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ABSTRACT

MEETING THE PROFESSIONAL DEVELOPMENT NEEDS OF EARLY CHILDHOOD TEACHERS WITH CHILD DEVELOPMENT ASSOCIATE TRAINING

by
Mary J. Heisner

This study examined the impact of Child Development Associate (CDA) training on the beliefs and self-reported practices of early childhood teachers ($N = 126$) using a pre-post mixed-methods research design. Preschool teachers who were enrolled in CDA classes ($n=76$) and a comparison group of teachers ($n = 50$) completed two surveys of beliefs and self-reported practices: the *Teacher Beliefs and Practices Survey: 3- to 5-Year-Olds* (TBPS) (Burts, Buchanan, & Benedict, 2001) and the *Early Childhood Survey of Beliefs and Practices* (ECSBP) (Marcon, 1988, 1999). Repeated measures Multiple Analyses of Variance indicated teachers who had completed CDA training became significantly more developmentally appropriate on measures of beliefs and self-reported practices than a comparison group who did not attend CDA training. The CDA teachers held significantly fewer inappropriate beliefs and reported fewer inappropriate practices after training than the comparison group. Results suggest that the TBPS was a more sensitive measure than the ECSBP of beliefs and self-reported practices for these early childhood teachers, most of whom had no formal education. The decrease in developmentally inappropriate beliefs and self-reported practices on the TBPS subscales illustrates the importance of measuring not only increases in appropriate beliefs and self-reported practices but also decreases in inappropriate beliefs and self-reported

practices. The Constant Comparative Method was used to organize and analyze the observation and interview data of the four case study participants. Three themes emerged which describe the effect of CDA training on the beliefs and self-reported practices of these teachers: *Reflection on current practices* describes the teacher who seemed to be actively considering how the material presented in the CDA training fit with her implicitly held beliefs and current practices. *Confirmation of developmentally appropriate practices* describes the teacher whose existing developmentally appropriate beliefs were reinforced by the training. *Superficial changes* describes two teachers who gained ideas for activities in the training but revealed no change in beliefs. This study suggests that CDA training decreases the developmentally inappropriateness of beliefs and self-reported practices of early childhood teachers. A change that past research suggests will ultimately impact classroom quality. Influences such as concurrent training, program requirements, and implicitly held beliefs may moderate the extent to which new concepts are accepted and existing practices are changed.

MEETING THE PROFESSIONAL DEVELOPMENT NEEDS
OF EARLY CHILDHOOD TEACHERS WITH CHILD
DEVELOPMENT ASSOCIATE TRAINING

by
Mary J. Heisner

A Dissertation

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Amy R. Lederberg, Ph.D.
Committee Chair

Atlanta, GA
2008

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ABBREVIATIONS

CDA	Child Development Associate
DAB	Developmentally Appropriate Beliefs
DAP	Developmentally Appropriate Practice(s)
DIB	Developmentally Inappropriate Beliefs
DIP	Developmentally Inappropriate Practices
ECERS	Early Childhood Environmental Rating Scale
ECSBP	Early Childhood Survey of Beliefs and Practices
NAEYC	National Association for the Education of Young Children
TBPS	Teacher Beliefs and Practices Survey

MEETING THE PROFESSIONAL DEVELOPMENT NEEDS OF EARLY CHILDHOOD TEACHERS

Research shows that early childhood teachers who are better educated in early childhood education and child development provide higher quality care than those teachers with less education and training (Helburn, 1995; Ruopp, 1979; Whitebook, Howes, & Phillips, 1989). However, as noted by Tout, Zaslow, and Berry. (2006) in their review of the evidence linking qualifications to quality, “the role of training in professional development and its links to program quality have not been extensively or rigorously examined” (p. 79). Understanding the characteristics of both education and training programs and what makes them effective is critical if the professional development needs of a diverse early childhood teaching population are to be met (Tout et al., 2006; Whitebook, 2003). The goal of this review is to identify the characteristics of effective training programs to better understand how training contributes to higher quality care and try to ascertain whether certain training types are better suited for teachers of differing experience and education levels.

Understanding the influences of professional development programs on early childhood program quality is complex because no common definition of professional development exists (Maxwell, Feild, & Clifford, 2006). A review of the professional development literature by Maxwell et al. revealed that a common definition for training was particularly troublesome with over 25 different types of training measured in the literature reviewed (e.g., workshops, technical assistance, in-service

training provided in the childcare center). In an effort to standardize definitions to allow for comparison of programs, Maxwell et al. identified three components of professional development: education, training, and credential.

Education is defined as the professional development activities that occur within a formal education system....*Training* is defined as the professional development activities that occur outside the formal education system. Training activities do not lead to a degree and may sometimes be referred to as *in-service* or *informal training*. *Credential* does not clearly fall into either the education or training category because the organizations that grant credentials are typically not the same ones that provide the requisite knowledge....In addition, the education component of some credentials (e.g., the CDA) may be completed through either educational or training experiences (pp. 23, 37).

Despite the lack of consistency in the terminology, the literature suggests that professional development can have an impact on quality early childhood programming regardless of whether it is obtained through formal education or training outside the formal education system.

Research linking professional development to quality has primarily focused on formal education as opposed to training. The variability in training programs and the imprecise definitions of terms (Tout et al., 2006) have made it difficult to make meaningful comparisons of the benefits and effectiveness of the different training delivery methods (Pianta, 2007). Unlike formal college programs which offer fairly consistent formats, training can be offered as one-time workshops offered in the community to meet state licensing requirements, seminars at conferences, or more comprehensive early childhood training programs offered in a non-college setting just to name a few (Maxwell et al., 2006; Raikes et al., 2003). In addition, the existing research comparing education and training programs often combine levels of these

programs in such a way as to make it impossible to parcel out the impact of each level (Maxwell et al., 2006; Whitebook, 2003).

As a result of the strong evidence of the value of a formal education for the preparation of early childhood teachers, the National Research Council (NRC) in their *Eager to Learn* report (2001) recommended that every teacher of young children have early care and education preparation at the bachelor's degree (BA) level. The National Association for the Education of Young Children (NAEYC) has responded to this research base by increasing the educational requirements for early childhood teachers in programs seeking accreditation as part of their "reinvention" of the accreditation system (NAEYC, 2007). These educational criteria set the standard for a high level of quality far above those required by most state childcare licensing standards (National Resource Center for Health and Safety in Child Care and Early Education, 2007) which can be met in some states with as little as 10 hours of training a year. The new requirements, like the previous ones (National Academy of Early Childhood Programs, 1998), set the minimum education level of a Child Development Associates (CDA) for early childhood teachers. However, the new requirements increase standards by requiring at least 75 per cent of preschool teachers in early childhood programs seeking NAEYC accreditation to have a bachelor's degree by the year 2020. Identifying the characteristics of both education and training programs and what makes them effective is critical so that alternative pathways to effective teacher training can be identified (Tout et al., 2006; Whitebook, 2003).

Quality training programs can be an effective means of motivating teachers to pursue more education (Finn-Stevenson, Miller, & Tanner, 2001) as well as providing economical and flexible professional development alternatives (Early et al., 2007; Schweinhart, Epstein, Okoloko, Oden, & Florian, 1998; Whitebook, 2003). Because many states require no post secondary education to teach in preschool (Barnett, 2004), childcare workers currently working in the field may have little or no formal education and may not see the need to pursue a degree (Brandon & Martinez-Beck, 2006; Cassidy, Vardell, & Buell, 1995; Raikes et al., 2003; Saluja, Early, & Clifford, 2002). Research has shown that teachers need to see the value of education in order to be motivated to pursue higher levels of professional development (Ackerman, 2005; Gable & Hansen, 2001). Training also provides a solution to the professional development needs of those teachers who have a formal education but find that their knowledge of early childhood best practices is insufficient or outdated (Epstein, 1993). When incorporated into individual professional development plans, training provides a convenient and cost effective way to enhance, amend, and focus on specific skills in a systematic manner (Albrecht & Engel, 2007).

As a basis for identifying the characteristics of effective training, earlier research exploring this topic (Epstein, 1993; Lawrence, 1974) as well as the *Principles of Effective Professional Development* outlined in NAEYC's *Conceptual Framework for Early Childhood Professional Development* (1993) will be referenced. The impact of various types of training on teachers of different experience and education levels will also be discussed. To guide this analysis, two dominant models of early childhood professional development (Fleet & Patterson, 2001; Rodd, 1997;

Spodek, 1996) will also be considered: Katz's *Developmental Stages of Preschool Teachers* (1972) and Vander Ven's *Five-Stage Sequence of Development of Professionalism in Early Childhood Educators* (1988). NAEYC's *Definitions of Early Childhood Professional Categories* (1993) will also be referenced.

Models of Early Childhood Professional Development

Teachers may respond quite differently to training opportunities depending on their own developmental level (Cassidy et al., 1995). Katz (1972) offers a four-stage theory of preschool teacher development identifying training needs based on teacher concerns during the various stages from *survival* to *maturity*. According to Katz, the timing of training should be shifted so that more training is offered while the teacher is on the job (in-service) as opposed to before they begin working in the field (preservice). She also notes that the needs of teachers will vary as they gain experience in the field, necessitating changes in the location and focus of training depending on teachers' developmental stages.

Vander Ven (1988) posits another way of looking at teacher development based on how experience and ongoing development help teachers develop the professional knowledge and skills needed to become effective early childhood teachers. Teachers are considered professionals, according to this theory, when they can make decisions using their professional judgment based on knowledge of child development as opposed to just using common sense. Teachers without this early childhood theoretical background focus on what is happening at the moment rather than considering the potential of each situation as a learning opportunity (Katz, 1984).

Vander Ven's theoretical framework (1988) proposes a five-stage sequence of development (from novice to influential) of early childhood professionals. Vander Ven sees early childhood teachers gaining professional knowledge and skills through a combination of experience and ongoing formal professional development.

According to Vander Ven, *novice* teachers provide little more than hands-on care and center maintenance which allows more highly trained persons to interact with the children. Teachers in the early stages of Vander Ven's model require a high level of supervision. Despite mandatory training, CDA preparation, or even pursuing a two- or four-year degree, teachers may still be thinking linearly, guided by their own personal value systems instead of theoretical and empirical information. It is only with the attainment of the minimum of a bachelor's degree that Vander Ven sees early childhood teachers as professionals in their field, able to effectively perform daily activities in the classroom without close supervision.

NAEYC defines six levels of early childhood professional development in their 1993 position statement on early childhood professional development. Similar to Vander Ven's model (1988), teachers progress up the ladder of professional development by obtaining higher levels of formal education. Teachers may also increase their levels of professional development by "demonstration of the knowledge, performance, and dispositions" expected as outcomes of the various levels of formal education (p. 8). However, how this would be accomplished is not addressed.

Characteristics of Effective Training Programs

Defining the characteristics of effective early childhood professional development programs is an important next step in early childhood research (Kagan & Neuman, 1996). This review is an effort to begin to address this need by looking at training programs for teachers in center-based early childhood programs. The training described in the reviewed research will first be discussed from the perspective of how it aligns with NAEYC's principles of effective development (1993) as well as earlier research on effective training components. NAEYC was chosen as the standard by which to evaluate early childhood training programs due to its strong and respected presence in the early childhood community (Hyson & Biggar, 2006). A driving force for improving the professionalism of early childhood workers, NAEYC has challenged the early childhood community to raise the level of education within their workforce. The bases for these higher expectations are both empirical research and practical experience.

Current professional development research is limited by inconsistent definitions of training and education, imprecise measurements of the amount and content of training obtained, and lack of experimental designs resulting in correlative rather than causal results (Tout et al., 2006). Within these limitations, evidence from the training literature will be presented in an attempt to identify components of successful training programs and the education and experience levels of teachers for which they are the most effective. This is a first step in clarifying the types of training programs which would best meet early childhood teachers' professional development needs.

The training will then be compared and contrasted to the developmental models of Vander Ven (1988) and Katz (1972). Specifically, do some types of training work best for teachers at specific experience and education levels or is the same training effective across experience and education levels? Although the characteristics of effective training are described separately in the upcoming section, multiple training components are typically combined within one program to create an effective educational experience. Where this is the case, I will make reference to the other components utilized in the training in addition to the component being highlighted. Six characteristics of effective training will be discussed. These are (a) coherent and systematic training, (b) interactive small group experiences, (c) connecting theory to practice, (d) opportunities for reflection, (e) mentoring, and (f) individualization.

Coherent and Systematic Training

Early childhood experts generally agree that training must be continuous and connected to be effective (NAEYC, 1993; NRC, 2001). Effective training is coherent, systematically administered, designed with interrelated topics that add to a teacher's existing knowledge base, and provides information that is connected to daily practice. Training can be delivered systematically in workshops as well as year-long programs (Pianta, 2006). The key is not so much the delivery method but the connectedness of the topics presented and the ability of the participants to integrate and apply the new information to their daily practice and existing knowledge base (NAEYC, 1993). As noted in the *Eager to Learn* report, "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” (NRC, 2001, p.276).

One of the most common forms of training utilized by community childcare programs is workshops which are often attended to meet a state’s child care licensing training requirements (NAEYC, 1993; Spodek & Saracho, 2006). Because this type of training is frequently attended without regard for how one session connects and builds on previous training, it is generally considered a less effective means of educating teachers than more formal and comprehensive programs (Ritchie & Willer, 2005). The research literature systematically evaluating this training delivery method is fairly limited. Where attempts have been made to study the effectiveness of workshops, evaluation of the results are impacted by the lack of detail on the content and structure of the workshops being evaluated (e.g., Burchinal, Cryer, Clifford, & Howes, 2002; Honig & Hirallal, 1998).

Epstein (1993) provides one of the few detailed descriptions of a successful training program utilizing the workshop format. Known as the High/Scope model, this training provides for a systematic plan for each workshop to build upon previous material presented, resulting in knowledge that is cumulative over the course of the training. Individuals trained in the High/Scope curriculum method provide workshops to teaching staff at their worksite. In addition to the training, the trainers follow-up with staff, encouraging teachers to share problems and solutions.

The effectiveness of this training delivery model was evaluated by Epstein in a study of teachers in 244 High/Scope and 122 non-High/Scope settings. Teachers in both groups were highly qualified in terms of education and experience with nearly

70 percent holding a 4-year college degree and over 70 percent having early childhood degrees or credentials. Overall, the group averaged more than 10 years of experience in the field. Evaluation of the program was accomplished using teacher interviews, classroom observations, and child assessments. High/Scope trainers conducted monthly hands-on small group workshops, monthly classroom visits and feedback, and informal visits to each of the High/Scope classrooms three times a month. A typical teacher in this program received more than a year and a half of training, averaging eight hours of training per week.

The study found statistically significant differences between training offered by the High/Scope programs and the training offered by the comparison programs. High/Scope programs offered more training and required attendance at training more often than did the comparison programs. Teachers in the High/Scope programs also attended more workshops given in-house (on-site), received more visits from trainers, spent more time covering curriculum issues, teaching practices, and child assessment, participated more actively in training, and were more open to changing teaching practices based on the training provided.

Statistically significant differences were also found between the two groups on classroom quality and children's performance. On the whole, High/Scope programs were rated significantly higher in overall quality based on classroom observations, with the in-house training positively and significantly associated with this quality. Teachers' education, experience, and training were all highly significant predictors of program quality. On the child measures, children in High/Scope programs significantly outperformed children in comparison programs in the areas of

initiative, social relations, motor development, and overall development. Teachers' experience and training, but not their formal education, were significant predictors of children's development.

The High/Scope study concluded that comprehensively administered training can benefit all levels of teachers, even those with a formal education. An added bonus of the training was that the presence of more experienced teachers serving as in-house trainers also provided a source of mentors for less experienced peers. Epstein noted that the apparent difference in commitment to training between the High/Scope and comparison programs may have been a factor in the success of the High/Scope training (Epstein, 1993).

Modular-based, in-depth, systematically administered training programs have also been shown to be an effective means of raising classroom quality and teacher sensitivity scores, especially in entry-level teachers (Raikes et al., 2006; Raikes et al., 2003). The presentation of a connected body of early childhood coursework presented over a period of time, often with a strong link to actual practice, makes it easier for teachers to integrate and apply information learned (NAEYC, 1993; Schweinhart et al., 1998). Although research on comprehensive training programs is sparse (Tout et al., 2006), there are indications that these in-depth early childhood training programs which intersperse theory with practical issues faced by childcare professionals are particularly effective for the early childhood teacher with limited education and/or experience (Finn-Stevenson et al., 2001; Saracho, 1999). The most well known program of this type is the CDA. The training component of this credential requires 120 clock hours of early childhood coursework in eight subject

areas completed within the past five years (Council for Early Childhood Professional Recognition, 1996). Training to meet the CDA credential training requirements “may be met through participation in the wide variety of training available in the field” (p. 11) and must be delivered by “an agency or organization with expertise in early childhood teacher preparation” (Council for Professional Recognition, 1999, p. 6). These agencies and organizations can be both credit-bearing institutions such as colleges and universities, and other organizations that provide training but are not diploma or degree granting (e.g., resource and referral agencies) or a combination of programs (Council for Early Childhood Professional Recognition, 1996; Council for Professional Recognition, 1999).

The effectiveness of the CDA program was noted in a study of 55 Head Start teachers with no prior college coursework who were enrolled in a two year CDA training program. Teachers were measured on characteristics of quality teaching including beliefs, dogmatism, locus of control, and self-concept and then again seven months later on all of the characteristics except the locus of control measure. A questionnaire probing teachers’ attitudes about the training and their own estimations of its effects was added at posttest. Self-reported changes indicated that over half of the teachers expected to enroll in advanced training program and two thirds felt that their classroom behaviors had improved. Measures of the quality characteristics indicated that teachers were more likely to endorse child-centered beliefs at posttest than at pretest and second-year trainees were significantly more likely to endorse child-oriented beliefs than their first year counterparts.

The posttest scores of the CDA teacher trainees were also compared to scores from a group of 44 undergraduate students enrolled in teacher preparation programs that were either just completing or just beginning their student teaching assignments. Although, the comparisons between the two groups revealed no statistically significant differences on the selected measures, the CDA trainees showed a non-significant trend toward greater endorsement of cognitively oriented child-centered beliefs than did the undergraduate students. The results suggest that the CDA may be a viable alternative to college coursework for meeting the quality teaching characteristics of beliefs, dogmatism, and self-concept measures (Peters & Sutton, 1984). Child Development Associate training has also been credited with positively impacting the attitudes of training participants (Saracho, 1999), linked to higher global quality scores (Howes, 1997; Weaver, 2002), credited with increasing the frequency of language play (Howes, 1997), and found to have a stronger correlation to quality than formal education (Raikes et al., 2003).

