentally appropriate practice are influenced by preservice and in-

service teacher education. Thus, I review the literature that has examined the relationship between teacher education and beliefs about developmentally appropriate practice.

In terms of content of education, a number of researchers have proved the positive effect of specialized education in early childhood education or child development on teachers' beliefs and practices (Bredekamp & Copple, 1997; McMullen, 1999; Smith, 1997; Snider & Fu, 1990; Vartuli, 1999). For example, Snider and Fu stated that teachers' theoretical and practical knowledge of child development is acquired through teacher education programs. In particular, they found that teachers who had formal education in child development or early childhood education scored higher in knowledge of developmentally appropriate practice than teachers who had formal education in other fields of study. In the study that investigated student teachers' beliefs about developmentally appropriate practice, Smith reported findings similar to those of Snider and Fu and emphasized the importance of specialized education in building knowledge about developmentally appropriate practice. That is, comparing the beliefs of student teachers in early childhood programs with the beliefs of student teachers in elementary education programs, Smith reported that student teachers with early childhood preparation had more developmentally appropriate beliefs, while student teachers with elementary preparation had more traditional beliefs. The results also indicated that those patterns remained stable over the course of the student teaching experience.

Research studies have also examined the relationship between general education and teacher beliefs (McMullen & Alat, 2002; Vartuli, 1999). For example, in a recent study that investigated the relationship between preschool teachers' educational backgrounds and their beliefs about developmentally appropriate practice, McMullen and Alat (2002) revealed that there was a significant correlation between level of education and self-reported teacher beliefs

about developmentally appropriate practice. In other words, preschool teachers with a 4-year college degree or graduate degree regardless of the major had stronger developmentally appropriate beliefs than those with less education.

In addition to educational background, several studies have examined the effects of in-service education as a factor that influences teachers' beliefs and practice (Cassidy et al., 1995; Haupt et al., 1995; McMullen, 1997). For example, in a study that examined the effect of community college coursework on teachers' beliefs about developmentally appropriate practice and practices, Cassidy et al. found that child-care teachers who completed 12-20 credit hours of community college coursework had significantly more developmentally appropriate beliefs and integrated their beliefs into their classroom practices more than teachers who did not attend college classes. The results showed that taking community college courses related to early childhood education or child development could contribute to a change in beliefs and provide knowledge for improving teachers' classroom practices in a developmentally appropriate way. The findings supported "the premise that improving teacher educational qualification is related to improved knowledge of developmentally appropriate practices and higher quality classrooms" (p. 182). Haupt et al. also investigated the impact of in-service training about developmentally appropriate practice on the beliefs and practices of kindergarten teachers. In the study, kindergarten teachers who participated in a series of in-service seminars on developmentally appropriate practice were found to have significant changes in their beliefs and practices about developmentally appropriate practice. Those studies above have demonstrated that it would be difficult for teachers to develop their beliefs about best practices for young children, unless they consistently engage in professional development.

Relationship between Teachers' Beliefs and Classroom Practices

As many researchers have recognized the role of teachers' implicit theories and beliefs in teachers' actions in planning, teaching, and assessing, they have paid attention to the relationship between teachers' beliefs and classroom practices. Although studies have reported that there are inconsistencies between teachers' beliefs and their teaching practices, a number of studies have shown that teacher's beliefs are reflected in teaching practices. In the field of early childhood education, researchers have found a high correlation between teachers' beliefs about appropriate practices and their actual practices (Charlesworth et al., 1993; Oakes & Caruso, 1990; Stipek & Byler, 1997). For example, in a study that examined the relationship between early childhood teachers' attitudes toward authority and their teaching practices, Oakes and Caruso reported that teachers with authority-sharing attitudes were more likely to use child-centered teaching strategies, while teachers with authority-controlling attitudes were more likely to use academically oriented, skill-centered strategies in their classrooms. Charlesworth et al. reported a close relationship between teachers' beliefs and reported classroom practices. Stipek and Byler also found that there were significant associations between teachers' beliefs and practices for preschool and kindergarten teachers, while there were few associations for first-grade teachers.

Summary

In the field of early childhood education, the notion of developmentally appropriate practice has been the most influential concept that guides early childhood classroom practices. Based on constructivist theories of learning and development, the advocates for developmentally appropriate practice have emphasized child-centered curriculum and instruction relevant to children's ages and their individual developmental levels. Different from the traditional approach of learning that emphasizes the teacher's role in transmitting knowledge and skills,

developmentally appropriate practice curriculum and instruction provide more opportunities for children to explore their environments and to construct their own knowledge through those direct experiences.

However, the notion of developmentally appropriate practice has been criticized by critics. Critics argue that children's development does not follow universal and predictable developmental stages. They assert that it should instead be understood in its cultural and historical contexts. They argue that developmentally appropriate practice does not fit for all children, especially for poor and minority children. They point out that the notion of developmentally appropriate practice reflects the values and perspectives of White and middle class people.

Different from the general literature that examines the effect of teacher education and teaching experience on teacher beliefs, the literature in early childhood education has shown the strong relationship between teacher education and teachers' beliefs about developmentally appropriate practice (Cassidy et al., 1995; Haupt et al., 1995; McMullen, 1997; Smith, 1997; Snider & Fu, 1990). That is, those research studies have consistently reported that as preservice and in-service teachers gain knowledge about teaching and learning, they could have developmentally appropriate beliefs relevant for early childhood practices.

Teacher Qualifications in Georgia Pre-K Program

Over the last 2 decades, state-funded prekindergarten programs have shown considerable growth in this country. According to Mitchell (2001), by 1988, 28 states began pre-k programs, spending an annual total of $190 million. Recently, 42 states have begun pre-k programs and increased investments, spending almost $2 billion annually. The states are continuously expanding their pre-k programs to serve more children. In 1993, the state of Georgia started the

Georgia pre-k program in order to provide educational services for at-risk children. Since 1995, the Georgia pre-k program has been expanded to serve all 4-year-olds, without regard to income or any other criterion except age. According to the report from the Center for the Child-Care Workforce (Bellm et al., 2002), it is the earliest universal state-funded pre-k program in the United States that is solely supported by state lottery funds. Recently, the state of Georgia has expanded the pre-k program to serve 53% of all 4-year-old children in the state.

Given the rapid expansion of pre-k programs, the qualifications of pre-k teachers have become a priority concern. In this section, among the state-funded pre-k programs, I specifically examine the status of the Georgia pre-k teachers' qualifications as well as the regulations for teacher qualifications. I also look at the various in-service education programs for the Georgia pre-k teachers. Finally, I review the research related to state-funded pre-k teachers.

Preservice Education Requirements in The Georgia Prekindergarten Program

The Office of School Readiness (OSR) has provided guidelines for the Georgia pre-k program. The guidelines offer credential/certification requirements and training requirements that lead teachers and paraprofessionals must meet for their teaching positions. The Georgia pre-k program has various regulations for teacher qualifications ranging from an associate's degree to a bachelor's degree. Since the fall of 2002, in order to improve the qualifications of teachers, the Georgia pre-k program has required lead teachers to have an associate's degree in child development or early childhood education, or a Montessori diploma, as the minimum qualification. According to the 2002-2003 Georgia pre-k program guidelines provided by the Office of School Readiness (2002), there are three paths a teacher can take to be a lead teacher. For the first path, lead teachers must have a Georgia certificate issued by the Professional

Standards Commission (PSC) in early childhood education (p-5), elementary education (p-8), or early childhood/interrelated special education (p-5). Lead teachers are allowed to have out-of-state official teaching certificates in early childhood education or elementary education during their first pre-k school year.