The impact of modular-based training was also seen in a program designed to increase the early childhood knowledge of teachers with limited or no previous training or education in early childhood or child development. The comprehensive 180-hour modular curriculum implemented in Connecticut had as its goal to improve teachers' interactions, instruction, and child management skills, and improve classroom quality. Connecticut Charts-A-Course used an integrated four-module program that built toward college credit and the educational requirements for the CDA (Finn-Stevenson et al., 2001). The program, which proved to be effective in raising scores of classroom quality and teachers' levels of responsiveness, had the

greatest impact on teachers who had less experience in the field and lower observed quality scores prior to the training. These less experienced teachers demonstrated higher gains on the classroom quality measure after the training than their more experienced counterparts. Teachers completing the training also improved in measures of harshness and detachment between the pre- and post-training observations. The program had a positive impact on teachers' future career plans and attitudes toward training with teachers setting higher professional development goals after completing the training. A noted limitation of this study was the lack of a control group preventing the gains by the teachers to be confidently attributed to the training program.

Katz (1972) suggests that training in the form of on-site support and technical assistance would be most appropriate for teachers with limited childcare experience. Vander Ven (1988) also mentions training as entry level preparation but from the perspective of mandatory training rather than training provided to help the teacher reach a higher level of professionalism. However, Epstein's study indicates that systematically administered training is beneficial not only for entry level teachers but also for the more experienced and formally educated teacher. What cannot be determined from the Epstein study is whether systematically administered training such as described in the High/Scope study, would have the same beneficial impact for more experienced teachers who do not have a formal education background. Perhaps it is only with the foundation of formal education (McMullen & Alat, 2002) that this type of training can advance teachers to the higher levels of professionalism as described by Vander Ven.

The position of NAEYC (1993) on training as a professional development alternative is somewhat unclear. In the first principle of effective professional development, NAEYC recommends that early childhood professionals complete 24 clock hours of ongoing professional development each year although how these hours are to be obtained is not addressed. In the second principle, early childhood practitioners are cautioned about obtaining training “through a scatter-shot approach that often reflects their state’s child care licensing requirements or the availability of training opportunities at a give time” (p. 7). The continuum of professional development provided by NAEYC also sends a mixed message on the benefits of training by listing the ability to “successfully demonstrate the knowledge, performance, and dispositions expected” of the various educational levels (e.g., AA, BA, etc.) as a way to satisfy the professional development requirements at each level but not specifying how this could be accomplished with training (NAEYC, 1993).

The positive impact of the comprehensive training courses described by Peters and Sutton (1984) and Finn-Stevenson et al. (2001) on less experienced and educated caregivers is consistent with both Katz (1972) and Vander Ven’s (1988) descriptions of the types of training that meet the needs of teachers in the initial stages of professional development. NAEYC (2007) also acknowledges the usefulness of modular-based training programs for caregivers with less experience and education by identifying the CDA credential as an entry level educational qualification for teachers. What is unknown, due to the dearth of empirical research, is whether modular-based comprehensive training programs designed to address child development topics beyond those entry level topics covered in CDA training would

be a viable training alternative for more experienced and educated caregivers. Considering the benefits of systematically administered workshops for more experienced and educated teachers noted in Epstein's study, comprehensive modular training programs designed for teachers at this level might be a promising training avenue to explore.

Interactive, Small Group Experiences

Opportunities to share and provide mutual assistance were identified as important components of effective training in Lawrence's review of training for teachers (1974). Epstein also noted the importance of interactive workshops as a key to effective training (1993). Small group professional development experiences described in the literature typically involve the presentation of course content and then an opportunity for participants to discuss what they have learned and implications for practice. To improve literacy practices among early childhood teachers, Adger, Hoyle, and Dickinson (2004) designed the Literacy Environment Enrichment Program (LEEP). During the LEEP sessions, experienced Head Start teachers and supervisors met together to discuss and reflect on classroom practices. Eleven teachers, who had education ranging from associate's degrees to master's degrees, participated in small groups of two to five participants meeting for approximately 3 hours for 10 sessions. The meetings were divided into a 45-minute guided conversation time, a 2-hour instructional period including lecture, demonstrations, and discussions, and a follow-up conversation and planning period. An analysis of the discourse taking place during these sessions revealed that teachers built on one another's talk by asking for more information on topics and by validating

each other's actions and assumptions. The authors referred to this process of weaving together knowledge and experiences as *joint authoring*. The role of the instructor in this educational forum was one of monitoring discussions for relevance, highlighting certain discussion items, and providing connections between topics brought up in discussions with related issues in education. According to the authors, this learning model provides an effective means by which to monitor the learning that is taking place in small-group professional development sessions as well as a way for teachers to build important pedagogical content knowledge through a group process.

Fleet and Patterson (2001) demonstrated the benefits of small-group sessions such as staff meetings and workshops as forums for teachers at all levels of experience and education to reflect on their beliefs and classroom practices. Researchers presented workshop sessions on early childhood theories followed by small-group sessions to discuss current practices in relation to the theoretical information presented. Following the workshops, researchers participated in philosophical discussions and decision making at staff planning meetings over the course of 18 months.

The results of this study provided qualitative evidence that small-group sessions which provide opportunities for teachers to explain ideas and answer questions that challenge and extend thinking can lead to personal growth. The process also promoted reflection on and modification of current practices. This was the case for staff with few formal qualifications as well as those with more experience and education. As noted by one experienced participant, having to go through the process of explaining a practice to a less experienced peer made them think about

why they were implementing their current practices. The study highlighted the importance of the center director as a facilitator for supporting the staff as learners. By valuing the ideas and input from all staff, regardless of experience and education level, and providing time for professional reflection, a community of learners was created, leading to more sophisticated understandings by staff regardless of their starting points.

The small interactive group training format utilized by Adger et al. (2004) and Fleet and Patterson (2001) is a professional development model that can work well with teachers at all education and experience levels. NAEYC (1993) recommends an interactive approach to training in their sixth principle of effective professional development. “In addition to what is known about effective strategies for teach[ing] adults, meeting this principle has the added benefit of modeling the same type of teaching practices that are effective when working with young children” (p. 9). Challenging the deficit model of Vander Ven (1988) and Katz (1972) in which teachers gain professional competence in a stage-like manner as they acquire experience and education, Fleet and Patterson argue that all staff, regardless of their starting point, can make contributions to the learning environment when given opportunities to explore new ideas, provided they have a commitment to the field and are in a facilitative context. Although Katz and Vander Ven do not seem to consider this training technique as beneficial for novice, less educated teachers, they do propose interaction with peers as important for professional growth later in a teacher’s development. The success of the small group model with more experienced teachers as seen in Adger et al. is consistent with Katz theory which discusses the

importance of meeting with colleagues for teachers in the later stages of development. Vander Ven also discusses the importance of peer relationships and teamwork in the later stages of development. Despite the noted successes of these two training experiences, without a comparison group for either, a causal relationship between the training and the growth noted cannot be established. Another unknown is the importance of the director and other more experienced and educated peers in the success of these programs. Fleet and Patterson's study (2001) emphasized the facilitative role of the director in supporting staff as learners. Adger et al. (2004) highlighted the important role played by the instructor who was responsible for monitoring discussions for relevance, highlighting certain discussion items, and providing connections between topics brought up in discussions with related issues in education. Future research will need to clearly define the facilitator's role in the implementation of this training format. And lastly, the role of motivation and expectations cannot be ignored as playing a key role in the success of any training program. Fleet and Patterson noted in their report that the small group interactive forum did not work for everyone. One staff member expressed disappointment in what was learned in this training. This teacher's training preferences seemed to lean more toward a direct transmission approach rather than the interactive approach utilized. Whether this was impacted by her personal leaning style, education, or experience could not be determined from the information provided. (The importance of individualizing training will be discussed later in this paper.) Teachers in the Adger et al. study were already fairly well educated, indicating the possibility of the

motivation for pursuing a formal education as an important factor in the success of this training method.

Connecting Theory to Practice

Providing a strong theoretical base for training while also ensuring the material learned can be connected to an individual's background, experiences, and actual practice are important considerations when planning early childhood training (NAEYC, 1993). Early childhood practitioners need opportunities to utilize the information they have learned in order to integrate the knowledge into their professional repertoire. This applies to both education and training experiences (NAEYC, 1993; Snider & Fu, 1990; Snow, 2001). Neither one-shot training experiences nor formal theory-based preparation programs will be effective if they do not allow for opportunities to put theory into practice (NAEYC, 1993; Snow, 2001; Wien, 1995). According to Guskey (1986), it is only after changes are evidenced in practice that conscious reflection and significant changes in teachers' beliefs and attitudes take place.

The following two studies provided training which targeted specific classroom behaviors dealing with teacher-child interactions. By providing training on the theory behind the importance of these interactions and then allowing teachers the opportunity to put into practice what they have learned, teachers were able to make the theory to practice connection.

Venn and Wolery (1992) successfully used an on-site training program to increase and improve adult-child interactions during diaper changing in an infant room. Four teachers, none of whom had training in infant care or a formal education,

received individual instruction by the researchers on the importance of adult-infant interactions, identification of positive and negative interactive behaviors, and descriptions of strategies for enhancing positive interactions. The teachers were then videotaped during diaper changing over a period of time. These videos were discussed with the teacher. Results indicated that participants increased their interactive behaviors after the training with the behaviors maintaining over the course of the study. It also appeared that the staff became more attentive and responsive to the infants during the diaper changing routine. To see if the training would generalize to other settings, teachers were also video-taped during meal time. The increased interactive behaviors did not seem to generalize to this setting. The authors concluded that this may have been due to the heavy emphasis placed on the diaper changing routine during training. In addition to being able to directly apply what was learned to the classroom setting, other advantages of this training program included an active, rather than passive, training protocol, little disruption to staff members' classroom duties, flexible implementation, and ease of implementation allowing training to be conducted by more experienced administrators/caregivers working at the center rather than the need for outside consultants.

Girolametto, Weitzman, and Greenberg (2003) also provided training aimed at increasing teacher-child interactions in the classroom with a focus in two areas: small-group book reading and a child-centered play-dough activity. Sixteen childcare providers from four centers, all with a 2-year post secondary education and at least two years of experience, were assigned randomly to either the control or intervention group by center. Using a pre- posttest design, the intervention group received a 14-

week intervention to teach program strategies for teacher-child interactions based on social interactionist theories of language acquisition which posit that verbal productivity may facilitate language growth. Training consisted of eight evening group sessions of 2-5 hours each which included interactive lectures, observations and analysis of videotapes, large and small group discussions, and role-playing. The program content included teaching strategies for increasing linguistic responsiveness and reducing the complexity of language input. Intervention participants were also videotaped in the classroom and had an opportunity to discuss these videotaped sessions with the researchers.

Childcare providers who participated in the training were able to adopt a number of the techniques taught in the interactive model; however, the techniques adapted were somewhat context specific. In the book reading context, childcare providers who received training became more child-centered in their interactions by waiting for children to initiate conversation and encouraging turn-taking. They were also significantly more talkative, used significantly more words per minute, and read from the scripted text less often than control group teachers. There were no significant differences between the two groups on measures of language complexity, face-to-face interaction, scanning the group to increase participation of all children, and following the children's lead. In the play-dough activity, providers increased their face-to-face interaction with the children and scanned the group in order to increase the participation of all children. However, the two groups did not differ on waiting for children to initiate conversation, encouraging turn-taking, or following the child's lead (Girolametto et al., 2003).

The studies of Girolametto et al. (2003) and Venn and Woolery (1992) provide examples of how theory can be related to specific practices in the classroom to help teachers more effectively make the connection between the two. Difficulties with generalizing training to different settings indicate the need to provide specific suggestions to caregivers on how techniques can be applied in different classroom contexts.

Howes and Galinsky (1998) also used an on-site training program consisting of meetings and classroom visits to increase the sensitivity of 26 child care providers in an effort to increase the attachment security of the children in their care. The teachers in this study were more educated than those in Ven and Wolery (1992) with 45 per cent holding two-year or four-year degrees. A six-month intervention was implemented which consisted of 20 hours of meetings as well as classroom visits focusing on the relationship of caregiver sensitivity to the attachment security of children. Training was also conducted with the teachers which emphasized specific changes in behavior. The results of the study suggested that this modest training intervention was successful at enhancing the sensitivity of caregivers and that these increases were linked to changes in the attachment security of the children. Caregivers of children who became secure or stayed secure over the course of the intervention increased in sensitivity. Children who were insecure prior to the training were likely to increase their security if their caregiver became more sensitive. Although there was no comparison group in this study, a second study with similar data collection points and age groups of children was conducted by the same authors in community based child care. In this study, no intervention was utilized. The study

found no significant changes in child attachment security or responsive involvement over the same time period.

The teachers participating in the High/Scope (Epstein, 1993) training described earlier also benefited from on-site classroom visits from trainers which included observation and feedback opportunities as the teachers applied concepts learned in the training to classroom practices. Training in the High/Scope model is spread out over many months allowing teachers to alternate between one week of workshop sessions and several weeks of applying what they have learned. According to the author, this allows teachers the opportunity to reflect on the relevance of the information they have obtained and adapt it to their actual classroom situation. Teachers are then provided the opportunity to follow-up with the trainers and their peers, giving them the opportunity to share problems and solutions to further clarify how theory can be applied in the early childhood classroom.

Teachers, in a study by Sheridan (2001), which is discussed more in-depth in the following section, were also provided opportunities to incorporate information learned in training focusing on “competency development” into classroom practices. Competency development training consisted of discussions about influences on classroom practices and opportunities to create a stimulating and challenging environment for children. Requirements of public policy, information about how children learn, and the role of a teacher were also covered in the training. By establishing a baseline of quality with an evaluation using the Early Childhood Evaluation Rating Scale (ECERS) of their own classroom, teachers of different experience and education levels were immediately able to make practical application

of the information they were receiving in the training. Working with their peers in small groups, teachers were able to discuss day-to-day practices and ways in which practices could be improved. Opportunities to meet with the researcher and colleagues to discuss their progress at improving their classroom quality provided the opportunity for teachers to discuss their successes and challenges as well as to develop a deeper understanding of the diverse ways in which classroom goals could be met.

In the studies discussed above it appears that for teachers at every level, helping teachers make the connection between theory and practice is an important one for ensuring what is learned in training can be applied in actual practice. Katz (1972) suggests “The timing of training should be shifted so that more training is available to the teacher on the job than before it” (p. 53). Ven and Wolery (1992) and Howes and Galinsky (1998) both utilized short term on-site training to impact specific classroom practices of teachers. Katz places particular emphasis on providing on-site guidance to teachers new to the field as was seen in Ven and Wolery. However the results seen in Howes and Galinsky suggest that providing training which connects child development theory to classroom practices is also effective for more experienced and educated teachers. Both Epstein (1993) and Sheridan (2001) demonstrated that comprehensive and systematically administered early childhood training programs which connect theory to practice are effective for teachers with varied experience and education levels. Vander Ven’s theory (1988) does not address the importance of connecting theory to practice which seems an important omission in light of these results.

NAEYC takes the position that formal preparation programs that teach theoretical foundations without any practicum experiences are usually of no benefit to adults (Ritchie & Willer, 2005). NAEYC (1993) goes on to say in their fourth and sixth principles of effective professional development that “Effective professional development opportunities [should be] structured to promote clear linkages between theory and practice.” By providing a hands-on approach to learning, teachers can apply theoretical concepts to their actual practices which leads to the acceptance of theory-based ‘best practices’ as strategies “that work in the real world” (p. 7).

Opportunities for Reflection

The opportunity to apply what has been learned and then reflect on its meaning is a critical component of effective professional development programs (NAEYC, 1993; NRC, 2001), helping teachers move toward a higher level of functioning (Hollingsworth, 1989; Sprinthall & Thies-Sprinthall, 1983). Sheridan (2001) illustrates the importance of reflection in one of the few studies of training with an experimental design (see also Epstein, 1993; Girolametto et al., 2003). Utilizing both a comparison group as well as random selection, Sheridan provides evidence of the effectiveness of a training model designed to enhance preschool quality. The model is based on the premise that reflection leads to “greater awareness of ongoing activities and pedagogical processes” (p.24). Implemented in nine preschool programs, Sheridan’s training model encouraged teachers of different experience and education levels to reflect on and share with peers their experiences and efforts to improve the quality of their preschool classrooms. The competence development model considered: (a) What goes on in present activities and teaching processes? (b)

What are the desired changes? and (c) Which competence enhancing inputs will yield the greatest outcomes in terms of achieving the desired changes? Content for the training considered teachers' needs, interests, and conceptions about quality as well as various definitions of quality from research and as expressed in the criteria of the ECERS.

Comparison and intervention teachers from 19 preschool programs participated in various "competence development courses." Teachers in the intervention group also participated over the course of one year in monthly informal child development lectures and review of relevant literature, formed learning teams which facilitated the sharing of knowledge and experience in small groups, and met with the researcher approximately once a month to receive guidance and feedback. Intervention participants were given the opportunity to participate during the lectures by sharing examples and experiences with their peers. Future lectures were tailored to meet the needs of the teachers as expressed in previous lectures. The learning teams were composed of teachers in programs evaluated with various levels of quality. This allowed for sharing of knowledge and experience among teachers with varying backgrounds and philosophies. Participant questionnaires about the learning teams indicated that the opportunity for staff of different developmental levels to meet and discuss beliefs and practices facilitated a greater awareness of their thought processes guiding their classroom decision-making and practices.

Sheridan (2001) used the ECERS as a tool for evaluation and reflection to provide a definition of quality for the preschool teachers in the program as well as to provide a method for evaluating quality and progress to improved programming. Pre-

and post-ECERS evaluations were conducted of both the intervention and comparison classrooms. The goal of the ECERS evaluations was to provide teachers with a measure of their current level of classroom quality and knowledge of how to change and improve the quality in their classroom. Post-ECERS reviews indicated the overall impact of the competency development program was an improvement in the average ECERS scores of the nine preschool programs in the intervention group over the course of the study as compared to a decrease of the average ECERS score for the programs in the comparison group. An analysis of the ECERS Socialization and Communication subscales revealed the intervention group also made positive changes in how the teachers approached the children in emotional and communicative interaction.

The benefits of reflective practice at all experience and education levels are described in this comprehensive study by Sheridan (2001) which challenges the linear theories of teacher development of Vander Ven (1988) and Katz (1972). Vander Ven describes entry level teachers as requiring a high level of direction in their work, not open to others ideas, and lacking the ability to make daily decisions based on reflection and interaction with more experienced peers. Katz presents the new teacher as self-absorbed with making it through the day rather than a contributing member of the child care team. By forming learning teams, Sheridan provided the opportunity for staff of varying education and experience levels to meet and discuss their beliefs and practices. According to Sheridan, the opportunity for teachers to discuss classroom practices with their peers, as they went about making changes in these practices, helped teachers to become aware of what goes on in their own

classrooms, and together, “develop ideas of how to improve the quality in relation to...national goals” (p. 24).

NAEYC (1993), discusses the importance of “acknowledging the skills and resources brought to the training process” (p. 9) as a way to build teachers’ self-esteem in their seventh principle of effective development. NAEYC goes on to stress, in their eighth principle, the importance of “provid[ing] opportunities for application and reflection and allow[ing] for individuals to be observed and receive feedback upon what has been learned” (p. 9) which seems to indicate NAEYC’s belief that even novice teachers can reflect on training experiences and grow professionally from this process.