For the second path, lead teachers meet the qualifications if they have a 4-year college degree in early childhood education, an education/child development-related field, or family consumer science. In cases where teachers have a psychology or social work degree, in order to meet the qualifications, they must have a valid early childhood care and education or child development postsecondary technical institute diploma or degree, or a valid advanced early childhood care and education or child development related care postsecondary technical institute diploma or degree. Or they must have an associate's degree (AA, AAS, or AS) in early childhood education, a Montessori diploma, a valid nationally recognized Child Development Associate (CDA) credential, or a valid nationally recognized Child-Care Professional (CCP) credential.

The third path to becoming a pre-k teacher is an early childhood care and education or child development postsecondary technical institute diploma or degree, an advanced early childhood care and education or child development related care postsecondary technical institute diploma or degree, an associate's degree (AA, AAS, or AS) in early childhood education, or a Montessori diploma.

Due to the various paths to be qualified as a pre-k teacher, teachers who work within the Georgia pre-k program have different qualifications ranging from an associate degree to a bachelor degree. Specifically, teachers in publicly operated pre-k programs (including school-district-based and community-college-based programs) are required to have higher educational

qualifications than teachers in privately operated programs, including programs based in nonprofit agencies and for-profit businesses (Bellm et al., 2002). In fact, while pre-k teachers who are employed in publicly operated programs exceed the state's minimum qualification requirements, teachers who are employed in privately-operated programs tend to just meet minimum requirements.

Even within pre-k classrooms, there are qualification differences between teachers and paraprofessionals. For example, in the publicly operated programs, the minimum preservice requirements for assistant teachers are a high school diploma and work experience with young children (Office of School Readiness, 2002). Nearly 50% of assistant teachers in the publicly operated programs have at least an associate's degree (Bellm et al., 2002). The educational level of paraprofessionals is notably lower than lead teachers.

In-Service Education Opportunities in The Georgia Prekindergarten Program

In terms of teacher training, the Office of School Readiness in Georgia offers a variety of training opportunities for pre-k teachers (Office of School Readiness, 2004). The training is intended to improve the skills and knowledge of teachers already prepared to teach in pre-k programs rather than to prepare personnel to become pre-k teachers. Lead teachers and assistant teachers must attend one OSR-sponsored training during the school year. That is, teachers have to participate in one of the OSR-approved curriculum trainings such as Creative Curriculum, High/Scope, Montessori, HighReach, or a locally developed curriculum approved by OSR. Teachers who have completed their curriculum training are encouraged to attend Best Practices Observation and Portfolio Management Training or Best Practices Literacy Training. All teachers are expected to attend one type of training per school year. For instance, if teachers

attend their curriculum training, the teacher should not attend Best Practices training in the same school year.

Lead teachers who work in programs using High/Scope should attend High/Scope Lead Teacher Training. The training is offered in two 5-day sessions. Teachers have to attend both weeks of training. Through the training, teachers participate in discussion with topics such as active learning, physical environment, daily routine, key experiences, and assessment. New lead teachers who work in programs using The Creative Curriculum should attend Creative Curriculum Lead Teacher Training. The training is offered in three 3-day sessions. The training provides practical, hands-on sessions for teacher to learn how to develop interesting and engaging classrooms, and to explore how to connect content, teaching, and learning. Lead teachers who have completed their curriculum training attend Best Practices Literacy Training. The training provides teachers with creative, practical, hands-on experience that teachers can develop and use with instructional strategies relating to early literacy. Teachers have opportunities to interact with their peers and other early childhood education professionals. Also, lead teachers may attend Best Practices Observation and Portfolio Management Training, which is a 2-day workshop where teachers learn strategies and appropriate methods for observing and documenting children's developmental progress.

Research Related to Pre-K Teachers

A number of researchers have conducted studies focusing on evaluation of pre-k program quality. However, few researchers have conducted studies related to pre-k teacher qualifications. Within the studies about teacher qualifications, most studies have reported the current state of teacher qualifications in pre-k programs (Bellm et al., 2002; Whitebook et al., 2004). There are very limited studies that show the relation between teacher qualifications and teachers' beliefs.

Therefore, I review some literature dealing with the relation between the qualifications of pre-k teachers and program quality and children's development.

In a report that evaluated the effectiveness of Oklahoma's pre-k program, Gormley and Phillips (2003) reported that children who participated in the public pre-k program had a great gain in cognitive and language skills. In the report, they asserted that the reason why Oklahoma's pre-k program was found to be effective is that the state had emphasized strong teacher qualifications to increase program quality. In fact, the state had required every pre-k teacher to have a bachelor's degree and a certificate in early childhood education. Whitebook (2003) claimed that "prekindergarten teachers with a bachelor's degree and specialized training in early childhood are the most likely to have the skills that develop better outcomes for children" (p. 5) based on an extensive review of research literature about the relation between teacher preparation and children's outcomes in early childhood education (e.g., Bermuda College Training Program Study; National Child-Care Staffing Study; Cost, Quality, and Child Outcomes Study; Florida Quality Improvement Study).

Summary

During the last decade, the Georgia pre-k program has dramatically grown to serve 4-year-old children. In addition to expanding, the Georgia pre-k program has improved teacher qualifications by requiring teachers to have at least an associate's degree related to child development or early childhood education. The Georgia pre-k program has also provided various in-service training opportunities for pre-k teachers' continuing professional development.

However, even though the Georgia pre-k program has been concerned about raising teachers' preservice training requirements and providing professional development activities, there have been limited research studies demonstrating the outcomes of the state's efforts. There

are a few studies that examine the relation between pre-k teachers' qualifications and classroom quality and children's outcomes. In addition, researchers rarely conduct research about the relation between pre-k teachers' qualifications and teachers' beliefs. Therefore, more research studies dealing with the influence of pre-k teachers' preservice and in-service education on classroom quality, children's development, or their beliefs about teaching practices are needed in general.

CHAPTER 3

METHODOLOGY

To augment the literature on early childhood educators' educational background, professional development, and teaching position and beliefs about developmentally appropriate practice, this study will examine self-reported teachers' beliefs prior to their involvement in a 16-week comprehensive intervention on literacy. This study will inform the literature on teacher beliefs and will uniquely contribute to the literature because it examines lead teachers and paraprofessionals in public pre-k classrooms. Specifically, the study will inform the literature by examining the level of teacher professional development and its relation to teachers' beliefs on developmentally appropriate practice, and differences in the beliefs of teachers based on their educational level.

Study Context

Participants in this study were participants in a larger professional development study on early childhood education that was funded by the United States Department of Education (Hamilton, Schwanenflugel, Neuharth-Pritchett, & Restrepo, 2001). The larger project, *PAVEd for Success*, provided intensive training and follow-up in developmentally appropriate early childhood literacy practices for teachers who worked in classrooms with great numbers of children who were living in poverty. Teachers in the larger experimental study received training in various literacy practices that included combinations of vocabulary enhancement, phonological awareness, and universal quality literacy practices. Other teachers received no formal training until the end of the research study, as their classrooms served as control

conditions for the research study. Despite the differential participation in the various research conditions of the research study, all lead teachers and paraprofessionals from the included pre-k classrooms were participants in the research study.

All participating teachers were teaching in public school pre-k classrooms in a three-county area in Northeast Georgia. Publicly funded pre-k classrooms in the state of Georgia require both a certified lead teacher and a paraprofessional for the 20 children who are enrolled in each classroom. The majority of classrooms in which these teachers taught utilized the High/Scope curriculum with the exception of two classrooms that utilized the Montessori approach. Data in the current study were collected from these participants prior to the implementation of the *PAVEd for Success* project at the week-long training institute that took place in July of 2002. Data were collected with a number of other pretest measures given to the teachers prior to the training session.

Participants

Participants in this study represented three counties in Northeast Georgia. Two of the counties were categorized as rural and one was identified as urban. The urban school community was predominantly populated with young, poorly educated students who lived below the federal poverty level (Boatright & Bachtel, 1998). Approximately 21% of the population, at the time of the study, were living below the poverty line, and 68% of children enrolled in the public schools received free and reduced lunch. The dropout rate in this urban community averaged between 50-60%. Within the larger sample of teachers, this community accounted for 70.6% (n=48) of the teachers.

Both of the rural school communities were geographically located close to the urban community. The first of these communities was predominantly European American (84.8%),

with 39.9% of households with children under the age of 18. The percentage of individuals who lived below the poverty line was 12.4%, with 18.6% of children under the age of 18 living in poverty. Of the eight elementary schools in the county, five had free and reduced lunch percentages over 50%. The number of teachers in the total sample from this community was 13.2% (*n*=9). The second rural school community was a community that was predominantly populated by European Americans (83%). The population under age 18 was 28.4%. In the community, 9.7% of the population lived below the poverty level. However, in the community, the number of children below age 5 (8.1%) who attended prekindergarten in a center where the free and reduced lunch rate was 64%. The total number of teachers from this community was 16% (*n*=11).

Of the total sample, prekindergarten teachers had two main job classifications, either lead teacher or paraprofessional. Lead teachers comprised 51.5% of the sample (*n*=35), and paraprofessionals accounted for 48.5% of the sample (*n*=33). The age range of the lead teachers was 25 to 60 years with a mean age of 37.16 (*SD*=9.48). The paraprofessionals ranged in age from 25 to 59 years with a mean age of 37.23 (*SD*=8.18). All of the teachers with the exception of one were female. With regard to ethnicity, 32.4% (*n*=22) of the teachers were African American, 55.9% were European American (*n*=38), 2.9% were Latino (*n*=2), and 2.9% identified themselves as other (*n*=2). Four teachers (5.9%) did not provide information on their ethnicity.

All of the lead teachers and paraprofessionals completed high school. Teachers were also asked to provide information on their highest level of education. Comparisons between the lead teachers and the paraprofessionals were conducted to determine if there were differences in between the two groups on the variable of educational level. Within the sample, paraprofessionals differed from lead teachers with regard to attainment of a 4-year college

degree. This difference was statistically significant (χ^2=9.62, *p*=.01) as only 8 paraprofessionals (24.2%) had a 4-year college degree while no lead teacher had less than a 4-year college degree. In a comparison examining advanced education, defined as a master's degree, the difference was again found to be statistically significant in that no paraprofessional had obtained a master's degree ($\chi_{masters}^2$=26.7, *p*=.00). Of the lead teacher sample, 20 teachers (57.1%) had master's degrees and 3 had educational specialist degrees (4.4%). A comparison between the lead teachers and the paraprofessionals based on attainment of specialist degrees could not be conducted given the low sample size for the number of teachers who had such degrees.

When asked about the types of certification that lead teachers and paraprofessionals had obtained, a significant difference was found (χ^2=33.93, *p*=.00). While 6 paraprofessionals were certified as early childhood education teachers (certified to teach prekindergarten to grade 5), 31 lead teachers had obtained this level of certification (88.6%). Of the 4 lead teachers who did not have an early childhood education certificate, 1 was certified as a P-8 (prekindergarten to grade 8), 1 had a certificate in middle school (grades 4-8), and 2 were certified as special education teachers. Lead teachers ranged in their number of years of teaching experience from 3 to 22 years, with a mean of 8.9 years (*SD*=4.80). Paraprofessionals in the sample had years of teaching experience that ranged from 0 to 15 years, with a mean of 6.15 years (*SD*=6.00). This difference in the number of years of teaching experience for the two groups of teachers was significant (*F*=4.29, *p*=.04). However, there was not a statistically significant difference in the number of years in teaching prekindergarten between the two groups of teachers. Overall, it is important to note that this sample is a relatively unique sample in terms of the educational levels of both lead teachers and paraprofessionals in these preschool classrooms. That is, this sample represents a unique group of preschool teachers of whom there were not only a large proportion of teachers

with 4-year college degrees, but also teachers with masters and specialists degrees. In the majority of the literature on programs for young children, this level of educational attainment is usually not present.

The research literature described in chapter 2 placed teachers into three distinct categories with regard to in-service education. The first of these categories was formal education operationalized as college coursework. The second was intensive professional development that was operationalized as long-term commitment to in-service education, but not including formal college coursework. The third category of professional development was operationalized as short workshops. This category consisted of participation in conferences or workshops. In this data set, teachers were asked to specify their involvement in professional development over the previous 5 years prior to the beginning of the study. Teachers provided information on college coursework, intensive training opportunities such as Montessori or Child Development Associate training, and participation in conferences and workshops.

Data were examined to calculate the number of teachers who reported the training within the three larger categories specified above. Data from both lead teachers and paraprofessionals were examined. Teachers (i.e., both groups) reported on the their participation in formal college coursework over the last 5 years. Of the 68 teachers, 19 indicated that they had coursework in either assessment or reading in early childhood. With regard to long-term professional development, teachers were asked to provide information on whether or not they had participated in Montessori training or were working on a Child Development Associate credential. While some teachers had completed those Child Development Associate or Montessori training, no teacher had completed that coursework within the last 5 years. Therefore, there were no teachers who could be placed into the intensive training category. Teachers also indicated the number of

short-term training in which they had participated over 5 years prior to the research study. Of the total number of teachers, only 25 reported this level of training.

Given these data that demonstrated either formal college coursework participation or short-term training participation along with the absence of data in the category of long-term training, data were recoded to place teachers in two categories for analysis. These categories were no professional development within the past 5 years (n=38) and professional development within the past 5 years (n=30). A chi-square analysis was performed to test differences between the professional development categorization as the teacher type variable (lead teacher and paraprofessional). Of the lead teachers, 65.7% (n=23) had engaged in development opportunities in the 5 years prior to the study, while 34.3% (n=12) had not. For paraprofessionals, 21.2% (n=7) had engaged in professional development, while the other 78.8% (n=26) had not in the 5-year period prior to the research study. A significant difference was found between the two groups regarding their participation in professional development (χ^2=13.64, p=.00). These data are intriguing given the state regulatory requirement mandating 10 clock-hours of training per academic year. The rationale for defining the professional development variable is largely located in the literature as described above. However, it is also important to note that the survey data collected as part of the larger study were bounded by a larger set of research questions that somewhat constrain this data analysis. Specifically, the researchers who administered the survey asked teachers to identify their participation in professional development in the year before the intervention as well as the 5-year period before the intervention. This was specifically done to try and capture the prior training of the participants in the larger study not only with regard to how recent previous training was but also to capture teachers' involvement in professional

development given the state mandate to engage in such development as a means to retain certification (10 credits every year).