Mentoring

The term *mentoring* generally refers to a relationship between a more skilled and/or educated person and a novice. Unlike the relationship between a supervisor and employee, mentors are guides and role models with no supervisory responsibility over their protégé. The primary responsibility of a mentor is to provide support and encouragement to their protégé, giving them someone to whom they can turn and on whom they can rely (Whitebook & Bellm, 1996).

The benefits of mentoring can be seen in the following study in which on-site mentoring proved to be a promising alternative pathway to formal education for effective teaching, particularly for teachers in the beginning stages of professional development (Howes, James, & Ritchie, 2003). Among a group of 80 primarily African-American and Latino teachers, few with any post secondary education, Howes et al. investigated factors that predicted effective teaching through classroom

observations and interviews. Despite the lack of formal education of the study participants, those who had been mentored proved to be more effective at interacting responsively with the children in the area of engagement in language play and language activities in the classroom. Two other factors, reflective supervision and motivation for staying in the field, also proved important for effective teaching. In many professional development experiences, mentoring and opportunities for reflection go hand-in-hand as is the case in this study, as well as in studies discussed earlier (Epstein, 1993; Fleet & Patterson, 2001; Sheridan, 2001).

The ability of an individual to mentor less experienced teachers does not mean that they too would not benefit from mentoring themselves. Cassidy and Myers (1993) provide an example of how mentoring can be effective at different experience and education levels. Through collaboration between local childcare directors and university and state officials, a mentoring program was tailor-made to meet the needs of the surrounding community with advanced level early childhood professionals providing training and mentoring to directors of early childhood programs who then provided training to direct service providers with less early childhood experience. Local child care directors received mentoring from early childhood experts who worked with them to co-construct the high-quality training needed by early childhood workers in their community. Training consisted of conferences and small group discussions addressing the needs and interests of the early childhood community in which the training was offered. The directors were given more and more autonomy for overseeing the training as their skills and confidence increased. They, in turn, became mentors for the early childhood teachers to whom they provided training.

Qualitative data collected on the development of directors as they progressed through the training revealed increased independence by the directors to develop training programs to meet their community's needs.

Cassidy and Myers (1993) and Howes et al. (2003) suggest that mentoring can be effective for entry level teachers as well as those teachers and administrators with more experience and education. Katz's theory of development discusses the importance of mentors and on-site guidance primarily for the first two stages of her developmental theory. After this point, the support of a more knowledgeable peer is not mentioned. Instead, the focus seems to be more on interacting with colleagues and self-reflection (1972). Vander Ven's (1988) model seems to imply that it is not until teachers reach the second stage of her developmental continuum that they are even receptive to personal growth. During the second stage, Vander Ven emphasizes the importance of supervision and guidance. In the novice stage, Vander Ven posits that teachers are resistant to education and guidance. Even in the second stage, Vander Ven suggests that teachers do not have the cognitive ability or skills to handle challenging or ambiguous situations and only after they have obtained a formal education do they develop these abilities. This is in contrast to Howes et al. (2003) who found that mentoring was an effective means of improving teaching performance despite a lack of formal education. Throughout the rest of Vander Ven's stages, the focus is on how teachers grow in their ability to make decisions based on formal professional preparation with some reference to the role of peer relationships in that development and no mention of more experienced peers assisting in the process.

After this level, only education is mentioned as a means to move teachers into higher professional categories.

NAEYC makes little distinction between the role of a more knowledgeable peer acting in a supervisory role and one acting in a mentoring role. As noted by Whitebook and Bellm (1996), unlike the relationship between a supervisor and employee, mentors are guides and role models with no supervisory responsibility over their protégé. NAEYC (1993), identifies the importance of obtaining work experience under a qualified supervisor and “working under supervision or with support “ (p. 8) for entry-level early childhood professional but makes no mention of the mentor’s role in staff development. The principles of effective professional development make only a cursory reference to the role of a more knowledgeable peer in the professional development of staff. In the fifth principle, the importance of staff trainers having an “appropriate knowledge and experience base...for establishing credibility and legitimacy in the eyes of the participants” (p. 7) is mentioned. Principle number eight discusses the importance of receiving feedback on how training is being incorporated into practice. In the accreditation criteria for teachers (Ritchie & Willer, 2005), the need for “specialized college-level course work or professional development training and preparation in adult supervision, mentoring, and leadership development” (p. 16) is addressed, however; distinctions are not made between the roles of each. Lawrence (1974) lists receiving feedback as a characteristic of training programs but does not specify from whom this feedback is best received. Epstein (1993) specifically lists “models and mentors” (p. 9) as key ingredients to effective training. Considering the important role that mentors play in

the studies just described, it would seem that developing a better understanding of the role of the mentor in the staff development process would be an important step to improving training quality.

Individualization

Professional development experiences are most successful when teachers' backgrounds, experiences, and classroom roles are considered; thereby ensuring that training meets their individual needs (NAEYC, 1993). To enable trainers to individualize training to meet the needs of trainees, Darling and Gallagher (2003) used self-assessment instruments to help set training goals and to measure training effectiveness beginning with an assessment at the beginning of a workshop. The beginning assessment, completed before the workshop began, assessed existing knowledge in accordance with behavioral indicators. This pre-assessment allowed the trainer to work with the trainee to tailor the training to meet his or her needs. After the training, another self-assessment instrument asked participants to self-reflect on their module content and comment on their future training needs so that an individualized learning plan could be developed. Approximately three months after the completion of the training, participants were asked to complete a self-assessment to measure the effectiveness of the training by assessing their competence on the training material covered. Used in conjunction with other evaluation methods such as observations of participants' and trainers' evaluations, self-assessments proved to be a relatively inexpensive and efficient way for individualizing training and allowing trainees to identify future training needs.

Project REACH used trainers indigenous to the rural communities in which they were working to design individualized training plans with local childcare providers. The providers, over half of whom did not have any college education, selected from a menu of training options including workshops, home visits, or a combination of the two, and developed strategies to reach the goals established in their training plans. Results showed that after participating in the individualized training program for one year, participants increased their scores on global quality and sensitivity measures and reporting more developmentally appropriate beliefs and practices (Espinosa, Mathews, Thornburg, & Ispa, 1999).

The training programs discussed in this paper suggest that, instead of selecting training based solely on teachers' education and experience levels; teachers would be better served by individualizing training programs based on their needs and the needs of the early childhood program where they practice. The High/Scope train the trainers' project (Epstein, 1993) as well as Sheridan's competency development training model (2001) provide excellent examples of how teachers of varying education and experience levels can benefit from participating in training together. They also demonstrate that there is not one best method to train teachers of certain experience and education levels but that teachers can benefit from multiple training techniques, especially when they are combined. Lawrence (1974), in his review of training programs, identified the importance of the teacher's role in individualizing his or her training noting that when training is individualized, teachers are more likely to accomplish their training objectives. NAEYC (1993) concurs with this position, stating in their ninth principle of effective professional development that allowing

teachers to help identify their training needs and build upon their existing strengths makes it more likely that new information will be incorporated into their teaching practices.

Understanding the perspective from whence teachers come (Gable & Hansen, 2001), considering personal preferences (Klein & Sheehan, 1987) and developmental needs (Cassidy et al., 1995), and allowing teachers to take an active role in the planning and design of their training program results in a stronger sense of ownership by the staff for their professional development and a greater receptivity to the information presented (Lawrence, 1974). Trainers, supervisors, and mentors play an important role in the guidance of early childhood teachers into training that not only suits their personal preferences but that also meets their current training needs (Katz, 1972; NAEYC, 1993; VanderVen, 1988). The role of these individuals cannot be overstated. As seen in Fleet and Patterson (2001) and Adger et al.(2004), the facilitator's role in small-group discussions was critical for guiding discussions and highlighting important topics, which is particularly important with groups of teachers of mixed education and experience levels. Mentors also provide individual guidance, taking an individual from where they are and moving them to a higher level of functioning (Cassidy & Myers, 1993; Howes et al., 2003). However, ultimately it is the teacher who must make the commitment to the training program and determine what role they want to play in the early childhood profession. Aligning training content with theory and research-based best practices is only effective if teachers see how the material applies to the daily challenges they face in the preschool classroom (Guskey, 1986). Attempting to teach material that does not take into consideration

the trainees' personal developmental needs and current teaching situation may result in little or no acceptance or retention of material (Fuller, 1969).

Individualization of training can take place at varying levels. From conducting needs surveys to providing on-site visits and mentoring, the individualization of training programs is as varied as the teachers being served. Participation by the teachers in the development of their training program results in more effective training experiences and a commitment by teachers to the training process (Cassidy et al., 1995). Bronfenbrenner and Ceci's (1994) ecological model proposes that development occurs as a result of the interaction between the individual and the environment. It is through the individualization of training that the interaction between the teacher and the child care program takes place and professional development is achieved (Cassidy et al., 1995).

Conclusions

Upon reviewing the existing early childhood training literature, certain features of successful programs become salient. These include the need for individualized, coherent, intensive, and continuous early childhood training with opportunities to put training into practice (Epstein, 1993; Finn-Stevenson et al., 2001; Howes & Galinsky, 1998; Lawrence, 1974; Peters & Sutton, 1984; Venn & Wolery, 1992). Interacting with and receiving feedback and guidance from peers, supervisors, and more experienced early childhood professionals are other key characteristics of successful professional development programs (Adger et al., 2004; Cassidy & Myers, 1993; Fleet & Patterson, 2001; Howes et al., 2003). These activities prompt teachers

to reflect on their actions, classroom knowledge, and implicit beliefs (NAEYC, 1993; NRC, 2001; Sheridan, 2001).

The evidence presented suggests that training can be an effective means of improving early childhood knowledge and classroom quality. However, training has not been examined to the point that allows us to fully understand the thresholds of training and methods of implementation that best meet the needs of teachers with various experience and education levels (Blau, 2000; Tout et al., 2006). What is lacking in the early childhood research literature is causal evidence, supported by rigorous experimental designs, which can provide specific information as to what types of programs work best for teachers of various experience and education needs. Data on the characteristics of the teachers attending training, including education, experience, and motivation also need to be collected and reported. This will help to clarify how various types of training programs benefit teachers at different points in their career. Clear descriptions of the content, length, and method of implementation of training will allow programs to be compared in ways that are meaningful and useful for replication.

What can be gleaned from the available research is that there are training features, when incorporated and especially when combined, that can lead to beneficial and effective training experiences for early childhood teachers, no matter where they lie on the developmental continuum. This evidence, albeit sparse, does seem to contradict the linear developmental models of Katz (1972) and Vander Ven (1988) and also Vender Ven's position that it is solely formal college coursework that moves a teacher into a higher level of professionalism. It also causes one to question the

absence of training as an alternative method for meeting NAEYC teacher education requirements in the newly revised accreditation criteria (2007). Although NAEYC mentions training as an option for obtaining some specialized knowledge, it is a college degree that is required to meet the educational requirements of accreditation.

Just as NAEYC is a driving force in defining 2- and 4-year college programming for early childhood professionals, they could also contribute greatly to the clarification of characteristics and preparation of guidelines as to what makes training programs effective. This seems particularly important in light of the diversity of the early childhood workforce and the wide use of training programs to meet professional development needs and requirements. With this combined effort between researchers and professional organizations, teachers could choose from a full range of professional development options.

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THE IMPACT OF CHILD DEVELOPMENT ASSOCIATE TRAINING ON THE BELIEFS AND PRACTICES OF PRESCHOOL TEACHERS

Teacher beliefs are at the heart of teacher decision-making (Cassidy & Lawrence, 2000; McMullen, 1999; Vartuli, 2005). The ill-defined nature of teachers' work in the preschool classroom often leads to decisions based on what feels right rather than decisions based on theoretical knowledge (Pajares, 1992). Yonemura (1986) conducted a detailed qualitative study of the thinking and beliefs of one early childhood teacher. Through a combination of discussions and classroom observations, Yonemura came to the conclusion that the teacher's personal knowledge was as important to her decision-making as was her professional knowledge. For example, the teacher's beliefs that children were intrinsically motivated led her to trust them as learners. This resulted in a classroom in which children chose many of their own tasks, working more intently and with greater concentration at these tasks than at those assigned by the teacher. A belief that children needed to experience autonomy and initiative with guidance, led the teacher to offer possible solutions when children came to her with disagreements, but then allow them to come to a mutually acceptable resolution.

Even when teachers are exposed to information from outside sources (e.g., training, advice from a more knowledgeable peer), they make sense of it in a way that is consistent with their implicitly held beliefs (Kagan, 1992; Pajares, 1992). Teachers are often not aware of their own deeply held beliefs or how these beliefs impact their classroom practices (Isenberg, 1990). Teacher training (i.e., professional

development experiences that take place outside the formal education system) (Maxwell, Feild, & Clifford, 2006) is one mechanism through which teachers can be encouraged to reflect on their existing beliefs and classroom practices. As a result of the reflection process, teachers may be more willing to accept information presented in training and assimilate this information into their existing beliefs or replace existing beliefs with new, more appropriate beliefs (Sheridan, 2001).

The goal of this research study was to investigate the impact of Child Development Associate (CDA) credential training on the beliefs and self-reported practices of preschool teachers. The CDA credential is the entry-level teacher educational qualification in the National Association for the Education of Young Children (NAEYC) accreditation standards (2007) and is considered an effective training option for obtaining basic child development knowledge (Bredekamp, 2000). The 120 hours of early childhood education (Council for Professional Recognition, 1999) required to obtain a CDA credential can be obtained through college coursework or non-college training or a combination of the two. Although the CDA credential has been awarded to 200,000 early childhood providers since its inception in 1971 (Council for Professional Recognition, 2007), there is little empirical evidence supporting the effectiveness of this credentialing program (Bredekamp, 2000; Peters & Deiner, 1987; Tout, Zaslow, & Berry, 2006). Exploring the impact of CDA training on teacher beliefs and self-reported practices is an important contribution to the literature investigating the impact of training on teachers' beliefs and self-reported practices and on the benefits of CDA training specifically.

The Nature of Beliefs

Beliefs differ from knowledge in that they are based on evaluation and judgment as opposed to objective fact (Pajares, 1992) and have been defined as “tacit, often unconsciously held assumptions” (Kagan, 1992, p.65). Because individuals are often not aware of their own deeply held beliefs or are not able to clearly articulate them (Isenberg, 1990), beliefs must be inferred. Inferences may be made by considering belief statements, expressed intentions to behave in a certain way, or behavior related to the belief in question (Rokeach, 1968).

Theorists who have contemplated the nature of beliefs generally agree that beliefs are difficult to change, especially those beliefs that have been held for a long time (Nisbett & Ross, 1980; Rokeach, 1968), and that they color how new information is received (Nespor, 1987). Posner, Strike, Hewson, and Gertzog (1982) tell us that in order for individuals to be willing to accept change, they must first be aware of and dissatisfied with their existing beliefs. They must then recognize that new information is different from their currently held beliefs. In addition, the new information they are considering must appear plausible. The conflicting information must challenge their existing beliefs enough that instead of assimilating the new information into currently held beliefs, they feel the need to resolve the conflict.

Describing Beliefs and Self-Reported Practices of Early Childhood Teachers

The National Association for the Education of Young Children, the world's largest organization working on behalf of young children (2008), provides a framework for describing the beliefs and practices of early childhood educators. This framework, known as Developmentally Appropriate Practice (DAP), is a set of guidelines which can

be used to help teachers make decisions about the best way to teach young children (Copple & Bredekamp, 2006). Teachers adhering to a developmentally appropriate philosophy of teaching and learning focus on the overall development of the child and meeting the individual needs of the children in the group. Developmentally appropriate classrooms allow for many opportunities for child choice-making, problem-based learning and critical thinking activities. Play is highly valued as an opportunity for learning in the developmentally appropriate classroom. Curriculum content is integrated throughout classroom activities and small group activities are favored over whole group instruction (McMullen, 1997). Teachers who lean more toward developmentally inappropriate beliefs and practices tend to emphasize teacher-directed whole group instruction as opposed to allowing children to explore their environment and make their own activity choices. Activities in a developmentally inappropriate classroom may be very rule-bound with curriculum facts taught in isolation of one another (e.g. numbers, alphabet, word recognition). Play is often considered a break from “learning” (McMullen et al., 2006).

The Relationship of Beliefs and Self-Reported Practices to Actual Practices

The relationships found between measures of teacher beliefs, self-reported practices, and actual classroom practices using instruments based on the DAP philosophy have been fairly consistent, indicating moderate to strong relationships between the three measures (Burts, Buchanan, & Benedict, 2001; Charlesworth, Hart, Burts, & Hernandez, 1991; Charlesworth, Hart, Burts, Thomasson, Mosley, & Fleege, 1993; McCarty, Abbott-Shim, & Lambert, 2001; Vartuli, 1999). Multiple reviews have concluded that, as a general rule, teachers’ beliefs are more developmentally appropriate than their self-

reported practices and their self-reported practices more appropriate than their actual practices. Inappropriate beliefs also tend to be a better predictor of self-reported inappropriate practices than appropriate beliefs are of self-reported appropriate practices (Fang, 1996; Kagan, 1992; Pajares, 1992; Vartuli, 2005)

The relationships between beliefs, self-reported practices, and actual practices have been examined repeatedly utilizing various versions of the *Teacher Questionnaire* (Charlesworth et al., 1991; Charlesworth et al., 1993; Kim, 2005; McCarty et al., 2001; Vartuli, 1999). The Teacher Questionnaire was developed based on NAEYC's 1987 DAP guidelines (Bredekamp, 1987). It contains two scales, one measuring beliefs and one measuring self-reported classroom practices. Each of these scales can be broken down into "appropriate" and "inappropriate" subscales for further analysis. Charlesworth et al. (1991) administered the Teacher Questionnaire to 113 kindergarten teachers. Correlation analysis between the developmentally appropriate beliefs scores and self-reported developmentally appropriate practices scores and the developmentally inappropriate beliefs and self-reported developmentally inappropriate practices scores showed significant positive relationships. Teacher beliefs scores were more developmentally appropriate than their self-reported practices scores.

After making slight modifications to the Teacher Questionnaire, the survey was administered to 204 kindergarten teachers (Charlesworth et al., 1993). As was found in the earlier study, developmentally appropriate beliefs scores were moderately correlated with self-reported developmentally appropriate practice scores. A somewhat stronger relationship was found between developmentally inappropriate beliefs scores and self-reported developmentally inappropriate practices scores. Again, teacher belief

scores were higher in developmental appropriateness than their self-reported practices scores.

The Teacher Questionnaire (Charlesworth et al., 1991) was revised in 2001 to reflect NAEYC's revised DAP guidelines (Bredekamp & Copple, 1997). The *Teacher Beliefs and Practices Survey: 3-5 year olds (TBPS)* (Burts et al., 2001) was completed by 375 kindergarten teachers. Scores from the beliefs survey were moderately correlated to self-reported practices scores. TBPS developmentally appropriate beliefs subscale scores were moderately correlated to self-reported developmentally appropriate practices scores and a slightly stronger correlation was found between developmentally inappropriate beliefs scores and self-reported developmentally inappropriate practices scores (Kim, 2005). Teachers' beliefs were more appropriate than their self-reported practices and self-reported practices more appropriate than actual practices. Developmentally inappropriate practices scores showed a stronger correlation with observation scores than developmentally inappropriate beliefs scores and, according to the author, may be a good alternative to evaluating classroom if observations cannot be made.