It should also be noted that the engagement in professional development was self-reported by the teachers. These data were translated into a dichotomous variable of participation or lack of participation in professional development. This variable does not speak to the discrete experiences that teachers had in their professional development or the overall quality of that professional development.

Data Collection and Instruments

Human subjects permission for this research study was done as part of the larger research study on literacy. Prior to any training or intervention, permission was requested from teachers. Data for this secondary analysis were collected prior to training as part of a larger instrument that solicited information on teacher demographic variables; teacher education background and professional preparation; classroom environment; classroom practices, including time of engagement in specific curricular areas; views on school readiness; and beliefs about teaching. Data were collected from each teacher on this survey instrument. Data points were entered into SPSS and checked for accuracy and completeness.

The 55 questions on teachers' beliefs were presented so teachers could rate their level of agreement with each belief statement (see Appendix A). Of these 55 questions, 29 of them constituted the Teacher Attitude Inventory (French & Blazina, 1992). This scale had two subscales that measured agreement with developmentally appropriate practice and disagreement with developmentally inappropriate practice. The five-point scale ranged from strongly agree to strongly disagree. Of the remaining 26 items, specific items were chosen by the researchers of the larger literacy study from a number of known early childhood education beliefs measures that

included the Teacher Beliefs Scale (Burts, 1990) and the Teacher Practices Scale (French & Blazina). These scales have been utilized in a number of different early childhood education studies, most of which were focused on investigations of developmentally appropriate practice. The majority of teachers completed responses to each item. Given the extremely limited amount of missing data, procedures for including cases and replacing missing data were utilized. Analyses indicated that less than one-half of one percent of data points were missing. In these cases, the mean score for the item was substituted so that the individual teacher's case could be part of the analysis. If these procedures were not utilized, list-wise deletion procedures would have reduced the number of available participants included in the analyses.

Data Analysis Strategies

Data for the current study were taken from data files from the larger *PAVEd for Success* intervention. Data were imputed and checked for accuracy by members of the *PAVEd for Success* research team. An analysis of the data with regard to teacher demographic variables was performed to synthesize a number of data points for each teacher. Specific research questions tested included:

1. Do lead teachers in early childhood classrooms agree more with beliefs about developmentally appropriate practices than do paraprofessionals?
2. Do early childhood teachers who have had professional development experiences within the last 5 years agree more with beliefs about developmentally appropriate practice than teachers who have not engaged in professional development over the last 5 years?
3. Is there a difference among lead teachers who have had professional development experiences within the last 5 years, lead teachers who have not had such experiences,

paraprofessionals who have had professional development experiences within the last 5 years, and paraprofessionals who have not had such experiences in terms of their agreement with beliefs about developmentally appropriate practice?

4. Do teachers with advanced degrees in early childhood education agree more with beliefs about developmentally appropriate practice than do teachers with baccalaureate or associate's degrees in early childhood education?

Data for this investigation were analyzed with a variety of analysis strategies depending on the specific research question being tested. One-way analyses of variances were performed as well as two-way analyses of variance with subsequent post-hoc analyses to determine specific differences among groups.

CHAPTER 4

RESULTS

Results are presented in the chapter for each of the main research questions. The first presentation of results centers on the variable of teaching position. Teachers in these analyses were divided into two categories, lead teacher and paraprofessional. Demographic information on the sample of teachers was provided in chapter 3. Analyses were performed on the two subscales of the Teacher Attitude Inventory (French & Blazina, 1992) as well as 26 independent additional items that focused on teacher's beliefs. A copy of the full instrument is located in Appendix A.

The second set of analyses focused on the differences that existed between teachers who have engaged in professional development within the last 5 years and those teachers who have not. Analyses on professional development were collapsed across teachers. Specifically, there were lead teachers and paraprofessionals who engaged in professional development in the last 5 years who were combined and placed into one category, with a second category comprising lead teachers and paraprofessionals who had not engaged in professional development during the same five year period. Analyses were performed on the Teacher Attitude Inventory subscales as well as the additional belief items.

Following these main level analyses, interaction analyses were conducted to explore the unique contributions of teaching position and professional development on teachers' beliefs. These analyses were conducted on the Teacher Attitude Inventory subscales as well as the additional belief items. Data on the reliability of the subscales were also presented.

A final set of analyses was conducted on the educational level of the lead teachers and paraprofessionals. Both types of teachers were collapsed into their respective educational attainment. Specifically, there were paraprofessionals who had obtained associate and bachelor's degrees and were included with lead teachers who had those as their highest degrees. Two levels of this variable exist, reflecting the highest degree attained. All teachers completed a high school course of study. The two levels used in the analysis were teachers with an associate's or bachelor's degree and teachers with master's or specialist degree. This analysis was performed separately from the teaching position analyses, as there may be a shared relationship between teaching position and educational level. Specifically, lead teachers in the study were required to have a 4-year college degree. Paraprofessionals were not required to have any additional training over a high school education. Therefore, no lead teacher could be placed in the category of less than a bachelor's degree. Because these categories are not mutually exclusive, interaction analyses between teaching position and educational level could not be performed.

Teaching Position Analyses

Two specific analyses were run on the differences in teachers' beliefs about developmentally appropriate and inappropriate practices. Data for these analyses were taken from the Teacher Attitude Inventory (French & Balzina, 1992) which comprises developmentally appropriate and developmentally inappropriate subscales. The internal consistency for these two subscales was calculated for the sample of teachers in this study. The reliability for the 19-item developmentally appropriate subscale was found to be high (α=.82, N=68). Internal consistency for the developmentally inappropriate subscale was also found to be high (α=.84, N=68).

A one-way analysis of variance was conducted to examine the differences between lead teachers and paraprofessionals on their beliefs about developmentally appropriate practice. A

significant effect was found in favor of lead teachers ($F(1, 66)=8.73$, $p=.00$). That is, on a rating scale of 5, the mean score for lead teachers was 4.18 ($SD=.34$), while the mean score for paraprofessionals was 3.95 ($SD=.29$). While there was a significant difference between lead teachers and paraprofessionals, it should be noted that both groups of teachers had developmentally appropriate beliefs ($M=4.07$, $SD=.34$).

A second one-way analysis of variance was conducted to examine lead teachers' and paraprofessionals' ratings of developmentally inappropriate practice. A significant difference was found between the two groups of teachers ($F(1, 66)=26.99$, $p=.00$). Items were reverse coded on this subscale, meaning that a higher score indicated beliefs that did not support developmentally inappropriate practice. Lead teachers had stronger agreement with beliefs about not supporting developmentally inappropriate practice ($M=3.59$, $SD=.49$) than did paraprofessionals ($M=2.87$, $SD=.65$). The mid-point rating on this subscale was 3. There was a clear difference in the magnitude of beliefs that lead teachers had. Paraprofessional ratings were below the mid-point rating, indicating that they were more likely to have developmentally inappropriate beliefs. What is particularly interesting about these data are, that overall, the disagreement with developmentally inappropriate practice was far less as strongly rated as were teachers' ratings of agreement with developmentally appropriate practice. That is, while teachers seemingly had had stronger agreement with developmentally appropriate practice, there was more variability in their ratings of disagreement with developmentally inappropriate practice. For example, some teachers who strongly agreed with a developmentally appropriate item such as process over product for children's achievement outcomes did not as strongly disagree with items that may be considered more developmentally inappropriate such as the use of worksheets.