In each of the above described studies, a small number of teachers (ranging from 4 to 20) were observed to explore the relationship of beliefs and self-reported practices to actual practices. Findings in all three of the studies showed the strongest relationship to be between self-reported developmentally inappropriate practices scores and observed practices (Charlesworth et al., 1991; Charlesworth et al., 1993; Kim, 2005).

McCarty, Abbott-Shim and Lambert (2001) observed a much larger group of teachers ($N = 181$) to describe Head Start teacher beliefs and self-reported practices as they related to classroom quality. Head Start teachers completed the Teacher

Questionnaire (Charlesworth et al., 1991) and were observed in their classroom. Based on the classroom observation composite scores, classrooms were classified as high, average, or low quality. Teachers in classrooms of differing quality did not differ on the developmentally appropriate beliefs and self-reported developmentally appropriate practices subscales. However, the teachers who were in low quality classrooms had higher scores on the developmentally inappropriate beliefs and self-reported developmentally inappropriate practices subscales indicating that they responded more favorably to statements about inappropriate beliefs and self-reported practices than did teachers in the average and high groups. Correlations between beliefs and self-reported practices for both the appropriate and inappropriate subscales indicated low to moderate correlations.

Vartuli (1999) measured the beliefs, self-reported practices, and actual practices of 132 Head Start through third grade teachers using the Beliefs Scale of the Teacher Questionnaire (Charlesworth et al., 1993), the Early Childhood Survey of Beliefs and Practices (ECSBP) (Marcon, 1988), and the Classroom Practices Inventory (Hyson, Hirsh-Pasek, & Rescorla, 1990). Correlational analyses of these scales indicated that the Teacher Questionnaire Beliefs Scale correlated moderately with the ECSBP Beliefs Scale and the ECSBP Practices Scale. The Beliefs Scale of the Teacher Questionnaire also correlated moderately with the total Classroom Practices Inventory score. The two scales of the ECSBP both correlated moderately with the total Classroom Practices Inventory score. The ECSBP beliefs and practices scores were highly correlated. Teachers' beliefs on the ECSBP were significantly higher than their self-reported practices scores.

The relationships between beliefs, self-reported practices, and actual practices discussed above indicate the potential for impacting teachers' actual classroom practices by influencing their beliefs. The next section discusses the role of education and training in increasing the appropriateness of beliefs and self-reported practices.

The Influence of Education and Training on Beliefs and Self-Reported Practices

Understanding the influences of professional development programs on the beliefs and self-reported practices of early childhood caregivers is complex because no common definition of professional development exists (Maxwell et al., 2006). A review of the professional development literature by Maxwell et al. revealed that a common definition for training was particularly troublesome with over 25 different training types measured in the literature reviewed (e.g., workshops, technical assistance, CDA training). In an effort to standardize definitions to allow for comparison of programs, Maxwell et al. identified three components of professional development which will be used to describe the literature on the influences of professional development on teachers' beliefs and self-reported practices:

Education is defined as the professional development activities that occur within a formal education system....*Training* is defined as the professional development activities that occur outside the formal education system. Training activities do not lead to a degree and may sometimes be referred to as *in-service* or *informal training*. *Credential* does not clearly fall into either the education or training category because the organizations that grant credentials are typically not the same ones that provide the requisite knowledge....In addition, the education component of some credentials (e.g., the CDA) may be completed through either educational or training experiences (pp. 23, 37).

Despite the lack of consistency in the terminology, the following literature suggests that professional development can have an impact on teachers' beliefs and self-reported

practices, regardless of whether it is obtained through formal education or training programs.

Abbott-Shim, Lambert, and McCarty (2000) used structural equation modeling to identify the relationships between the formal education of teachers, their beliefs, self-reported practices, and classroom quality. Survey data from the Teacher Questionnaire (Charlesworth et al., 1991) were collected along with classroom quality observations from 190 Head Start teachers of varying educational levels. The final model indicated that education level did not directly impact classroom quality. Instead, education directly affected developmentally inappropriate beliefs which were associated with developmentally inappropriate self-reported practices. It was the inappropriate self-reported practices that had the direct effect on classroom quality.

Much of the research supporting the relationships between professional development and teachers' beliefs and self-reported practices, and actual practices is correlational. This research suggests the influence of both the level and type of education and training on teachers' developmentally appropriate beliefs and self-reported practices. McMullen and Alat (2002) surveyed 151 preschool teachers regarding their beliefs about the DAP philosophy using the Beliefs Scale of the Teacher Questionnaire (Charlesworth et al., 1991). Participants were divided into three categories based on their level of education which ranged from a high school diploma to a graduate degree. Each of these categories was further divided into whether or not the coursework at these levels was in the field of early childhood education. Correlational analysis between the study variables of specialized educational preparation, highest degree attained, and developmentally appropriate beliefs revealed a significant correlation only between the highest degree

attained and developmentally appropriate belief scores. However, analysis of the Beliefs Scale scores revealed that although, in general, higher levels of education, regardless of major area of study, resulted in stronger endorsement of DAP, specialized early childhood education and training had a positive impact on measures of beliefs about child-initiated learning.

Howes, Whitebook, and Phillips (1992) noted the importance of a formal education and specialized education and training on developmentally appropriate classroom practices in a study of over 1300 early childhood teachers. Education, specialized training, and experience were used to predict teacher behaviors with children. Regression analysis revealed that teachers with a bachelor's degree and those with no bachelor's degree but with specialized education at the college level were more sensitive, less harsh, and less detached than teachers with no bachelor's degree and either no specialized education or only education and training at the high school or vocational school level. A bachelor's degree or specialized education at the college level without a bachelor's degree also resulted in more appropriate interactions with children.

Howes (1997) analyzed data from the Cost, Quality and Outcome study which included a sample of 655 early childhood classrooms. Teachers were grouped into five background categories by crossing formal education with early childhood specialized education and training. Teachers with a bachelor's degree or beyond in early childhood were rated as more sensitive than teachers with associate's degrees in early childhood, who in turn were rated as more sensitive than teachers with other backgrounds. Teachers with at least an associate's degree were rated as less harsh than teachers with other backgrounds.

The impact of both education and training on classroom practices was seen in another analysis of data from the Cost, Quality and Outcomes study (Burchinal, Cryer, Clifford, & Howes, 2002). Teachers from 533 early childhood classrooms were classified according to their highest level of education and whether the teacher reported attending workshops (often encompassed under the category of training). Analyses of the highest level of education, workshops attended, and measures of classroom quality indicated that a bachelor's degree was the best predictor of higher quality caregiver skills but that attending workshops also related to higher quality skills regardless of the caregivers' educational background.

Evidence is also available from experimental research that different types and amounts of education and training can have a positive impact on beliefs and self-reported practices of early childhood teachers. Haupt, Larsen, Robinson, and Hart (1995) conducted a 16-hour in-service training series on DAP for 15 kindergarten teachers. Comparisons of responses to the Teacher Questionnaire (Charlesworth et al., 1991) before and after training suggested that beliefs were strongly affected by participation in the training. The changes in self-reported classroom practices were more modest by comparison. The few significant changes on the self-reported Practices Scale indicated that although the training assisted the teachers in a broad philosophical sense, it had little impact on the increase in appropriateness of their self-reported practices.

Espinosa, Mathews, Thornburg, and Ispa (1999) conducted an individualized training program with 65 rural caregivers working in both center and home care settings in which workshops, individualized training guides, and handouts were utilized as well as on-site coaching to increase developmentally appropriate beliefs and self-reported

practices. The training took place over 12-14 months. Teacher Questionnaire (Charlesworth et al., 1993) scores indicated that the individualized training program increased the appropriateness of the teachers' beliefs as well as their self-reported practices. Observations were conducted to verify that self-reported practices were an accurate indication of actual practices. Scores of global quality of care and teacher/child interactions confirmed improvements in the appropriateness of actual practices as well. Although both Haupt et al. (1995) and Espinosa et al. (1999) suggest that training can have a positive impact on teachers' beliefs and self-reported practices, without a control group, it is impossible to be sure if the training led to the changes.

Cassidy, Vardell, and Buell (1995) conducted a study using a quasi-experimental design that investigated the impact of specialized college coursework on the beliefs and self-reported practices of caregivers. In this study, 19 teachers participated in early childhood college courses at a local community college. Comparison teachers were recruited from the same childcare centers as the intervention teachers wherever possible. Teachers were matched on educational background and the age of the children in their classrooms. Neither the intervention teachers nor the 15 comparison teachers had any college coursework at the beginning of the study. Posttest results gathered after intervention teachers had completed 12-20 hours of community college coursework indicated teachers receiving the intervention made greater gains on the beliefs measure of the Teacher Questionnaire (Charlesworth et al., 1993), responding in a more developmentally appropriate manner, than did the comparison teachers. There were no significant differences on measures of self-reported practices. However, classroom

observations indicated that intervention teachers were significantly more developmentally appropriate on measures of actual practices than the control teachers.

There are also indications that comprehensive early childhood training programs may positively impact the beliefs of teachers, and in some cases, be as effective as formal education programs. Child Development Associate training and its impact on the beliefs and self-reported practices of early childhood teachers was investigated by Peters and Sutton (1984) in a study of the beliefs of 55 early childhood teachers in a two-year CDA training program. Pre- and post-measures of teacher beliefs were collected over a 6-month period yielding scores for each participant on their endorsement of cognitively-oriented child-centered beliefs (considered more developmentally appropriate) and behaviorally-oriented teacher-centered beliefs (considered less developmentally appropriate). Analyses of the scores indicated that CDA participants increased their endorsement of child-centered beliefs over the six month period and that second-year trainees were significantly more likely to endorse child-centered beliefs than first-year trainees. A comparison of CDA trainee posttest belief scores to belief scores of a sample of undergraduate student teachers who were either just completing or just beginning their student teaching assignments revealed no differences between the two groups on their endorsement of child-centered beliefs. The author suggested this may indicate that similar benefits can be obtained from CDA training as compared to formal early childhood education on some measures.

Howes (1997) analyzed data from the Florida Quality Improvement Study in which the professional development experiences of 410 early childhood caregivers were considered in relationship to classroom quality. The impact of the CDA credential, a

high school degree, workshops, some college courses in early childhood, and a bachelor's degree or higher in early childhood were compared. Results differed depending on the specific aspect of quality that was considered. Teachers with a bachelor's degree or higher in early childhood education were more sensitive than those with a CDA, who were, in turn, more sensitive than those with some college. Teachers with a bachelor's degree or higher in early childhood were also more responsive than all other categories. However, teachers with a CDA made more positive initiations toward children than other teachers and were as effective as teachers with a bachelor's degree in measures of engagement in language, play, and positive management.

Saracho (1999) investigated the impact of CDA training on the attitudes of teachers towards children in a study of 24 early childhood teachers. Measures of student-teacher relations were taken at the beginning and then again at the end of a 7-month CDA training program. The findings indicated that the attitudes of the teachers became more positive over the course of the training.

Considered together, these studies suggest that both education and training can increase the developmental appropriateness of the beliefs and self-reported practices of early childhood teachers. The current study builds on this limited but promising research and evaluates the effectiveness of CDA training as a change agent for increasing the developmental appropriateness of teacher beliefs and self-reported practices. This mixed-methods study uses a quasi-experimental design that permits results to be more confidently attributed to the CDA training intervention as opposed to other variables.

The quantitative portion of this study examines changes in beliefs and self-reported practices before and after completion of CDA training to address the

question “How does CDA training impact the beliefs and self-reported practices of preschool teachers?” Based on the available, albeit limited evidence on the ability of CDA training to impact beliefs and self-reported practices and related evidence of the impact of training and education in general, it was hypothesized that the beliefs and self-reported practices of participants would become more developmentally appropriate after completing CDA training as compared to a comparison group who had not completed the training.

The second question answered in this portion of the study was “What is the relationship of measures of teachers’ beliefs to measures of self-reported practices?” It was hypothesized that teachers’ self-reported beliefs would have a positive and strong correlation to their self-reported practices and that scores of teacher beliefs would be more appropriate than scores of self-reported practices.

The qualitative portion of this study asks the question, “How do teachers’ beliefs and self-reported practices change as they progress through CDA training?” It was hypothesized that teachers’ descriptions of their classroom practices as well as their explanations for why they conducted these practices would become progressively more appropriate as they proceeded through CDA training.

This study measured the beliefs and self-reported practices of 76 preschool teachers before and after completion of the training requirement for a CDA credential. Measures of beliefs and self-reported practices of 50 comparison teachers were also collected to increase the confidence that changes found between pre- and post-measures could be attributed to the CDA training and not to other factors. In addition, four teachers were observed and interviewed over the course of the training to more closely

investigate how their thought processes about their practices were changing over the course of the study. Descriptions of the quantitative and qualitative portions of the study are presented separately.

Quantitative Study

Participants

The identification and selection of intervention participants began by contacting all the technical colleges in the state of Georgia that offered a CDA credentialing program. A total of 41 colleges were contacted. Criteria for participation were: (a) high school diploma/GED and no early childhood college coursework, (b) currently employed as a teacher of 3-5 year olds, and (c) had not completed CDA coursework. In-service training completed to meet state childcare licensing requirements was not measured since all teachers working at state licensed facilities would be required to meet these training requirements. Few participants could be identified who did not have recent coursework in early childhood. Research has indicated that even a few college courses in early childhood can make a difference in the developmental appropriateness of teachers beliefs and self-reported practices (Cassidy, Buell, Pugh-Hoese, & Russell, 1995). Because including these students in the study would have made it difficult to attribute changes in beliefs solely to the impact of the CDA coursework, a new method of finding participants was initiated.

Two Georgia universities were identified that sponsored comprehensive CDA classes in the community. These classes provided a larger pool of participants with no prior early childhood college coursework. Of the 17 CDA classes identified as sources for the intervention sample, 16 were sponsored by institutions of higher learning. The

remaining class was sponsored by a local resource and referral agency. Five classes were offered on a college campus with the remaining 12 taking place in various places in the community (e.g., childcare centers, YMCA, etc.). The requirement for 120 contact hours was met in two of the CDA classes by a combination of specific early childhood college courses. The remaining 15 CDA classes met the requirement for the 120 contact hours of training in one comprehensive course offered over a period of time ranging from 3 – 11 months ($M = 6$ months). In all but one of these courses, the CDA training could be converted to college credit by enrolling in the sponsoring educational institution.

The intervention participants completing the pretest were 103 preschool teachers enrolled in 17 different CDA programs throughout the state of Georgia. Of the 103 participants, 76 also completed a posttest. Despite exhaustive efforts to include only teachers with no college coursework, the limited availability of participants meeting this criterion resulted in the need to allow some prior college coursework. In order to try and control for the influence of prior college coursework in early childhood, participants could have no early childhood coursework which was obtained in the past 10 years and completed coursework could not have resulted in a degree. Of the 76 intervention participants who completed the pre- and posttest, 26% had some college education.

To locate comparison participants, the website of the state childcare licensing agency was consulted to identify licensed childcare centers in the same zip code as locations of the various CDA courses. An attempt was made to draw as many comparison participants from each zip code as there were intervention participants from that zip code. Where this could not be accomplished, centers within the same proximity were contacted until resources were exhausted. Letters were sent out to targeted

childcare centers explaining the study with the promise of a follow-up call. The directors of the targeted childcare centers were then called, the study explained, and a request was made for participants. A total of 127 child care programs were contacted. Packets containing demographic questionnaires, the pretests, and a return envelope were either mailed or hand delivered to the 37 childcare centers that were interested in participating. After approximately a week, centers were again contacted to remind them to return the packets or to arrange a pickup. A similar posttest collection method was conducted.

Comparison participants completing the pretest were 71 preschool teachers employed in 37 state licensed childcare centers in the same geographic area as the target CDA classes. To control for motivation, comparison participants had to be interested in pursuing a CDA, early childhood diploma, or associate's degree in the future. Of the original participant pool, 50 comparison teachers completed the posttest portion of the study. Of these 50 participants, 20% had some prior college coursework.

A total of 76 intervention teachers and 50 comparison teachers completed both the pre- and posttests. A chi-square analysis revealed that there were no significant differences between the teachers who did not complete the posttest and those who did on the variables of ethnic group, years of experience, position, or education. The demographics of the study participants completing both the pre- and posttest are described in Tables 1 and 2. An independent samples *t*-test revealed that the intervention and comparison groups did not differ on years of experience, $t(124) = .207, p = .837$ (intervention: $M = 6.12$ years; comparison group, $M = 5.51$ years). Chi-Square analyses revealed that the two groups did not differ on position, $X^2(1, n=126) = .152., p = .70$

Table 1

*Demographic Information on Ethnic Group, Position, and Participant's Education**Comparison (n=50); Intervention (n=76)*

	Years of Experience		
	1-4 Years	5-9 Years	10+ Years
Intervention	41 (54%)	19 (25%)	16 (21%)
Comparison	28 (56%)	13 (26%)	9 (18%)
	Position		
	Lead	Asst	Other
Intervention	38 (51%)	30 (40%)	8 (9%)
Comparison	24 (48%)	22 (44%)	4 (6%)
	Participant's Education		
	HS only	Some college	
Intervention	59 (74%)	17 (26%)	
Comparison	39 (80%)	11 (20%)	
	Ethnic Group*		
	AA	Other	C
Intervention	48 (62%)	3 (5%)	25 (33%)
Comparison	18 (36%)	4 (8%)	28 (56%)

*p<.01

Table 2

*Demographic Information on Maternal and Paternal Education**Comparison (n=50); Intervention (n=76)*

	Intervention	Comparison
Mother's Education		
Less than HS	14 (18%)	6 (12%)
High School/GED	32 (42%)	31 (62%)
Some College	22 (29%)	11 (22%)
Associate's Degree	3 (4%)	0
Bachelor's Degree	3 (4%)	1 (2%)
Master's Degree +	2 (3%)	1 (2%)
Father's Education		
Less than HS	21 (30%)	7 (15%)
High School/GED	27 (39%)	22 (47%)
Some College	10 (15%)	10 (21%)
Associate's Degree	5 (7%)	4 (9%)
Bachelor's Degree	5 (7%)	3 (6%)
Master's Degree +	1 (1%)	1 (2%)

(only lead and assistant teacher positions were compared due to small cell size of “other” category), participant’s education, $X^2(1, n=126) = .00, p = .96$, maternal education, $X^2(2, n=126) = .48, p = .09$, or paternal education, $X^2(2, n=126) = 3.70, p = .16$. However, participants did differ on ethnic group, $X^2(1, n=126) = 8.92, p = .00$ (“other” was collapsed with “Caucasian” due to small cell size) with the intervention group having a higher percentage of African American participants than the comparison group. Overall, the group consisted of a fairly equal amount of lead and assistant teachers, most with only a high school education and less than five years of teaching experience. The maternal education for the intervention group was slightly higher than that of the comparison group with 40% of the participants reporting that their mothers had at least some college or greater. For the comparison group, only 26% reported that their mothers had completed some college or greater. The reports of father’s education indicated that 30% of the intervention fathers had some college or greater. For the comparison group, the percentage of fathers having some college or greater was 38%.