Data were also collected from lead teachers and paraprofessionals on the additional 26 items concerning developmentally appropriate practice that were not part of the French and Blazina scale. Of these items, 10 of the items were found to demonstrate significant differences between lead teachers and paraprofessionals. On 9 of these 10 items, lead teachers were more likely to agree more with developmentally appropriate practice and also more likely to negate beliefs about developmentally inappropriate practice. For one specific item, *Curricular areas should be combined*, the mean score for the lead teachers was 2.33 out of 5, indicating general disagreement with the belief. For paraprofessionals, the mean score was 3.03. According to the developmentally appropriate practice framework, integration of curriculum is an important component of developmentally appropriate practice. The argument presented is that children who participate in classrooms where curricula are integrated are focused on connecting meaning between content areas and generalizing their knowledge across those content areas. One reason why scores on this item might have been rated in the manner they were, by lead teachers, could be the pressure to document children's discrete skill development both in the state-mandated objectives as well as the assessments utilized by the school districts. Data for the 26 items are provided in the table below. Table 1 includes the means and standard deviations for both the lead teachers and paraprofessionals. In addition, the F value for each analysis is provided.

Professional Development Analyses

Two specific analyses were conducted to explore the belief differences between teachers who had engaged in professional development during the 5-year period prior to the data being collected and teachers who had not engaged in such professional development. Results from the analyses exploring professional development's relationship to developmentally appropriate beliefs indicated that teachers who engaged in professional development were more likely to

agree with such beliefs than teachers who did not engage in professional development ($F(1,66)=8.55$, $p=.01$). The mean score for teachers who engaged in development was 4.20 ($SD=.35$), while the mean score for teachers who did not engage in professional development was 3.97 ($SD=.30$). The same pattern held for differences in teachers' beliefs about developmentally inappropriate practice. Teachers who had engaged in professional development agreed with beliefs that did not support developmentally inappropriate practice ($F(1,66)=6.04$, $p=.02$). The mean score for teachers engaged in professional development was 3.46 ($SD=.56$), where a higher score means less agreement. The mean score for teachers who did not engage in professional development was 3.07 ($SD=.71$).

Data from individual item analyses from the additional 26 items on developmentally appropriate practice indicated that there were two items with significant differences between teachers who had professional development and teachers who had not engaged in professional development. One of these items, *Experimentation with letters and writing is a good way to develop literacy*, revealed that teachers who had professional development were more likely to agree with this belief. The mean score for those with professional development was 4.46 ($SD=.56$) while the mean for those who had not engaged in professional development was 4.25 ($SD=.47$). A second item, *Children who begin formal instruction in preschool will do better in elementary school*, demonstrated the same pattern as the previous item. Teachers who had engaged in professional development had a mean score of 3.37 ($SD=1.13$) while those who did not had a mean score of 2.82 ($SD=.98$).

Table 1

Means, Standard Deviations, and F Values of 26 Items by Teaching Position

	Lead Teachers (*M, SD*)	Paraprofessionals (*M, SD*)	F_{group}
The enthusiasm and interest of children is more important than how well they do a task	4.21 (.80)	4.13 (.63)	.00
Children should be allowed to opt out of activities	3.56 (.81)	3.29 (.88)	1.87
Children learn best through active exploration	4.60 (.50)	4.23 (.51)	3.84
Curricular areas should be combined	2.33 (1.01)	3.03 (.73)	6.49*
Experimentation with letters and writing is a good way to develop literacy	4.37 (.55)	4.30 (.49)	.61
Children should not have homework in kindergarten	2.94 (1.14)	3.43 (.96)	1.14
Children learn math best through manipulatives	4.57 (.50)	4.19 (.55)	3.13
Children must complete an activity before they stop working on it	2.45 (.88)	3.01 (1.07)	2.86
Even four and five-year-olds should be told if their work is right or wrong	2.49 (1.22)	2.92 (1.05)	1.59
It is important for children to follow the teacher's plan exactly	1.86 (.85)	2.77 (1.07)	8.54*
Children should not interrupt the teacher during her lesson	2.57 (1.12)	3.29 (1.05)	6.56*
Children who begin formal instruction in preschool will do better in elementary school	3.03 (1.25)	3.10 (.88)	1.39
Worksheets are a good way to teach basic skills	1.80 (.76)	2.77 (1.04)	15.17*
Preschool teachers should make sure children know the alphabet before they begin kindergarten	2.89 (1.13)	3.38 (.96)	5.38*
Teaching basic academic skills should be a teacher's top priority	2.51 (1.09)	3.15 (.93)	4.32*
Children learn basic skills best through repetition and review	3.48 (1.24)	3.81 (.70)	1.15
Children should be given formal instruction in numbers even if they are not interested	2.36 (1.14)	2.96 (.86)	4.49*
Children should work quietly and independently	2.19 (.92)	2.85 (.91)	3.49
Teachers should emphasize quality in children's final products	2.80 (1.08)	3.25 (1.06)	.98
If a child is not doing well in kindergarten, time should be set aside for them to practice every day after school	1.91 (.95)	2.66 (.80)	11.89*
Preschool children need to be good at counting and recognizing numbers	2.89 (1.08)	3.29 (.84)	3.70
Rewards are a good way to motivate children	2.80 (1.11)	3.60 (.63)	14.69*
Children should be given formal instruction in reading and writing only if they want it	2.42 (.94)	2.79 (.79)	1.41
Children's schoolwork should not be graded in preschool and kindergarten	4.17 (.95)	3.89 (.74)	.63
Teachers should not emphasize whether children's work is right or wrong	3.79 (.99)	3.31 (.89)	2.22

*$p<.05$

Teaching Position by Professional Development

Interaction Analyses

Two specific two-way analyses of variance were conducted to explore the interaction between teaching position (lead teachers and paraprofessionals) and professional development (professional development and no professional development within the last 5 years) on teachers' beliefs about developmentally appropriate and inappropriate practice. One two-way analysis of variance was conducted on the interaction between teaching position and professional development on teachers' beliefs about developmentally appropriate practice. The results indicated that there was not a significant interaction between teaching position and professional development ($F(1,64)=1.24$, $p=.27$) on beliefs. To examine teaching position and professional development and developmentally inappropriate beliefs, a second two-way analysis of variance was conducted. The results indicated that there was not a significant interaction between the two factors on beliefs ($F(1,64)=.71$, $p=.40$).

Additional analyses of variance were conducted on the 26 individual items concerning developmentally appropriate beliefs. Of these 26 items, three indicated a significant interaction among teaching position and professional development. Means and standard deviations for these items are represented in Table 2. Data indicate that among these items, paraprofessionals who had engaged in professional development were more likely to agree with developmentally appropriate beliefs and disagree with developmentally inappropriate beliefs. While these three items indicated a significant difference between teaching position and professional development on beliefs about developmentally appropriate and inappropriate practice, the results could be due to chance alone.