Measures

Teacher Beliefs and Practices Survey: 3- to 5-Year-Olds (Burts et al., 2001). The TBPS pinpoints specific beliefs about how best to teach young children as well as self-reported practices actually taking place in the classroom. The TBPS, an adaptation of the Teacher Questionnaire (Charlesworth et al., 1991), was designed to operationalize DAP as defined by NAEYC’s 1997 guidelines (Bredekamp & Copple, 1997). The TBPS consists of two scales, one which measures beliefs and one which measures self-reported classroom practices. Table 3 displays sample items from the Beliefs Scale which consists of 42 items about which teachers are asked to evaluate developmentally appropriate

($n = 27$) and developmentally inappropriate ($n = 15$) statements about their personal beliefs on a 5-point Likert scale from 1 = not at all important to 5 = extremely important.

Table 3

Sample Items from the TBPS Beliefs Scales

Beliefs Scale	Sample Items
Appropriate Beliefs	<ol style="list-style-type: none"> 1. It is _____ for teachers to provide opportunities for children to select many of their own activities. 2. It is _____ for teachers to encourage activities that involve children working together.
Inappropriate Beliefs	<ol style="list-style-type: none"> 1. It is _____ that each curriculum area be taught as a separate subject at a separate time. 2. It is _____ for teachers to regularly use punishment when children aren't participating.

Note. Participants chose from the following scale on their belief about the importance of items: 1=Not at all important, 2=Not very important, 3=Fairly important, 4=Very important and 5=Extremely Important.

The Practices Scale has 30 items, samples of which are found on Table 4, from which teachers choose from 1 = almost never (less than monthly) to 5 = very often (daily) on a 5-point Likert scale about how frequently certain appropriate ($n = 18$) and inappropriate practices ($n = 12$) occur in their classroom. During the analyses for this study, scores for the inappropriate items on each scale were inverted (e.g., a “5” became a

“1”) so that a higher score on each scale represented a more developmentally appropriate response. A computation of the internal consistency of the two scales indicated a reliability (Cronbach’s alpha) of .84 for the Beliefs Scale and .78 for the Practices Scale. These reliability scores are consistent with the scores noted by Kim (2005) of .89 and .79 respectively.

Table 4

Sample Items from the TBPS Practices Scales

Practices Scale	Sample Items
Appropriate Activities	How often do children in your class <ol style="list-style-type: none"> 1. Build with blocks 2. Have their work displayed in the classroom
Inappropriate Activities	How often do children in your class <ol style="list-style-type: none"> 1. Use commercially-prepared phonics activities 2. Use flashcards with ABCs, sight words, and/or math facts

Note. Participants selected from following choices to describe the average frequency of various practices in their classroom: 1=Almost Never (less than monthly), 2=Rarely (monthly), 3=Sometimes (weekly), 4=Regularly (2-4 times a week), 5= Very Often (daily).

Early Childhood Survey of Beliefs and Practices (Marcon, 1988, 1999). The ECSBP focuses on the participants’ conceptions of early childhood beliefs and self-reported practices on a continuum from a more traditional teacher-directed style of

teaching to one that is more child-centered. Table 5 provides sample items from the 14 statements which make up the ECSBP. These 14 statements include 7 statements of beliefs, followed by a corresponding statement about practices concerning how children learn, types of activities, material accessibility, developmental goals, learning formats, and teacher-child interactions. For each statement, teachers indicate their agreement with the statement along a continuum (1-10) between opposing viewpoints. Items rated higher or more toward the child-centered end (right) of the continuum are considered to be more developmentally appropriate. Internal consistency (Cronbach's alpha) indicated a reliability of .73 for the Belief Scale and .67 for the Practice Scale. These reliabilities are slightly lower than those noted by Vartuli (2005) (.87 and .88 respectively).

Table 5

Sample Beliefs and Corresponding Practices Statements from the ECSBP Scales

1. I believe the most important developmental goal of preschool is:

Academic preparation _____ Social and emotional growth

2. My preschool classroom is most effective in fostering:

Academic preparation _____ Social and emotional growth

3. I believe that preschool children learn best through:

Direct instruction _____ Active Exploration

4. Children in my preschool classroom are learning predominantly through:

Direct instruction _____ Active Exploration

Note. Participants placed an "X" along the dashed line to represent their conception of each beliefs and practices statement.

Procedures

Arrangements were made for the researcher to visit the all 17 of the identified CDA classes at the beginning of the training to explain the study and distribute the pretest packet once consent was received. The packet consisted of a demographic questionnaire and two surveys, the TBPS (Burts et al., 2001) and the ECSBP (Marcon, 1988, 1999). The order of the two surveys was counterbalanced in the packets. Participants were told that they would receive a \$10 gift card at the end of the study, once they had returned their posttest packet. At a prearranged date, at the end of the CDA training period, posttests were distributed either in person or by mail. The number of individuals in each class completing both the pre- and posttest ranged from 2 to 8 ($M = 4.8$) (typical CDA class size is 20 to 25 students) (P. Elkins, personal communication, March 10, 2008). Pretest distribution for the comparison participants was made by either sending the packets to the individuals at their childcare centers or delivering them in person. The length of time between pre- and posttests for the comparison participants was determined by the length of time between completion of the pre- and posttests at the corresponding CDA class. In other words, if the time between pre- and posttest distribution at a CDA class in a certain zip code was 4 months, then the time allotted between pre- and posttest for the comparison participants at childcare centers in the same zip code was approximately 4 months. A t -test revealed no significant difference between the average time between pre- and posttests for the intervention ($M = 6.00$, $SD = 1.79$) and comparison groups ($M = 6.35$, $SD = 1.47$) with a range from 3 to 11 months for both groups, $t(124) = -1.151$, $p = .252$.

Results

Did the beliefs and self-reported practices of preschool teachers become more developmentally appropriate as a result of CDA training? To address this question, Multiple Analyses of Variance (MANOVAs) were used to analyze related dependent variables. Whenever there were significant main or interaction effect(s), analyses of variance (ANOVAs) were conducted for individual scales. Paired comparisons using a Bonferroni correction (.0125) were conducted to explore significant effects of time for groups. Guidelines for interpreting effect sizes are: .01 = small effect, .06 = moderate effect, and .14 = large effect (Cohen, 1988).

Preliminary analyses. Prior to conducting the main analyses, preliminary analyses were conducted to answer two questions. The first question addressed whether ethnicity differences between the intervention and control groups could be responsible for any differences in changes between the pre and posttest scores of the two groups. A three-way 2 (time - pre and post) x 2 (group - comparison and intervention) x 2 (ethnicity - African American and other) MANOVA was first conducted to check for any interactions with ethnicity for the TBPS and ECSBP Beliefs and Practices Scales. Results indicated a significant group x ethnicity interaction, $F(4,119) = 3.77, p = .006$. Follow-up ANOVAs showed a group x ethnicity interaction for the TBPS Beliefs Scale, $F(1,122) = 6.57, p = .012$. African Americans in the intervention group ($M = 3.87$) had lower overall mean scores on developmentally appropriate beliefs than the non-African Americans ($M = 4.11$). In the comparison group, African Americans had higher overall mean scores ($M = 3.92$) than the non-African Americans ($M = 3.84$). Importantly, there were no significant ethnicity x group x time or ethnicity x time interactions. These results

indicate that any differences in the amount of change the intervention group showed over time compared to the comparison group were probably not due to the fact there were more African-Americans in the intervention group.

Next, analyses were conducted to address the question of whether the intervention and comparison groups differed in their beliefs and self-reported practices before training. Planned comparisons showed that the intervention and comparison groups did not differ on their pretest scores for all scales. As is shown on Table 6, both the intervention and comparison participants had pretest mean scores on the TBPS and ECSBP measures of beliefs and self-reported practices in the upper half of the scale (i.e., above “3” for the TBPS and above “5” for the ECSBP) indicating that participants had relatively high developmentally appropriate beliefs and self-reported practices at the start of the training. As shown in Table 7, this was also the case for the TBPS subscales of developmentally appropriate beliefs, developmentally inappropriate beliefs, and developmentally appropriate practices subscales but not for the developmentally inappropriate practices subscale. The scores for the developmentally inappropriate practices subscale revealed that both comparison and intervention teachers reported many developmentally inappropriate practices at pretest (i.e., inverted scores were below “3”). A comparison of the beliefs and self-reported practices scores indicates that belief scores were higher than self-reported practices scores on every measure.

Table 6

*Means and Standard Deviations for the TBPS and ECSBP Beliefs and Practices Scales**Intervention (n = 76); Comparison (n = 50)*

Measure	Group	Mean / Std. Div.	Pre	Post	<i>t</i>	eta squared
TBPS Beliefs	Intervention	Mean	3.898	4.025	4.309*	.20
		SD	.318	.352		
	Comparison	Mean	3.877	3.871	-.144	.00
		SD	.363	.412		
TBPS Practices	Intervention	Mean	3.611	3.829	5.374*	.28
		SD	.378	.402		
	Comparison	Mean	3.600	3.656	1.440	.04
		SD	.513	.522		
ECSPB Beliefs	Intervention	Mean	6.786	7.221		
		SD	1.53	1.51		
	Comparison	Mean	6.798	7.004		
		SD	1.46	1.45		
ECSPB Practices	Intervention	Mean	6.280	6.927		
		SD	1.40	1.36		
	Comparison	Mean	6.417	6.655		
		SD	1.53	1.54		

Note 1: TBPS is a 5-point scale; ECSBP is a 10-point scale.

* $p < .01$.

Table 7

*Means and Standard Deviations for the TBPS Appropriate and Inappropriate Subscales
Intervention (n = 76); Comparison (n = 50)*

Measure	Group	Mean/Std. Dev.	Pre	Post	<i>t</i>	eta squared
DAB	Intervention	Mean	4.242	4.273		
		SD	.336	.396		
	Comparison	Mean	4.283	4.211		
		SD	.417	.412		
DIB	Intervention	Mean	3.277	3.579	5.507*	.29
		SD	.588	.650		
	Comparison	Mean	3.146	3.259	1.896	.07
		SD	.551	.661		
DAP	Intervention	Mean	4.092	4.194		
		SD	.494	.412		
	Comparison	Mean	4.101	4.107		
		SD	.506	.462		
DIP	Intervention	Mean	2.889	3.279	4.672*	.23
		SD	.815	.850		
	Comparison	Mean	2.848	2.977	1.861	.07
		SD	.885	.839		

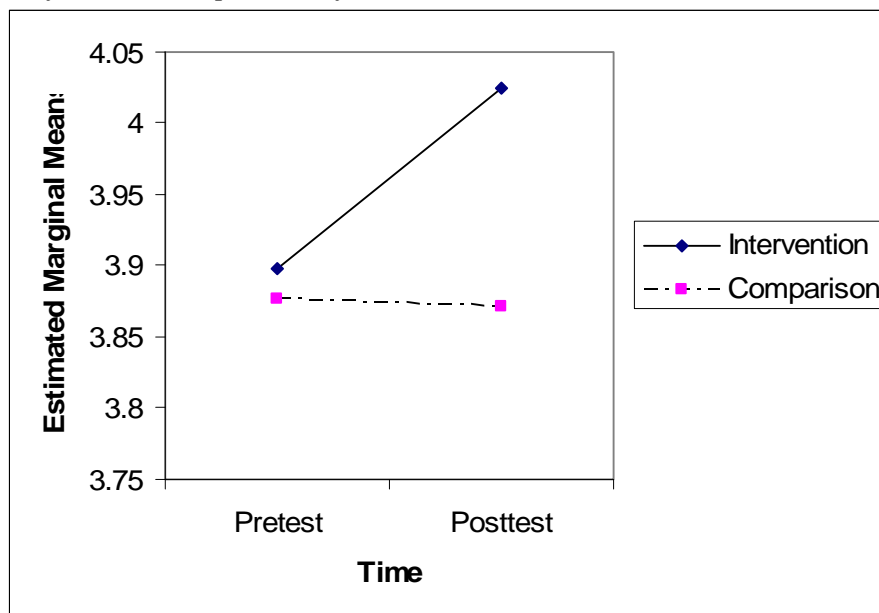
Note. TBPS subscales are 5-point scales. DAB = developmentally appropriate beliefs; DIB = developmentally inappropriate beliefs; DAP = developmentally appropriate practices; DIP = developmentally inappropriate practices.

* $p < .01$.

Main analyses. To answer the first research question of whether CDA training impacts teachers' beliefs and self-reported practices, a 2 (time- pre and posttest) x 2 (group-intervention vs. control) MANOVA with time as a repeated measure was conducted with four dependent variables: TBPS–Beliefs, TBPS–Practices, ECSBP–Beliefs, ECSBP–Practices. There was a significant main effect for time, $F(4,121) = 7.17$, $p = .000$ and a time x group interaction, $F(4,121) = 3.06$, $p = .019$. There was no main effect for group, $F(4,121) = .622$, $p = .648$. Table 6 displays the means and standard deviations for the pre- and posttest scores of the intervention and comparison participants. Follow-up 2 x 2 ANOVAs were conducted for each dependent variable. Analyses for the TBPS-Beliefs Scale showed a significant effect for time, $F(1,124) = 6.06$, $p = .015$ and an interaction between time and group, $F(1,124) = 7.30$, $p = .008$. As is evident in Figure 1, the intervention group significantly increased their scores on the TBPS-Beliefs Scale, but the comparison group did not.

Figure 1

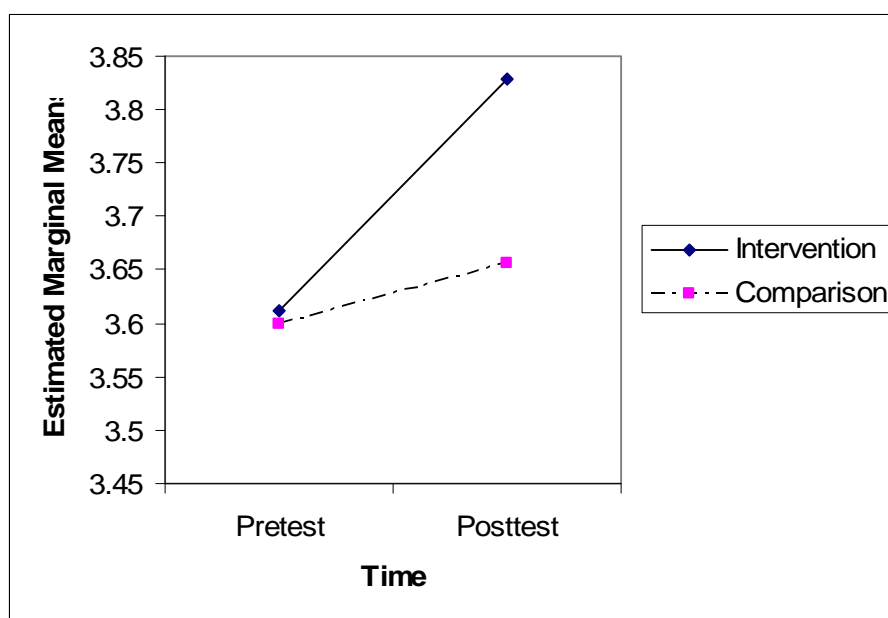
TBPS Beliefs Scale Comparison of Means



Analyses for the TBPS–Practices Scale also showed a significant effect for time, $F(1,124) = 21.45, p = .000$ and an interaction between time and group, $F(1,124) = 7.49, p = .007$. As Figure 2 illustrates, the intervention group significantly increased their scores on the TBPS–Practices Scale over time, $t(75) = 5.34, p = .000$, but the comparison group did not, $t(49) = 1.44, p = .156$.

Figure 2

TBPS Practices Scale Comparison of Means



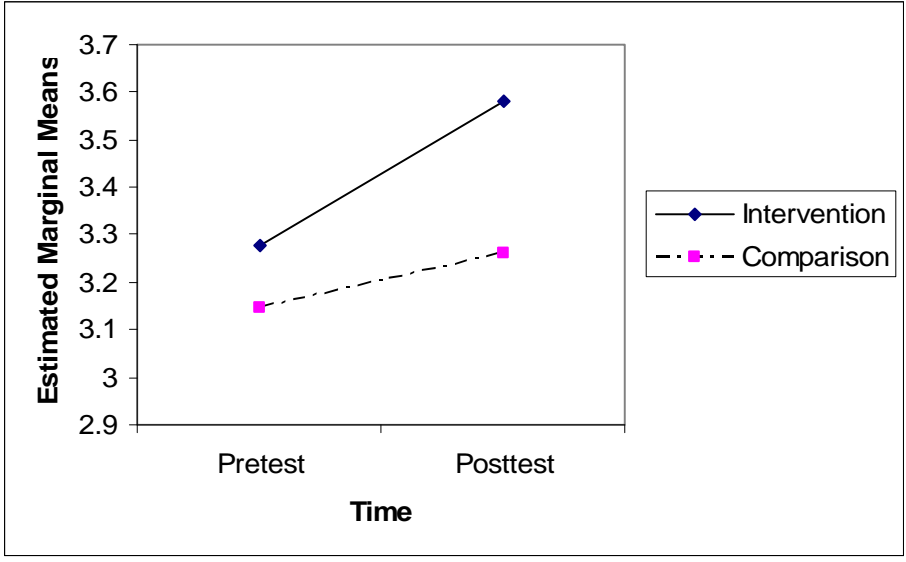
Analyses of the ECSBP–Beliefs scale revealed a significant effect for time, $F(1,124) = 5.24, p = .024$ as did the ECSBP–Practices scale, $F(1,124) = 9.99, p = .00$. Interactions between time and group for the ECSBP Beliefs Scale, $F(1,124) = .665, p = .416$, and ECSBP Practices Scale, $F(1,124) = 2.14, p = .15$ were not significant suggesting, as illustrated by the means in Table 6, that both groups became more developmentally appropriate over time but that this increase was not due to the intervention.

A 2 (time - pre and posttest) x 2 (group - intervention vs. control) MANOVA with time as a repeated measure was also conducted with the four TBPS subscales: developmentally appropriate beliefs, developmentally inappropriate beliefs, developmentally appropriate practices, and developmentally inappropriate practices. Table 7 displays the means and standard deviations for the pre- and posttest scores of the intervention and comparison participants on the subscales. A significant main effect was found for time, $F(4,121) = 10.07, p = .000$ as well as an interaction between time and group, $F(4,121) = 3.15, p = .000$. There was no main effect for group, $F(4,121) = 1.26, p = .289$. Follow-up 2 x 2 ANOVAs showed significant effects and interactions for two subscales. The developmentally inappropriate beliefs subscale showed a significant effect for time, $F(1,124) = 24.95, p = .000$ and time x group, $F(1,124) = 5.243, p = .024$. Figure 3 illustrates the significant increase in scores over time on the developmentally inappropriate beliefs subscale for the intervention group, but not for the comparison group.

Analyses of the developmentally appropriate practices subscale showed a significant effect for time, $F(1,124) = 19.56, p = .000$ and an interaction between time and group, $F(1,124) = 4.98, p = .027$. Figure 4 illustrates significant increase in scores on the developmentally inappropriate practices subscale for the intervention group, $t(75) = -4.67, p = .000$, but not for the comparison group, $t(49) = -1.86, p = .069$. Also important to note is that the mean scores of the intervention participants moved into the appropriate range (3 or above) at posttest but the comparison group mean scores remained just below the appropriate range.

Figure 3

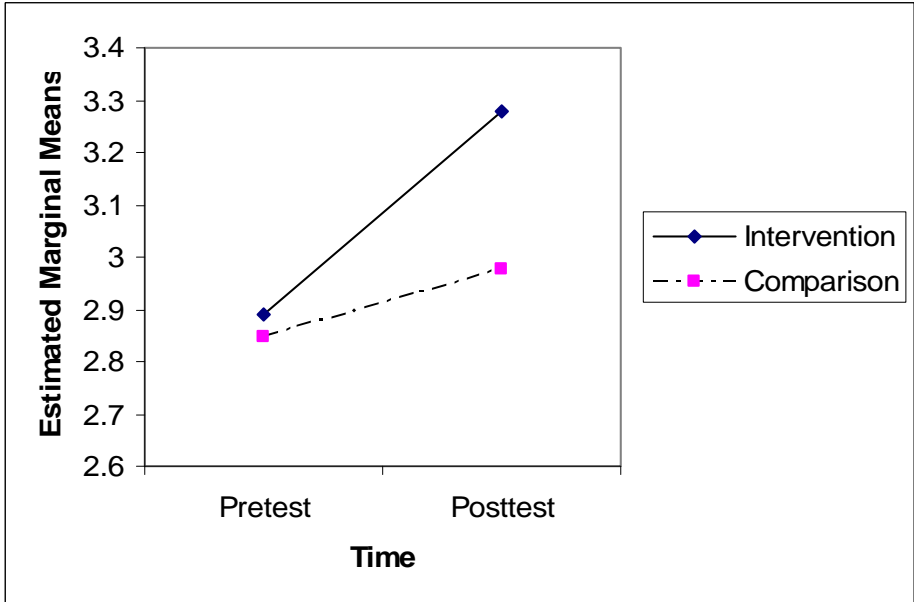
TBPS Developmentally Inappropriate Beliefs Subscale Comparison of Means



Analyses of the developmentally appropriate beliefs and developmentally appropriate practices subscales showed no significant main effects or interactions.

Figure 4

TBPS Developmentally Inappropriate Practices Subscale Comparison of Means



Correlational analyses. Correlational analyses were used to address the second research question, What is the relation between teachers' beliefs to their self-reported practices? Tables 8 and 9 display the results of the correlational analyses between the TBPS and ECSBP Beliefs and Practices Scales and between the TBPS subscales.

Both the TBPS and ECSBP Beliefs Scales had strong correlations, ranging from .64 to .87, with their respective Practices Scales indicating that the beliefs reported by the participants were strongly related to the practices they reported taking place in their classroom as measured with each of these assessment instruments. Correlations between the TBPS beliefs and self-reported practices subscales (e.g., developmentally appropriate beliefs and developmentally appropriate practices) were moderate to strong with correlations ranging from .50 to .66. Further inspection of the analyses also revealed moderate to strong across time stability of scales with correlations between pre- and posttest scores on the TBPS Beliefs ($r = .71$) and Practices ($r = .72$) scales strongly correlated and correlations between pre-and posttest scores on the ECSBP Beliefs ($r = .47$) and Practices ($r = .43$) scales falling in the moderate range.

The TBPS subscales showed moderate stability for the developmentally appropriate practices ($r = .45$) and developmentally appropriate beliefs ($r = .57$) subscales with the developmentally inappropriate beliefs ($r = .74$) and developmentally inappropriate practices ($r = .71$) subscales showing strong across time stability. Correlations between the developmentally appropriate beliefs and developmentally inappropriate beliefs subscales and the developmentally appropriate practices and developmentally inappropriate practices subscales were weak (ranging from $-.07$ to $.18$).

Table 8

Correlations for the TBPS and ECSBP Beliefs and Practices Scales (N = 126)

	TBPS				ECSBP			
	Beliefs		Practices		Beliefs		Practices	
	pre	post	pre	post	pre	post	pre	post
TBPS-Beliefs-pre	1							
TBPS-Beliefs-post	.71*	1						
TBPS-Practices-pre	.64**	.43**	1					
TBPS-Practices-post	.56**	.71**	.72**	1				
ECSBP-Beliefs-pre	.33**	.43**	.37**	.39**	1			
ECSBP-Beliefs-post	.35**	.47**	.48**	.53**	.47**	1		
ECSBP-Practices-pre	.35**	.43**	.52**	.44**	.73**	.43**	1	
ECSBP-Practices-post	.27**	.41**	.47**	.50**	.32**	.87**	.43**	1

Note. **Bold** identifies between-scale scores.

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

Table 9

Correlations for the TBPS Appropriate and Inappropriate Subscales (N = 126)

	DAB		DIB		DAP		DIP
	pre	post	pre	post	pre	post	pre
DAB-pre	1						
DAB-post	.57**	1					
DIB-pre	.14	.25**	1				
DIB-post	.11	.18*	.73**	1			
DAP-pre	.50**	.39**	.01	.01	1		
DAP-post	.34**	.53**	.20*	.27**	.45**	1	
DIP-pre	.18*	.20*	.62**	.60**	-.07	.20*	1
DIP-post	.20*	.20*	.54**	.66**	.11	.15	.70**

Note. TBPS subscales are 5-point scales. DAB = developmentally appropriate beliefs; DIB = developmentally inappropriate beliefs;

DAP = developmentally appropriate practices; DIP= developmentally inappropriate practices.

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

Discussion

The primary goal of this portion of the study was to investigate whether CDA training would impact the developmentally appropriateness of the beliefs and self-reported practices of preschool teachers. The secondary goal was to investigate the relationship between teachers' beliefs and self-reported practices. The findings suggest that CDA training does increase the overall appropriateness of teachers' beliefs and self-reported practices by reducing the inappropriate beliefs and self-reported practices held by the teachers. This is an important result because it has been noted in a number of studies that it is the inappropriate beliefs and self-reported practices, more so than the appropriate beliefs and self-reported practices, that affect actual practices (Abbott-Shim et al., 2000; Charlesworth et al., 1991; Charlesworth et al., 1993; Kim, 2005; McCarty et al., 2001). Results also suggest that teachers' reports about the beliefs they hold are strongly correlated to their self-reported classroom practices.

The results of this study have implications for teacher preparation of entry level teachers and measurement of teacher beliefs and practices. Identifying training programs that can impact the way preschool teachers think about and report practicing various activities in their classroom, may ultimately lead to higher quality preschool programs (Abbott-Shim et al., 2000).

Similar findings of the positive impact of education on beliefs were found by Cassidy et al. (1995) among a group of teachers with no college coursework who completed an average of four college courses, a majority of which were early childhood education methods courses or child-related courses. Changes were found in the appropriateness of teacher beliefs but, unlike in the current study, significant results were

not found in measures of self-reported practices. This is somewhat confusing since Cassidy et al. did find improvements in measures of the appropriateness of actual practices. The Abbott-Shim et al. (2000) model posits that inappropriate beliefs impact self-reported inappropriate practices which impact classroom quality. However, because Cassidy et al. did not consider the appropriate and inappropriate beliefs and self-reported practices scores separately, it is impossible to know whether it was a change in the appropriate or inappropriate belief scales, or both, that led to the improved scores on the overall beliefs measure. And because individuals may report practicing both appropriate and inappropriate activities, it can also not be ascertained whether a change in their appropriate or inappropriate self-reported practices may have occurred even though the overall self-reported practices scale did not change significantly.

The weak correlations found in this study between scores on the developmentally appropriate beliefs and developmentally inappropriate beliefs subscales and the developmentally inappropriate beliefs and developmentally inappropriate practices subscales replicate earlier findings (Kim, 2005). An example of teachers reporting both appropriate and inappropriate practices was seen in Haupt et al. (1995). This study found that teachers who had completed DAP training made improvements in their self-reported appropriate practices but still reported continuing with their self-reported inappropriate practices as well. This is somewhat contradictory to the findings in the current study which suggested that the self-reported inappropriate practices of CDA trainees became statistically less inappropriate whereas the self-reported appropriate practices did not change significantly.

One explanation for these differences in findings between the Haupt et al. (1995) study and the current study may be the nature of the training program. In the DAP training provided by Haupt et al., the instruction centered around philosophical issues rather than presenting activities for ready implementation. In CDA training, the curriculum draws on the teachers' actual classroom experiences and uses these experiences and hypothetical classroom experiences to teach the philosophy of DAP. For example, when talking about the stages of development of infants, the *Essentials* text (Day, 2004) tells teachers what children are usually like at this age, "Babies soon smile real smiles. They look you in the eye and then look away." It then tells teachers how they can promote children's learning and development, "Smile back. Say, 'What a wonderful smile you have!'" (p. 39). Another possible explanation is the high self-reported scores on the appropriate subscales by participants in the current study. Participants in both the intervention and comparison groups scored over 4.0 on the pretest on these scales producing a possible ceiling effect.

The findings of the quantitative portion of this study make an important contribution to the early childhood professional development literature which has lacked experimental research on the benefits of training in general and CDA training in particular. If, as suggested by Abbott-Shim et al. (2000), education results in higher classroom quality only when beliefs become less inappropriate and impact self-reported inappropriate practices; then it is important to determine if specific training programs can have the same influence on classroom quality by impacting teachers' inappropriate beliefs and self-reported practices. This research provides causal evidence that CDA training can lead to this increase in the overall appropriateness of beliefs by decreasing

the inappropriate beliefs that teachers hold which impacts their self-reported inappropriate practices and ultimately leads to higher classroom quality.

Qualitative Study

A qualitative component to this study was considered important to enhance the interpretation of the quantitative findings. Using a parallel mixed analysis, the quantitative and qualitative data were each collected and analyzed separately and then compared to provide the most complete analysis of the data (Onwuegbuzie & Leech, 2004). According to Onwuegbuzie and Leech, the “sole reliance on any [one research method] can lead to misleading interpretations of the data” (p. 778). Interviews with the participants about their classroom practices were considered important to answer the question “How do teachers’ beliefs and self-reported practices change as they progress through CDA training?” Although teachers are not always able to articulate the theory behind their actions (Isenberg, 1990), it was believed that by encouraging teachers to share their classroom experiences and the motivation behind these experiences as they progressed through CDA training, the influence of the training would become apparent. The proposition for this research was that teachers’ beliefs and their self-reported practices would become more developmentally appropriate over the course of the training.

The unit of analysis selected for this portion of the study was the individual teacher and her activities in the preschool classroom over the course of her enrollment in CDA training. It was theorized that if teachers’ beliefs and practices were changing, this would be revealed as they described and explained their teaching techniques, curriculum activities, and learning goals and objectives over the course of the training. Multiple case

studies were considered important to provide replication in order to develop a rich theoretical framework (Yin, 2003) and to test the proposition that CDA training will result in more developmentally appropriate beliefs and self-reported practices among preschool teachers. As will be discussed, as teachers were participating in CDA training, other influences seemed to impact the extent to which the training influenced their beliefs and self-reported practices. Therefore, it was considered important to look at each person individually to try and parcel out these influences from those of the CDA training and how the two were interacting.

Credibility of the data collected was established through prolonged engagement with the participants as well as data collection from multiple sources (Lincoln & Guba, 1985). As is the case in most qualitative studies, the findings of the four case study participants cannot be generalized to the general population. Although the characteristics of the four participants differed in a number of ways, allowing for a more representative picture of the impact of the training to be gained, judgments about transferability of the findings must be made by the reader based on the description of the interviews with each participant. In addition, although every effort was made to interpret the data objectively, it is inevitable that the researcher's background as an early childhood program administrator and as a white, middle-class female colored the way in which information was interpreted. The guiding questions used to direct the interviews are provided in Appendix A to allow for replication of this study.

Three criteria were used to interpret the findings of this study. The first was to identify the curriculum activities taking place in the classroom over the course of the CDA training to see if the activities changed in their developmental appropriateness. The

second was to identify teaching techniques used by the participants to see if their approaches become more developmentally appropriate. The third criteria was to probe teachers for their goals and learning objectives for the children in their classrooms to see if these changed in developmental appropriateness over the course of the training.

Procedures

Data for the case studies were collected from multiple sources to allow for triangulation of data. In addition to the demographic and quantitative data which were collected from participants during the initial visit to the CDA class, a one-hour observation of each participant's CDA class, at the beginning of the class time for that particular session was conducted to gain an understanding of the environment in which the training was taking place as well as the instructor's teaching style. An observation of each participant's preschool classroom from approximately 9:00 a.m. to 10:00 a.m. was conducted to develop a point-of-reference for the upcoming interviews as well as to begin to develop an understanding of each participant's teaching style. Documents, including lesson plans and an autobiographical statement required as part of the CDA class, were also reviewed. Individual interviews were conducted over the course of the training to allow participants to describe in their own words, their current practices and the reasoning for these practices. Interviews ranged from one-hour to one and one-half hours. These data collection methods were considered the best and most efficient way to collect large amounts of descriptive data about the participants' classroom activities over the course of the training and their thought processes behind the choices they made.

The date for the classroom observations and the initial interviews were arranged as soon as possible after identifying the case study participants. Observation dates of the

two CDA classes were also arranged with the instructors within a few weeks of identifying participants. Guiding questions were used at each of the interview sessions to keep the conversations on topic and ensure that all participants were covering the same general topics. The loosely structured interviews were designed to capture an accurate picture of the types of activities carried out in the classroom and the reasoning behind these activities in order to assess how CDA training was impacting the teachers' beliefs and their self-reported practices. During the interviews, teachers were occasionally prompted for more information with questions such as "What was the purpose of that activity?" or "What did you hope the children would learn from the activity?" Table 10 notes the amount of CDA training participants had completed at each of their interviews.

Table 10

Number of Classroom Hours Completed at Each Interview

Participant	1 st Interview	2 nd Interview	3 rd Interview	4 th Interview
Lucy	32	56	88	120
Lynn	55	85	103	122
Amanda	37	89	122	N/A
Brittany	22	54	104	N/A

Participants

Four female preschool teachers participated in the qualitative portion of this study. They were selected from two of the 17 CDA classes which were part of the overall study. The early childhood educational background and CDA teaching experience of the two instructors were verified with early childhood experts familiar with

their teaching abilities to ensure the instructors were experienced and capable teachers. This confirmation helped minimize the differences in the results due to the influence of the instructor's abilities and also ensure the CDA classes observed were of a high quality.

Lucy's instructor, who I will call Laura (all names are pseudonyms), held a Ph.D. in Child Development. Her class, which was held in a local child care center was large with approximately 30 students. I observed the CDA class for approximately one hour at the beginning of the fourth session of the class, sitting in the back of the room. Other than obtaining consent forms for the observation from the students, I had no interaction with the class during the observation. All of the participants were women with the exception of one. The racial make-up of the class appeared to be about 25% Caucasian and the rest, persons of color, primarily African American. The instructor looked to be in her early 30s. She appeared to be Caucasian and was about 5'5" with short brown hair and a chubby build. She had a voice that was sounded child-like and interacted in a friendly manner with the students as they entered the room. The room in which the class was held was large and served as a large motor activity room for the childcare program. The walls in the room were unfinished plywood in some places and the wood floors were somewhat worn. The teachers attending the training sat at folding tables in folding chairs. Throughout my observation, there was a noisy fan running that made it very difficult to hear much of the time. I can only assume it was also causing similar difficulties for the students sitting in the back of the class as well. Laura's class was taught over seven months on 15 Saturdays for six hours each session.

Shelia, the instructor of the CDA class in which Brittany, Amanda, and Lynn were enrolled, was working on her Ph.D. Sheila appeared to be Caucasian and looked to

be in her late 50s. She had a medium build and red hair. This class of approximately 25 students was held in a college branch campus and lasted about four months. Classes were held on Thursday nights for four hours and some Saturdays for six and one-half hours. The room in which the class was held was in a nicely decorated classroom with matching carpet and upholstered chairs. The room was equipped with a ceiling mounted projector, a computer, and other electronic equipment. I observed Shelia's class for one hour during the beginning of the second class session. Both instructors were experienced at both teaching adults and teaching the CDA curriculum and received very positive references by the early childhood experts for whom they had taught.

The plan for participant selection was to conduct a purposeful sampling of volunteers, selecting four individuals who differed slightly based on their demographic data (e.g., motivation for taking CDA course, years of experience, position, etc.). At the time the pretest was distributed in the two CDA classes, a questionnaire was also distributed asking each participant if they would be interested in serving in the qualitative portion of the study. Of the 11 teachers who agreed to complete the pretest in these two classes, seven individuals expressed interest in the case study portion of the research. Two subsequently changed their mind and one was disqualified because she was working at an unlicensed childcare center. Of the four remaining, three were enrolled in one CDA class and the fourth was in the second CDA class. The lack of available willing participants resulted in a convenience sample. The demographic characteristics of the participants are described in Table 11. The preschool teachers who volunteered for the qualitative portion of the study received a \$25 gift card for their participation. The four

Table 11

Demographic Characteristics of Case Study Participants

Participant	Ethnicity	Experience	Position	Education Level	Education		Teacher:Child
					Maternal	Paternal	Class Ratio
Lucy	Caucasian	2 years	Lead Teacher	HS Only	> HS	> HS	1:9
Lynn	Caucasian	5 years	Lead Teacher	HS Only	HS/GED	MA+	2:19
Amanda	African American	5 years	Assistant Teacher	HS Only	Some college	BA	2:20
Brittany	African American	2 years	Assistant Teacher	HS Only	Some college	HS/GED	2:21

participating teachers worked in four different for-profit childcare centers teaching 3-5 year-old children.

Lucy was the only one of the participants who taught in a classroom by herself. Lucy's classroom was small in comparison to the others and had a maximum capacity of nine children. Lucy was about 5'6" tall with a heavy build and appeared to be Caucasian although she had somewhat dark skin. Lucy was in her early 40s. Her most notable feature was long curly hair almost to her waist, much of which was grey. During my observation, she wore a t-shirt and a long denim skirt with white tennis shoes and white ankle socks. Lucy was very welcoming and seemed genuine both in her responses to my questions and in her interactions with the children. Lucy's classroom was windowless with the exception of an adult height window into the hall. The room seemed to be an afterthought as some of the walls were an unfinished wood and it was very small. There were no bathroom or handwashing facilities in the room so the children always had to be taken to the bathroom and the water fountain as a group. Compared to the other classrooms observed, the classroom toys and supplies in Lucy's classroom were sparse. During my observation of her classroom, Lucy was very patient with the children and interacted in a caring manner, redirecting children and reminding them of class rules periodically throughout the observation.