Table 2

Means and Standard Deviations of 3 Items that Indicate a Significant Interaction Between Teaching Position and Professional Development

	Lead Teachers with Professional Development (*Mean, SD*)	Lead Teachers, No Professional Development (*Mean, SD*)	Paraprofessionals with Professional Development (*Mean, SD*)	Paraprofessionals, No Professional Development (*Mean, SD*)
Experimentation with letters and writing is a good way to develop literacy	4.35 (.57)	4.42 (.51)	4.81 (.32)	4.17 (.43)
Children should not have homework in kindergarten	3.17 (1.15)	2.50 (1.00)	2.62 (.82)	3.64 (.88)
Children should work quietly and independently	2.26 (1.01)	2.04 (.75)	2.22 (.70)	3.02 (.90)

*$p<.05$

Educational Level Analyses

Educational level analyses were performed as suggested in the literature by examining teachers who had advanced education in the subject-specific discipline, in this case early childhood education. While the literature also suggests that quality is a function of general and specialized education, this data set did not allow for such comparison. Specifically, only 5 teachers who had education at the associate's level or above were trained in fields that were considered general (e.g., psychology, family consumer science, law). While these analyses would have been interesting to conduct as well as informative to the conclusions that could be drawn from such analyses, the low sample size of teachers who had general training alone prohibited such analyses. Two specific analyses were conducted to examine the differences in teacher beliefs and their relationship to teachers' educational levels. A one-way analysis of variance was conducted to examine the difference between teachers whose highest degree was a master's or a specialist degree and teachers whose highest degree was an associate's or bachelor's degree in beliefs about developmentally appropriate practice. The number of teachers

comprising the master's and specialist group was 19, while the associate's and bachelor's group had 17 members. The results indicated that there was not a statistically significant difference in beliefs among the teachers who had completed these different levels of education ($F(1,34)=1.22$, $p=.28$). While this result was not statistically significant, teachers with master's or specialist degrees had a mean score of 4.22 ($SD=.38$), while the teachers with associate's or bachelor's degrees had a mean score of 4.09 ($SD=.29$). Teachers with higher levels of education agreed more with developmentally appropriate beliefs. Even though there was a significant difference, it should be noted that all teachers with degrees agreed with developmentally appropriate beliefs ($M=4.16$, $SD=.34$).

A second one-way analysis of variance was conducted to investigate the differences in beliefs about developmentally inappropriate practice among teachers who had completed different levels of education. The results also showed that there was a not a statistically significant difference in beliefs in terms of teachers' educational level ($F(1,34)=1.75$, $p=.20$). Again, teachers with higher levels of education were more likely to have beliefs that did not support developmentally inappropriate practice. The mean scores for teachers with a master's or a specialist degree and teachers with an associate's or a bachelor's degree were 3.63 ($SD=..45$), and 3.41 ($SD=.55$), respectively, where higher scores mean less agreement.

Data analyses were also conducted on the 26 items on developmentally appropriate beliefs that were not part of the French and Blazina scale. Results from these analyses suggested that of the 26 items, 4 indicated significant differences among teachers with different educational levels. These data are in Table 3 and include the means, standard deviations, and F-value for each item. Teachers with the most advanced levels of education agreed with the developmentally appropriate items and disagreed with the inappropriate belief items in these three specific items:

(a) *Children should be allowed to opt out of activities*, (b) *Children learn best through active exploration*, and (c) *Children should work quietly and independently*. On one item, the opposite result was found. On the item, *Curricular areas should be combined*, teachers who had obtained an associate's or a bachelor's degree were more likely to agree that this was a developmentally appropriate practice. This finding was in contrast to the expectation that the most highly educated teachers would agree more with this practice.

Table 3

Means, Standard Deviations, and F Values of 26 Items by Educational Level

	Associates & Bachelors (*M*, *SD*)	Masters & Specialists (*M*, *SD*)	$F_{edu\ level}$
The enthusiasm and interest of children are more important than how well they do a task	4.19 (.88)	4.26 (.73)	.08
Children should be allowed to opt out of activities	3.18 (.88)	3.76 (.63)	5.26*
Children learn best through active exploration	4.41 (.51)	4.79 (.42)	5.98*
Curricular areas should be combined	2.80 (.95)	2.12 (.99)	4.41*
Children should not have homework in kindergarten	3.35 (1.17)	2.63 (1.01)	3.94
Children learn math best through manipulatives	4.41 (.51)	4.68 (.48)	2.75
Children must complete an activity before they stop working on it	2.57 (1.00)	2.26 (.73)	1.13
Even four and five-year-olds should be told if their work is right or wrong	2.47 (1.18)	2.68 (1.20)	.29
It is important for children to follow the teacher's plan exactly	1.94 (.97)	1.84 (.69)	.13
Children should not interrupt the teacher during her lesson	3.00 (1.27)	2.47 (1.02)	1.89
Children who begin formal instruction in preschool will do better in elementary school	3.18 (1.01)	3.11 (1.37)	.03
Worksheets are a good way to teach basic skills	2.11 (.93)	1.68 (.67)	2.62
Preschool teachers should make sure children know the alphabet before they begin kindergarten	2.88 (1.05)	3.32 (1.11)	1.44
Teaching basic academic skills should be a teacher's top priority	2.29 (.92)	2.83 (1.21)	2.21
Children learn basic skills best through repetition and review	3.65 (1.06)	3.26 (1.33)	.91
Practicing letters and sounds is the best way to learn to read	3.32 (1.16)	3.00 (1.05)	.75
Children should be given formal instruction in numbers even if they are not interested	2.59 (1.06)	2.40 (1.25)	.23
Children should work quietly and independently	2.53 (1.07)	1.92 (.67)	4.27*
Teachers should emphasize quality in children's final products	2.82 (1.19)	2.79 (1.08)	.01
If a child is not doing well in kindergarten, time should be set aside for them to practice every day after school	2.18 (1.19)	1.95 (.97)	.41

Table 3 *continued*

	Associates & Bachelors (*M, SD*)	Masters & Specialists (*M, SD*)	$F_{edu\ level}$
Rewards are a good way to motivate children	3.29 (1.16)	2.74 (.93)	2.55
Children should be given formal instruction in reading and writing only if they want it	2.53 (.72)	2.19 (1.07)	1.22
Children's schoolwork should not be graded in preschool and kindergarten	4.06 (.97)	4.27 (.87)	.45
Teachers should not emphasize whether children's work is right or wrong	3.82 (.95)	3.61 (1.06)	.41

*$p<.05$

Summary

Data from these analyses suggest three distinct patterns of beliefs among teachers. The first conclusion is that lead teachers are more likely than paraprofessionals to agree with developmentally appropriate beliefs and to not support developmentally inappropriate beliefs. This difference was found on the two subscales of the teacher belief measures as well as in the individual items on developmentally appropriate practices. A similar pattern was found when considering teachers' engagement in professional development activities within the last 5 years. Teachers who had engaged in such development agreed more with developmentally appropriate beliefs and did not support developmentally inappropriate beliefs. Again, this finding held for both the teacher belief measure and the individual belief items. A third set of analyses did not support the pattern of agreement with developmentally appropriate beliefs as strongly as did the analyses of teacher position and professional development. Specifically, in analyses that examined differences in teachers' beliefs based on the highest level of educational attainment, no statistically significant difference was present between teachers who had master's or specialist degrees and a second group of teachers who had associate's or bachelor's degrees on either the developmentally appropriate or inappropriate subscales. However, it appears based on an

examination of the mean scores among the two groups of teachers that these formally trained teachers as a total group agreed more with developmentally appropriate practice.

One interesting result also emerged from the data. Albeit a small number of items, there were significant interactions among professional development and teaching position. The data indicated that these interactions favored paraprofessionals who had engaged in professional development. These interactions indicated that these paraprofessionals agreed more with developmentally appropriate practice than were their peers who did not engage in professional development. However, while these interactions appeared to be statistically significant, chance factors alone could have resulted in the significant differences. Therefore, these results should be interpreted with caution.

CHAPTER 5

DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

This chapter begins with a summary of the study prior to discussion of the findings. The results are then discussed for each of the research questions. Following the discussion, conclusions and implications of this study are presented based on the results. Finally, the chapter closes with suggestions for future research.

Summary of the Study

A number of research studies in early childhood education (Cassidy et al., 1995; Haupt et al., 1995; McMullen & Alat, 2002; Smith, 1997; Snider & Fu, 1990) have examined the relationship of teachers' educational background and professional development experience as primary predictors of agreement with developmentally appropriate beliefs. However, those studies have focused on the effects of the qualifications of lead teachers in private preschool settings. The research is limited on the relationship between teaching position (lead teachers and paraprofessionals) in pre-k programs and teachers' beliefs about developmentally appropriate practice. Therefore, in this dissertation study, I investigated how early childhood teachers' beliefs about developmentally appropriate practice relate to the teachers' educational background, their professional development experiences, and their teaching position.

The present study found that lead teachers agreed more with beliefs about developmentally appropriate practice and beliefs about not supporting developmentally inappropriate practice than did paraprofessionals. In terms of professional development experiences, the results indicated that teachers who reported that they had engaged in

professional development were more likely to agree with beliefs about developmentally appropriate practice and beliefs that did not support developmentally inappropriate practice than teachers who reported that they did not engage in professional development within the last 5 years. In the analyses that examined the interaction between teaching position and professional development on beliefs, the results indicated that there was not a significant interaction between the two factors. In additional analyses conducted on the 26 individual belief items, 3 out of 26 items indicated a significant interaction between teaching position and reported professional development experiences, although these results could be due to chance alone. In terms of educational level, the results demonstrated that there was not a significant difference between teachers with the master's or a specialist degree and teachers with an associate's or a bachelor's degree on their beliefs about developmentally appropriate practice. Despite the specific analyses conducted in the study, it is important to note that the majority of teachers (lead teachers and paraprofessionals) strongly agreed with developmentally appropriate practice.

Discussion of the Results

*Differences in Beliefs a*bout *Developmentally Appropriate Practice Between Lead Teachers and Paraprofessionals*

In this study, lead teachers agreed more with developmentally appropriate beliefs than did paraprofessionals. Lead teachers also agreed more with beliefs about not supporting developmentally inappropriate practice than did paraprofessionals. Due to the lack of research literature about the relation between teaching position and teachers' beliefs, the literature that supports the results in this study was not found. However, one of the reasons why lead teachers could agree more with developmentally appropriate beliefs might be explained based on the higher educational attainments of lead teachers in comparison to paraprofessionals. All of the

lead teachers had a minimum of a bachelors' degree. Among those lead teachers, almost 90% had an early childhood education certificate. A majority of lead teachers (65.7%) also engaged in professional development activities within the last 5 years. It may be reasonable to assume that lead teachers had more opportunities to develop beliefs about developmentally appropriate practice than paraprofessionals through both preservice and in-service education programs. Paraprofessionals, however, had more limited opportunities to develop developmentally appropriate beliefs in either preservice or in-service education. Therefore, these differences in qualifications between lead teachers and paraprofessionals may be related to the differences in lead teachers' and paraprofessionals' beliefs about developmentally appropriate practice.

This set of analyses helps inform the research literature given the lack of information in that literature about teaching position and its relationship to teacher beliefs. While there may be some associations between teacher position and educational level, there are no other studies to date that examine teaching positions and their relationship to developmentally appropriate practice.

Differences in Beliefs about Developmentally Appropriate Practice between Teachers Who Have Engaged in Professional Development and Teachers Who Have Not Engaged in Professional Development

The results from this study indicated that teachers who reported that they had engaged in professional development over the last 5 years agreed more with developmentally appropriate practice than teachers who reported that they had not engaged in professional development during that time period. The previous research literature has been mixed on the contribution of in-service professional development experiences and their relationship to teacher beliefs. Specifically, there is disagreement in the professional literature about the different types of in-

service professional development experiences (e.g., short workshops, long-term training, college coursework). While there has been disagreement in the literature, studies consistently show that professional development through in-service education has a positive effect on child-care teachers' beliefs and behaviors (Arnett, 1989; Burchinal et al., 2002; Cassidy et al., 1995; Cassidy et al., 1998; Kaplan & Conn, 1984; Ruopp et al., 1979), children's development (Epstein, 1993; Rhodes & Hennessy, 2001), and classroom quality (Burchinal et al., 2002; Kaplan & Conn, 1984).

Interaction between Teaching Position and Professional Development

The results indicated that there was no interaction between teaching position and professional development experiences on beliefs as measured on the Teacher Attitude Inventory. However, in the results of additional analyses conducted on the 26 individual items, paraprofessionals who had had professional development experiences were found to agree more with beliefs about developmentally appropriate practice. While these data should be interpreted with caution due to results being produced from chance alone, the results of this study may provide additional research-based evidence to the literature (e.g., Indiana State Department of Education, 2000) that emphasizes the necessity of ongoing professional development for paraprofessionals. The evidence also suggests that while groups of teachers may not have formal training or may not have reached a given level of educational attainment, through continued professional development such teachers may agree more with practices for children that are beneficial.

Differences in Beliefs about Developmentally Appropriate Practice between Teachers Who Had Advanced Levels of Education and Teachers Who Had Associate or Baccalaureate Degrees

There was not a significant difference between teachers with a specialist or a master's degree and teachers with an associate's or a bachelor's degree on their beliefs about developmentally appropriate practice. Because the values of developmentally appropriate practice as a best practice for young children have been currently taught in most 2- and 4-year preservice teacher education programs in the United States (Dunn & Kontos, 1997), there might not be a big difference between teachers with the advanced degrees and teachers with associate's and bachelor's degrees. However, while not statistically significant the results from a descriptive data analysis indicated that teachers with higher levels of educational training agreed more with developmentally appropriate practice than did teachers with less education as indicated by their mean scores on the items.

Conclusions and Implications

Early childhood educators and researchers have insisted that the qualifications of teachers are one of the crucial factors to determine the quality of early childhood programs. Research studies have presented the positive relationship between teachers' preservice and in-service education and program quality, teaching quality, and children's development. That is, research studies have demonstrated that, through preservice and in-service education, teachers might acquire knowledge and beliefs about teaching and learning that are strongly related to classroom quality.

The findings of the current study support the important role of preservice and in-service education in improving the qualifications of early childhood teachers, by demonstrating the

association of teaching position (a result of preservice and inservice education) and their self-reported continued professional development experience with teachers' beliefs about developmentally appropriate practice. That is, the findings suggest that it is important for teachers to have formal preservice education and ongoing professional development related to early childhood education in order to adopt more developmentally appropriate beliefs.