Lynn was in her early 40s as well. She was about 5'8" with a medium build and Caucasian. She walked with a slight limp which she later revealed was due to having scoliosis as a child. Lynn was the lead teacher in her classroom and had relayed to me on the phone that her assistant was not very helpful or motivated. That certainly appeared to

be the case during my classroom observation. Lynn's classroom was large in comparison to Lucy's, with two windows and a glass door which provided access to and a view of the playground. According to Lynn, she had a capacity of 19 children in her classroom. Lynn seemed comfortable and in control of her classroom without appearing strict or rigid. The children seemed to know the classroom routines and moved around comfortably in the classroom during my visit.

Amanda was in her late 40's, about 5'8" with a medium build, and appeared to be African American. She was dressed neatly in khakis and a dark-colored shirt which was embroidered with the school logo. During my visit, Amanda did the bulk of the teaching and oversight of activities in the classroom while the lead teacher attended to administrative issues. Amanda later told me that they took turns taking the lead in the classroom. The classroom was very neat, orderly, and well stocked. When I arrived, Amanda was leading group circle time and it was immediately apparent that she expected children to listen and not speak unless called upon. Whether this was for my benefit or not, I was unsure.

Brittany appeared to be a young African American woman in her mid 20s. When I first arrived in her classroom, she was in the housekeeping center with some children pretending to eat the "food" they gave her. She had a child-like voice and interacted in somewhat of a playful manner with the children during my observation. Brittany wore khakis and a school t-shirt. She had a medium build and was about 5'5" tall. Her classroom was well stocked and had windows and a glass door which looked out into the play area. The classroom was decorated with displays of the children's work and activities and was abuzz with activity the entire time I was there. The children seemed

comfortable going about their business without much direction and when they received the signal (ringing bell) to clean up from free-choice time, they quickly and efficiently put everything away with little direction or prompting.

Data Analysis

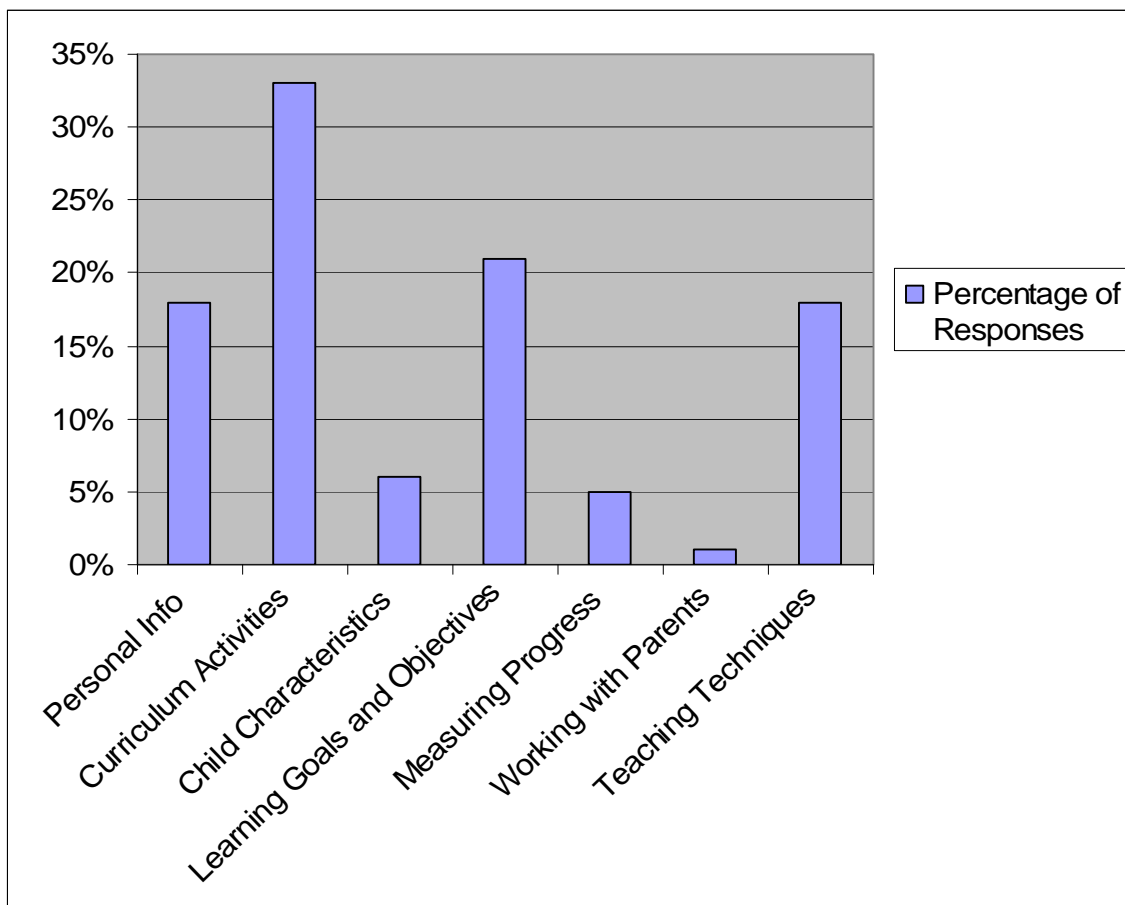
Interviews were audio-recorded and transcribed verbatim by college students. The transcribed interviews were then verified by the researcher and observer's comments were made regarding ideas which developed during the transcript review. The author employed the Constant Comparative Method (Glaser & Strauss, 1967) to organize and analyze data for recurring themes. As each interview was reviewed, short, two or three word descriptive phrases were used to condense and code the data. For example, if the participant talked about an activity she conducted in her classroom in which flash cards were used to teach letter recognition, this might be coded "letter recognition" to describe the goal of the activity and "flash cards" to describe the actual activity. An explanation about the requirement to do this activity by the administration of the preschool center might be coded "requirement". After the first round of interview transcripts had been coded in this manner, major categories were identified which encompassed the many descriptive codes that had emerged during the review. This open coding process was continued throughout the review of the remaining interviews and was also used to code the classroom observation that took place at the beginning of the study.

The analysis yielded 13 categories which were combined, modified or replaced during the subsequent stages of analysis that followed (Strauss & Corbin, 1990), resulting in seven categories: (a) Personal Info, (b) Curriculum Activities, (c) Child Characteristics, (d) Learning Goals & Objectives, (e) Measuring Progress, (f) Working

with Parents, and (g) Teaching Techniques. Figure 5 provides the breakdown, by percentage, of the seven categories into which interview responses and classroom observations were coded.

Figure 5

Coding Categories



Three of the seven categories which seemed to best answer the question, How do teachers' beliefs and self-reported practices change as they progress through CDA training?, were selected for further analysis. These three categories: (a) Curriculum Activities, (b) Learning Goals & Objectives, and (c) Teaching Techniques, made up 77%

of the data. The dialog coded as Curriculum Activities (37%) answered the question “What types of activities were taking place in the classroom?” Examples of activities included circle time, center time, and worksheets. Learning Goals and Objectives (22%) answered the question “Why were the activities conducted?” Examples of this category included helping children to get along with one another and teaching children how to concentrate. Items in the Teaching Techniques (18%) category answered the question “How were the activities carried out?” Examples included allowing children to choose from art materials placed on the table and requiring children to raise their hand to talk when they are in a large group activity. Table 12 provides a sample of the terms used to identify the collapsed data. Tables 13 through 15 provide abbreviated notes from the data analysis for each participant in each of the three categories.

The initial classroom observations helped to establish a frame of reference for the future interviews. They also gave insight into the way each teacher conducted her classroom. Lucy, the only teacher without a co-teacher, primarily worked with her nine children in one large group. When they were not participating in a group activity, Lucy provided oversight of their activities, primarily concerned with monitoring behavior. Adherence to the posted schedule seemed important to Lucy.

Lynn’s classroom had a family-type environment. Morning large group time was an opportunity for bringing together the “school family” and sharing with others in a supportive environment. Lynn’s emphasis on feelings and emotions was apparent throughout the observation.

Table 12

Sample Coding Phrases for the Categories of Curriculum Activities, Learning Goals and Objectives, and Teaching Techniques

Curriculum Activities	Learning Goals and Objectives	Teaching Techniques
Rituals	Social Skills	Valuing feelings
Free Choice	Personal Hygiene	Modeling
Centers	Personal Responsibility	Providing choices
Flash Cards	Independence	Parental Pressure
Large Motor Activities	Body parts recognition	Individualization
Group Activities	Letter Recognition	Making learning fun
Teacher-initiated Activities	Manners	Redirection
Small Group Activities	Phonemic awareness	Rote memorization
Worksheets	Encouraging time on task	Repetition

Table 13

Curriculum Activities – Summary of Classroom Observation and Interviews

	Classroom Observation	Interview #1	Interview #2	Interview #3	Interview #4
Lucy	*Teacher directed group art *Group manipulatives at tables	*Group activities * Center time	*Teacher directed group art	*Center time	*Teacher directed small group art
Lynn	*Center time *Large group sharing	*Center time	*Center time	*Classroom helpers	
Amanda	*Large group to review facts	*Tablework to work on skills *Small group *Large group	*Centers * Tablework to work on skills	*Tablework to work on skills *Centers *Art	N/A
Brittany	*Center time *Documentation of learning activities	*Hands-on activities *Center time	*Teacher directed art	*Reviewing concepts in large group *Center time	N/A

Table 14

Teaching Techniques – Summary of Classroom Observation and Interviews

	Classroom Observation	Interview #1	Interview #2	Interview #3	Interview #4
Lucy	<ul style="list-style-type: none"> *Teacher-directed group activities *Provide oversight during freeplay *Adherence to daily schedule 		<ul style="list-style-type: none"> *Discusses moving toward more child-choice activities *Kids need direction to do activities 	<ul style="list-style-type: none"> *Recognition of positive behavior *Incorporate learning goals into centers *Provide opportunity to make choices 	<ul style="list-style-type: none"> *Small group activities *Provide for free choice of activities
Lynn	<ul style="list-style-type: none"> *Focus on emotions and feelings *Provide opportunities for independence 	<ul style="list-style-type: none"> *Focus on positive 	<ul style="list-style-type: none"> *Allow children to play and interact on their own with minimal interruption to develop problem-solving skills 	<ul style="list-style-type: none"> *Provide opportunity for everyone to help *Welcome children to school family 	<ul style="list-style-type: none"> *Individualize activities based on developmental readiness
Amanda	<ul style="list-style-type: none"> *Strict adherence to schedule *Provide structure *Role of teacher is to provide oversight of activities 	<ul style="list-style-type: none"> *Direct instruction 	<ul style="list-style-type: none"> *Learning requires direct instruction *Quiet is necessary for concentration 	<ul style="list-style-type: none"> *Sitting at tables doing “work” 	<ul style="list-style-type: none"> N/A
Brittany	<ul style="list-style-type: none"> *Strict adherence to schedule *Interacting with kids during circle time 	<ul style="list-style-type: none"> *Interact with children 		<ul style="list-style-type: none"> *Use peer pressure to induce learning *Large group activities 	<ul style="list-style-type: none"> N/A

Table 15

Learning Goals and Objectives - Summary of Classroom Observation and Interviews

	Classroom Observation	Interview #1	Interview #2	Interview #3	Interview #4
Lucy	*Complete activity as noted on lesson plan		*Train kids to behave appropriately in free choice activities *Activities have predetermined outcomes, esp. art.	*Complete scheduled activities on lesson plan	
Lynn	*Empathy among children *Make children feel welcomed and part of school family	*Self-control *Conflict resolution *Character development *Social skills Development	*Be a nurturer for the whole child *Develop problem solving skills	*Encourage sharing and getting along *Make children feel valued	*Teach problem solving skills *Develop ability to make choices
Amanda	*Children must learn to listen to teacher and speak when spoken to	*Prepare children for Kindergarten	*Teaching children concentration skills	*Accomplish planned work	N/A
Brittany	*Ensure lesson plan activities are completed	*Carryout Pre-K Curriculum	*Make learning fun *Complete planned curriculum *Teach academics *Develop manners & respect	*Letter recognition	N/A

Like Lucy, Brittany also placed importance on adhering to the schedule. Unlike Lucy however, she was very interactive with her children during center time. Displays in Brittany's classroom revealed the importance of documentation of activities and also indicated the variety of learning activities taking place in this classroom.

Observation of Amanda's classroom suggested Amanda's belief that a teacher's role is to dispense information and a child's role is to quietly and respectfully receive the information. Large group time was an opportunity for rote learning and recitation, not for sharing and interacting. Even individual free-choice time seemed to have many rules, some spoken and some implied.

Emerging Themes

Three themes emerged in the data which describe how the beliefs and self-reported practices of the four teachers' changed, or didn't change, over the course of the study. The first theme was Reflection on Current Practices which describes a willingness by one teacher to consider the differences between her existing beliefs and practices and the new concepts introduced in the training. The second theme, Confirmation of Developmentally Appropriate Practices, was reflected by the one teacher who began the training with very developmentally appropriate beliefs. While The CDA class provided some new ideas for practice, it primarily seemed to confirm that her current practices were consistent with best practices. The third theme was Superficial Changes. The teachers described by this theme seemed to gain ideas for practices in the CDA class but did not seem to be reflecting about the information presented in the CDA class and the way they thought about or currently carried out their classroom activities. A

more detailed description of the three themes and how the teachers' observation and interview data led to the development of these themes follows.

Theme I. The Reflection on Current Practices Theme describes Lucy who seemed to be actively questioning her current beliefs and practices in the classroom. As noted by Posner et al. (1982), the ability to recognize that new information conflicts with currently held beliefs is the first step in changing those beliefs. The willingness to reflect on personal beliefs and try new ideas leads to personal change. During Lucy's initial interview, she reiterated what I had seen in the classroom. Activities on the lesson plan were carried out in a group format. Center time was considered free play in which Lucy's role was to supervise. By the second interview, Lucy began to comment about moving toward more child-choice learning activities. In addition to this more developmentally appropriate teaching style being presented in CDA training; she was also exposed to it in training the center was receiving to obtain a "Center of Distinction" designation from the state childcare licensing organization. Her dilemma, as reflected in the comment below, seemed to be how children of this age could be "trained" to complete projects, especially art, without direct supervision. This concern seemed to reflect a personal belief about the age at which children could be expected to be responsible for their own learning.

Like when we have art in the mornings, they [Center of Distinction] want it to be put out and offered to the children and if they want to participate they can, if they don't, then they can do something else....They don't want us to get all nine of 'em and say, "You sit at this table till we all get done with our art and then you can start getting up".

During our last few sessions, Lucy was talking more about teacher-directed small group activities as opposed to large-group activities, incorporating learning goals into

activities in the centers, and allowing children to choose among these activities. She also shared that she was openly questioning her center's administration about the conflicts between the more teacher-directed curriculum that she was expected to follow in the upcoming school year and the DAP philosophy. Lucy commented, "The last time we had a staff meeting, I brought up the idea that using A Beka [curriculum] is completely different from how Center of Distinction feels about things, and working that in together is sometimes hard".

When asked what she had learned in the CDA class, Lucy stated that she had learned why children act the way they do, age-appropriate behavior, and the benefits of small group instruction. Lucy's apparent struggle with her current practices as compared to practices recommended during CDA training and the center's quest for the Center of Distinction rating was illustrative of the first theme that emerged during data analysis, Reflection on Current Practices.

Theme II. The Confirmation of Developmentally Appropriate Practices theme describes Lynn who had strong developmentally appropriate beliefs and self-reported practices at the beginning of CDA training but still seemed to reflect on these beliefs and practices as she went through the training. As a result of the reflection, confidence in her currently held beliefs became stronger. Lynn began the CDA training already embracing the child-focused DAP philosophy, attributing this commitment to a mentor early in her career. "I want to be a nurturer for the whole child....And not just, okay, you need to know how to cut, and you need to know what the letter A is." Throughout our interviews, she spoke of developing empathy among the children, developing problem solving skills, and helping children feel valued. Examples provided by Lynn of her

classroom activities reinforced these stated goals. Classroom helpers were assigned to make children feel needed and a part of the school family. Intervention by the teacher during center time was primarily to individualize activities and provide “food for thought” or to assist with problem solving and conflict resolution. In response to the question of why she was so committed to DAP, Lynn provided the following comments.

I don't know why it is, except for, I see the difference....And the difference in what my children were able to do, social-emotionally and cognitively, compared to the other children, and the way they could solve their problems, and make their choices, based upon what I thought they should already be able to do, even the way they hold their pencil, or could cut. The other kids didn't get that at all.”

Lynn expressed that the material presented in the CDA training provided confirmation that she was on the right track. This seemed to be particularly important to Lynn because, as she shared during the interviews, she was receiving little support for her teaching philosophy at her current workplace. Lynn represents the second theme of Confirmation of Developmentally Appropriate Practices.

Theme III. The theme, Superficial Changes, describes Amanda and Brittany who completed the CDA training without exhibiting any indications that they were reflecting on their existing beliefs. As a result, instead of modifying their existing beliefs, they simply assimilated the new information into their currently held beliefs making it fit rather than resolving the conflict (Posner et al., 1982). Although Amanda and Brittany were both assistant teachers in state-sponsored pre-k classrooms, their teaching styles were very different with Brittany utilizing a hands-on, interactive approach to learning and Amanda practicing a teacher-directed teaching style.

Amanda seemed to remain committed to her current practices throughout the CDA training, and in fact, expressed in the later interviews that she would really prefer to

do more table work, typically considered a less developmentally appropriate practice. Learning discrete skills to prepare children for kindergarten seemed to be the goal of Amanda's teaching practices as expressed by this comment during our first interview, "...I know a lot of tablework, that's what they're gonna have to do once they get into like kindergarten, first grade. It's gonna be probably more tablework". This was accomplished with a strict traditional teaching style and seemed to be driven by a clear distinction between "work" and "play".

I guess, in playtime to me, the children are talking, and playing and stuff. And during quiet worktime, whenever they're doing sheets, or it can be like different little crafts that we have 'em do, ...but to me, it's like we try to tell the children, in order for them to concentrate,...you need to be quiet, and to them it seems like okay, this is more like work to them.

When asked what she had learned in the CDA training, Amanda identified specific topics and activities rather than a shift in overall teaching philosophy. She said the class taught her how to be better at her job by teaching her activities to calm and motivate children. Considering that Amanda's purpose for taking the course was "To learn classroom management techniques", it would seem that she had achieved her goal.

Brittany enjoyed getting on the children's level and making learning "fun". Both small and large group activities were utilized to teach concepts on the daily lessons plans, an important goal of Brittany's. Despite this seemingly developmentally-appropriate approach to teaching, large group activities seemed to be the most important forum for learning because, according to Brittany, they provided the opportunity to use peer pressure to help children learn. Free-choice time in the centers, on the other hand was "...just playing and not learning." According to Brittany, center time should be shortened "...just a little bit". It was during the activities noted on the posted schedule

where she considered learning to take place. Brittany expressed an unwavering reluctance to veer off of the posted schedule as illustrated by this comment during our first interview when I asked if the topic of photosynthesis, which she mentioned as a topic taught earlier in the year, would come up again later in the year. “No. It’s taught that one time, but then they [the children] ask you questions like ‘can we go back and do this one’ but we have to go onto the next thing that’s on the curriculum.”