In particular, the findings of the current study highlight the importance of preservice and in-service education for paraprofessionals to develop beliefs about developmentally appropriate practice, demonstrating that lead teachers agreed more with developmentally appropriate practice than did paraprofessionals. As mentioned before, it is assumed that paraprofessionals agreed less with developmentally appropriate practice because paraprofessionals have had very limited educational opportunities in preservice and in-service education programs, compared with those of lead teachers. Thus, the results appear to suggest that it is necessary for paraprofessionals to have more educational training in preservice and in-service programs to develop developmentally appropriate beliefs about teaching practices.

One of implications based on the findings is that pre-k programs need to encourage paraprofessionals to continuously pursue higher degrees in early childhood education so that they may be exposed to information that supports more developmentally appropriate beliefs about teaching practice and, therefore, implement such beliefs into their classrooms. As seen in the demographic information of teachers who participated in this study, in the state of Georgia, while most of lead teachers in public pre-k programs have a minimum of a bachelor's degree, paraprofessionals are only required to have a high school diploma as a minimum requirement. Thus, pre-k programs need to provide opportunities for paraprofessionals to be educated in 2-year or 4-year teacher preparation programs.

In addition, it is important to encourage paraprofessionals to engage in professional development opportunities. The Georgia pre-k program has attempted to provide diverse and systematic in-service education for lead teachers (Office of School Readiness, 2004). However, for paraprofessionals, the pre-k program has provided a minimum training on issues such as first aid, fire safety, and mandatory child abuse reporting laws. Therefore, pre-k programs need to prepare more diverse and systematic professional development activities for paraprofessionals to acquire knowledge and skills relevant to their roles in pre-k classroom.

The findings of the current study also emphasize the importance of ongoing professional development experiences in early childhood programs. The results appear to suggest that if teachers participate in ongoing professional development activities, they might agree more and utilize more developmentally appropriate beliefs.

Another implication based on the findings is that pre-k programs need to provide continued professional development opportunities to develop beliefs about developmentally appropriate practices (McMullen, 1997). Researchers have claimed that effective professional development should be ongoing (Darling-Hammond, 1996; Little, 1986). Thus, pre-k programs need to continuously provide professional development activities in order for teachers to continue to incorporate their new knowledge and skills into their teaching practices.

Pre-k programs should make an effort to help teachers experience well-designed educational training related to early childhood education (Epstein, 1993). As educators pointed out, in-service education needs to have a more intensive and continuous format rather than the superficial and fragmented workshop format often employed. Professional development activities should be designed for teachers to apply knowledge and receive feedback and mentoring in order to effectively improve their teaching practices (Bowman et al., 2001).

Suggestions for Future Research

In this study, one of the things that I examined was the relationship between professional development and teachers' beliefs on developmentally appropriate practice, comparing teachers who reported professional development experience and teachers who reported no professional development experience within the last 5 years. This study was constrained by the data that was collected as part of a larger research study. Specifically, the types of professional development experiences as described in the research literature were not collected as category information from the teachers. Future research that specifies professional development experience in terms of the types such as workshops, long-term training, and college coursework would be important to collect and analyze so that specific information on the merits of each type of professional development could inform development opportunities.

Even though the results indicated that teachers' educational background and professional development experience are closely related to their beliefs about developmentally appropriate practice, the results could not provide more specific information about what content or format in preservice and in-service education had stronger impact on teachers' beliefs. Thus, for the future research, researchers should ask teachers those questions through interviews and verify those beliefs by means of classroom observations. To test relationship of general and specialized preparation and its association to teacher beliefs, future research should also employ samples where participants have engaged in these two types of educator preparation.

The early years of education for children have been recently advanced as a mechanism for promoting school readiness as well as minimizing the effects of social issues such as poverty on children's academic success. The preparation of teachers for such preschool environments is a relatively understudied area. While there is substantial research on professional development, it

has not focused on the prekindergarten year. Future research that focuses on teacher development in such environments is critical to our understanding of the factors that play a role in the development of young children.

Finally, it would be important to design a study that examined the social, cultural, and political influences on beliefs about developmentally appropriate practice. The current study was limited in its ability to examine the relationship between teacher qualifications and their beliefs about developmentally appropriate practice without considering specific contexts of community and classroom. Thus, future research should be designed to explore the relationship between teacher qualifications and teachers' beliefs based on sociocultural perspectives.

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APPENDIX A

TEACHER BELIEF QUESTIONNAIRE

Teacher Belief Questionnaire

1. The curriculum should be designed primarily to develop children's academic knowledge (i.e., 3Rs)
2. The primary goal is to maintain control of the classroom
3. Helping children learn how to learn is more important than how much they learn
4. Instruction should vary according to individual children' differences in activities and interests
5. The social, motional, and physical development of children is as important or more important than academic achievement
6. The worth of schooling should be evaluated by the extent to which children achieve at grade level
7. Children should not be evaluated according to their performance on standardized tests
8. Children should primarily learn math through manipulation of materials and solving meaningful problems
9. The self-worth of children is enhanced by using multicultural and gender-free activities and materials
10. The teacher's role is to correct errors and make sure children know the right answer in all subject areas
11. Workbooks/Worksheets should be a very important part of arithmetic instruction
12. Instruction in social studies should occur when reading and math are at the expected level
13. As the year goes on, children should become socially acceptable to their peers
14. Playtime should be an important part of the schedule
15. Grades motivate most children

16. Expectations of teachers at the next grade level greatly influence what I teach
17. Teachers should demonstrate the way for children to solve most problems
18. “Invented spelling” is OK in most situations
19. For projects, children should set at least some of the questions
20. Live experiences should be the basis for learning
21. Language acquisition and development should be experience based
22. Students should engage in independent writing and reading practice every day
23. Values should be taught through modeling, role playing, and simulation
24. Children should be frequently taken into the community
25. Representatives of the community should frequently come to the school
26. Play should be respected as an appropriate way of learning
27. Creative expression is developed through art, music, dance, and drama
28. In learning math, children should have the opportunity to explore, investigate, and discover
29. Children should be tested regularly on each subject
30. The enthusiasm and interest of children is more important than how well they do a task
31. Children should be allowed to opt out of activities
32. Children learn best through active exploration
33. Curricular areas should be combined
34. Experimentation with letters and writing is a good way to develop literacy
35. Children should not have homework in kindergarten
36. Children learn math best through manipulatives
37. Children must complete an activity before they stop working on it
38. Even four and five-year-olds should be told if their work is right or wrong

39. It is important for children to follow the teachers plan exactly
40. Children should not interrupt the teacher during her lesson
41. Children who begin formal instruction in preschool will do better in elementary school
42. Worksheets are a good way to teach basic skills
43. Preschool teachers should make sure children know the alphabet before they begin kindergarten
44. Teaching basic academic skills should be a teacher's top priority
45. Children learn basic skills best through repetition and review
46. Practicing letters and sounds is the best way to learn to read
47. Children should be given formal instruction in numbers even if they are not interested
48. Children should work quietly and independently
49. Teachers should emphasize quality in children's final product
50. If a child is not doing well in kindergarten, time should be set aside for them to practice every day after school
51. Preschool children need to be good at counting and recognizing numbers
52. Rewards are a good way to motivate children
53. Children should be given formal instruction in reading and writing only if you want it
54. Children's schoolwork should not be graded in preschool and kindergarten
55. Teachers should not emphasize whether children's work is right or wrong