Throughout our interviews, Brittany didn’t seem to question or waiver from her existing beliefs and classroom practices. Her continued commitment to her current beliefs and practices was reiterated by her response to the question of what she had learned in the class. “Teaching techniques” was her reply. It seemed that Brittany, rather than questioning her current practices during the training, instead gained knowledge about new practices without making the link to the child development theory behind these practices.

The lack of evidence of change in either beliefs or self-reported of Amanda and Brittany, over the course of the interviews, is representative of the third theme, Superficial Changes.

Responses on Measures of Beliefs and Self-Reported Practices

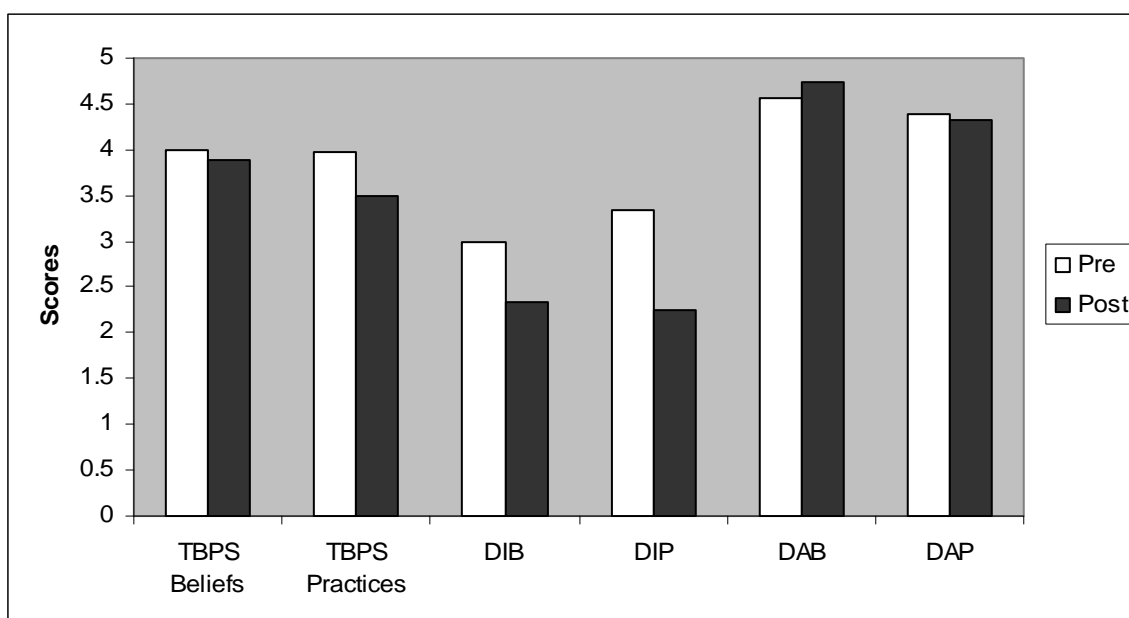
Pre- and posttest scores and individual responses on the TBPS Beliefs and self-reported Practices Scales and the TBPS subscales were compared to the themes that emerged from the observation and interview data. The ECSBP scores were not considered in the individual analyses because of the nonsignificant results in the quantitative analyses. The most puzzling discrepancy noted between the pre- and posttest scores and the qualitative analysis was for Lucy whose theme was Reflection on Current

Practices. Although Lucy seemed to truly be reflecting on the changes that would need to take place in her classroom in order to become child-centered, Figure 6 illustrates that her overall beliefs and self-reported practices scores became less appropriate over time.

Lucy's decrease in these two scales was due to an increase in inappropriate beliefs and self-reported practices (indicated by lower scores).

Figure 6

Lucy's Scores on Pre- and Posttest Measures of TBPS Beliefs and Practices and the TBPS Subscales



Note. DAB = developmentally appropriate beliefs; DIB = developmentally inappropriate beliefs; DAP = developmentally appropriate practices; DIP = developmentally inappropriate practices.

Upon reviewing her individual responses to the developmentally inappropriate beliefs and developmentally inappropriate practices statements, I noted that she had written in

the comment, “Due to Abeka program” beside the posttest inappropriate belief statement, “Workbooks and/or work sheets are ____ in my classroom”. Her selected response increased 1 point (from Fairly Important to Very Important) from pre- to posttest indicating stronger support of this rather inappropriate practice. Although there was no option to make comments on these surveys, some teachers did seem to feel the need to explain their responses in the margins. In Lucy’s case, it is very telling because it indicated she was stating a required practice as the justification for a stated belief.

Looking back at her interviews, I noted that Lucy rarely stated what she thought or believed but instead, stated what was expected of her and then tried to explain why this was agreeable to her.

They don’t want us to get, like I mean my class is nine children. They don’t want us to get all nine of ‘em and say, ‘You sit at this table till we all get done with our art and then you can start getting up.’ ...In a way it’s good because you can work with three or four at a time while the other ones play but sometimes the ones that are playing, they get to getting rough with each other and then you have to stop with the ones you’re with. I mean, it’d be different if you had two different teachers in there.

She goes on to explain her administrator’s belief behind the changes being made at the center.

Everything now they’re wanting to be a free choice. Ms. King says one of the things she sees good about it is whenever they get like four and five they’re going to pre-k and they’re going to regular school then they’re going to have rules and they’re gong to have to do whatever the teacher says and she said at three years old, she don’t think they should have to have those rules.

Later in the same interview, when I asked Lucy why she thought the center was encouraging teachers to incorporate more free-choice in the classroom, she responded “I really don’t know.” It seems that the mixed messages her program administrators were sending out by encouraging more child-directed activities while still mandating a teacher-

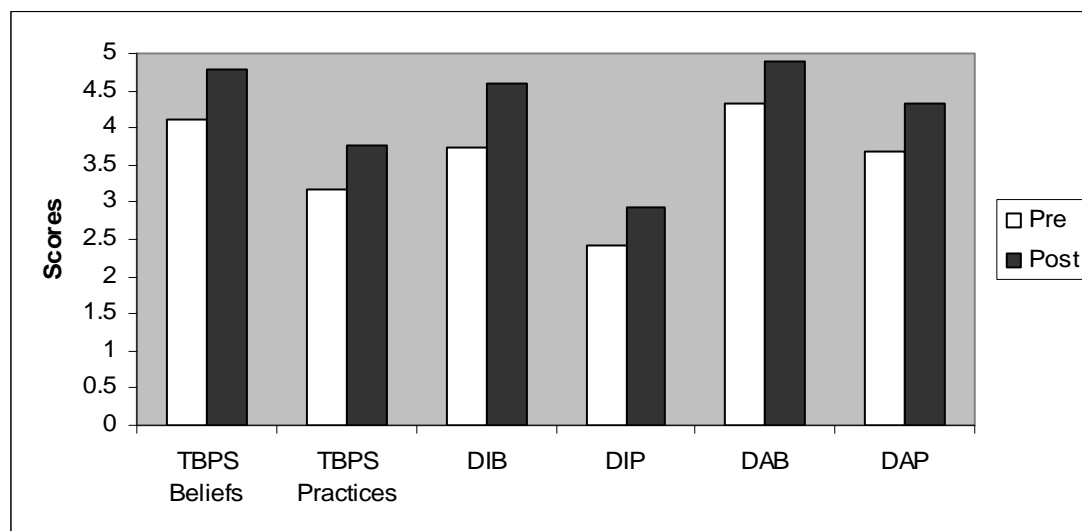
directed curriculum left Lucy somewhat confused as to what were truly best practices. So although the interviews indicated her reflection on how her current practices differed with the practices discussed in CDA training, the quantitative measures seemed to reveal only the practices that she reported actually implementing and these practices seemed to be intimately tied to the requirements of her mandated curriculum.

Lynn, not surprisingly, had an increase in scores on both the TBPS Beliefs and Practices Scales and the subscales as illustrated in Figure 7, indicating that her appropriate beliefs and self-reported practices became even more appropriate and that she held fewer inappropriate beliefs and reported practicing fewer inappropriate practices. So although she indicated during the interviews that this class was more of a confirmation of her existing beliefs rather than something novel, her scores on the quantitative measures indicated that she may well have been unconsciously reflecting on her existing beliefs and practices and, as a result of the affirmation she was receiving, adapting more appropriate beliefs and practices as well as discarding less appropriate beliefs and practices as a result of the training.

Figure 8 illustrates that Amanda's biggest change between pre- and posttest scores was on the developmentally inappropriate beliefs subscale. Her score improved by almost a full point which was somewhat surprising since her beliefs as expressed during the interviews didn't seem to change in appropriateness over time. It should be noted, however, that although she made a fairly substantial gain on the developmentally

Figure 7

Lynn's Scores on Pre- and Posttest Measures of TBPS Beliefs and Practices and the TBPS Subscales

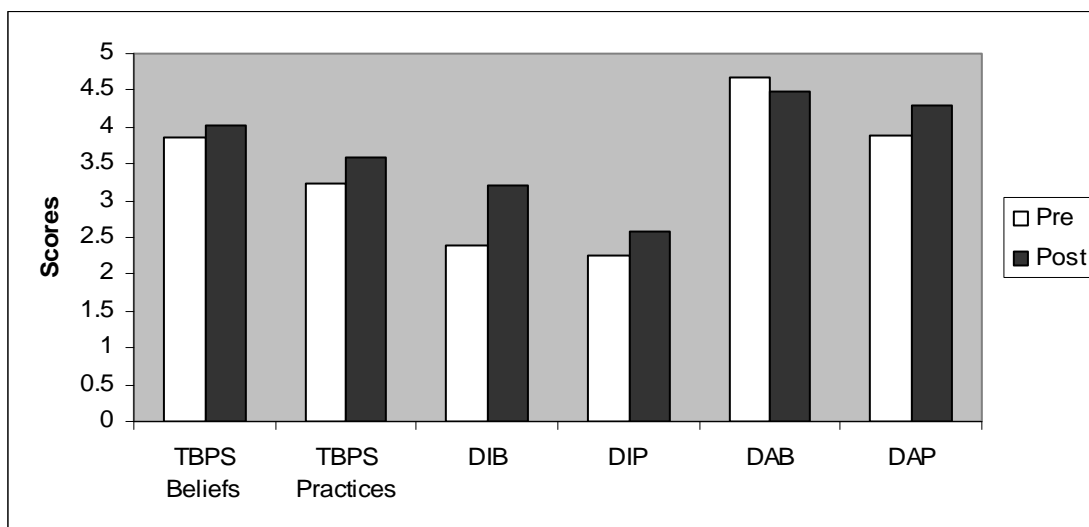


Note. DAB = developmentally appropriate beliefs; DIB = developmentally inappropriate beliefs; DAP = developmentally appropriate practices; DIP = developmentally inappropriate practices.

inappropriate beliefs subscale, indicating fewer inappropriate beliefs, her posttest score was lower than the mean score of the intervention group at pretest. So, although the quantitative measures indicated that the course did seem to have a positive impact on the inappropriateness of her beliefs, her posttest scores were fairly low (below 3) indicating that she still held many inappropriate beliefs despite the marked increase in her score. The absence, during Amanda's interviews, of any indication that she was reflecting on current practices and making classroom changes as a result of the CDA training may indicate that she was unaware she was adapting more developmentally appropriate beliefs and practices.

Figure 8

Amanda's Scores on Pre- and Posttest Measures of TBPS Beliefs and Practices and the TBPS Subscales



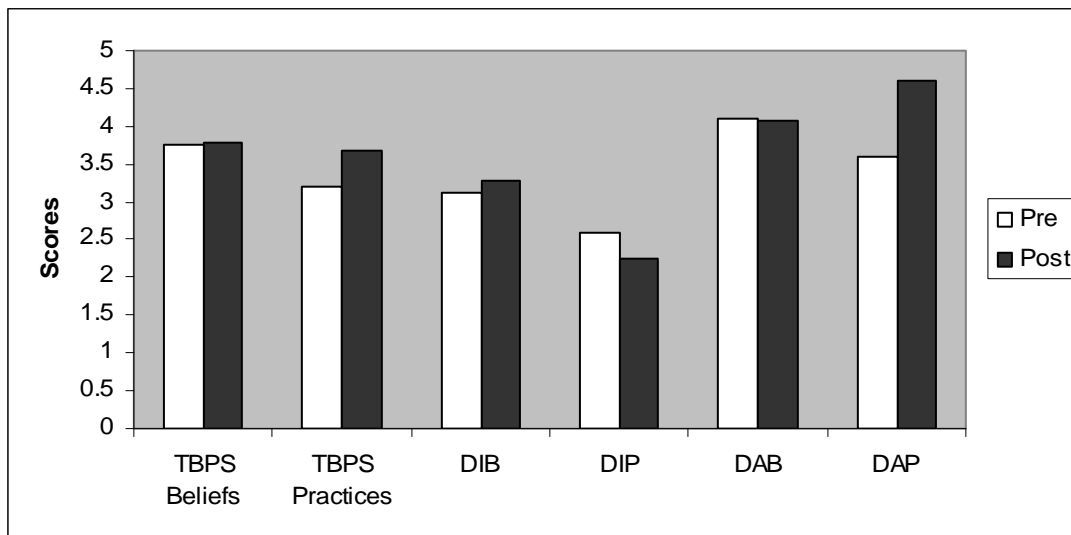
Note. DAB = developmentally appropriate beliefs; DIB = developmentally inappropriate beliefs; DAP= developmentally appropriate practices; DIP = developmentally inappropriate practices.

Brittany's scores on the TBPS reflected low beliefs scores that increased minimally. Her TBPS self reported practices scores showed a little more improvement over time, which, when looking at the developmentally appropriate practices and developmentally inappropriate practices subscales on Figure 9, was largely due to a large increase in the developmentally appropriate practices scores. Like Amanda, these changes did not become evident during the interviews so perhaps the increase in appropriate practices (and the decrease in inappropriate practices) Brittany reported taking place were happening without conscious thought about the changes. This seems promising, possibly indicating that although CDA participants may not be actively reflecting on how their

current beliefs and practices differ from those presented in training, practices can still be impacted in a positive manner.

Figure 9

Brittany's Scores on Pre- and Posttest Measures of TBPS Beliefs and Practices and the TBPS Subscales



Note. DAB = developmentally appropriate beliefs; DIB = developmentally inappropriate beliefs; DAP = developmentally appropriate practices; DIP = developmentally inappropriate practices.

Discussion

How does CDA training impact the beliefs and self-reported practices of preschool teachers? Does the training lead to reflection on current beliefs and self-reported practices and evaluation of their appropriateness according to the DAP philosophy? Are teachers willing to try recommended practices that may conflict with their implicitly held beliefs about the best way to teach young children? The results of

this portion of the study suggest that the willingness of teachers to reflect on current practices during CDA training varies based on outside influences supporting the concepts and DAP philosophy taught in the training and also personally held beliefs that the more child-centered approach to learning is a better way to teach children.

Lucy seemed to reflect the most about her current practices as they compared to the practices recommended in CDA training. This reflection may have been driven by the conflict between an encouragement by her administration to implement more child-centered activities in her classroom in order for the center to receive a Center of Distinction designation by the state licensing authority and a requirement to use a teacher-directed curriculum in the upcoming year. It was difficult to determine how her personal beliefs impacted her reflection process as her beliefs seemed intricately intertwined with the desires of her program administrator. This may have been driven by a belief that persons in positions of authority know what is best. Lucy did seem to hold a personal belief that young children were not capable of making their own choices of activities and methods for completing them which caused her to question how she was to implement child-centered practices such as free-choice during art activities with her children.

Lynn's child-centered philosophy was strong and seemed to be driven by the belief that children are capable individuals who can make their own choices and problem-solve without a great deal of adult intervention. Lynn seemed to consider the CDA training more of a confirmation that she was using best practices and did not express during the interviews any conflict with current practices and practices recommended in the training. Instead, she seemed to be considering ways she could continue to

incorporate developmentally appropriate practices into all aspects of her classroom activities.

Amanda's description of her classroom activities seemed to indicate a belief that a rigid drill and practice teaching technique was necessary to prepare children for kindergarten. Perhaps because her primary motivation for taking the training was to learn classroom management techniques, she was not as open or as motivated to compare her current practices to those presented in the training. Instead, she seemed content with acquiring ideas for teaching activities from the training.

Similar to Amanda, Brittany did not seem to be experiencing any conflict with her current teaching practices and the material presented in CDA training. Throughout our interviews, she rarely expressed any challenges with teaching her children so it may have been that she felt no need to look for alternative teaching techniques since her current practices seemed to be working.

The qualitative analysis suggests that the willingness by teachers to consciously reflect on current practices and be receptive to new philosophies of teaching has much to do with their motivation to change or improve their current practices. This motivation can come from outside sources such as with Lucy who was receiving direction from administrators to change her classroom practices or internal motivation such as with Lynn who believe strongly in the DAP philosophy coming into the CDA training program. As was the case with Amanda and Brittany, there seemed to be little motivation, either external or internal to change their existing practices. Regardless of the different experiences and beliefs that these teachers brought with them to the CDA training, each seemed to benefit from the training in some way. Lucy gained an understanding of the

differences between child-centered and teacher-directed practices. Lynn's continued support for a child-centered program and the passion and confidence with which she spoke about DAP indicated the confirming effect that CDA had on her existing beliefs. Amanda and Brittany both stated that they gained ideas for more appropriate practices in the classroom which may, over time, result in changes in their beliefs as they observe the success of these practices.

Although CDA training did impact these four individuals, the impact as evidenced in the qualitative analysis did not necessarily reflect the results of the individual survey findings or the group survey scores. This may have been a result of reflection taking place by the teachers that was not expressed in the interviews either because the interview questions did not probe this specific area in the same way it was addressed in the surveys or possibly a lack of awareness by the teachers that changes in their beliefs and practices were actually taking place.

Conclusions and Implications for Future Research

CDA training is an effective method for positively impacting the beliefs and self-reported practices of preschool teachers as measured on a group level by quantitative measures of beliefs and self-reported practices. However, qualitative interviews showed less evidence of positive changes about how teachers think about and implement developmentally appropriate practices over the course of the training. This suggests that the way teachers reflect on and talk about their current classroom practices is different than the way they respond to self-reports of beliefs and practices. It also speaks to the importance of research methodologies that probe teachers' beliefs and practices in different ways in order to obtain a more complete picture of the impact that training has

on these beliefs and self-reported practices and the role other factors play in the acceptance and implementation of new teaching concepts. The significance of the changes in beliefs and self-reported practices on the TBPS as compared to the non-significant changes on the ECSBP provides information about the characteristics of quantitative measures that may be the most effective for teachers with a limited formal education.

Comparing the TBPS and ECSBP scales, the preschool teachers in this study seemed better able to express their beliefs and self-reported practices using the more specific statements of beliefs and practices on the TBPS. The dichotomous broad statements of the ECSBP scales did not permit the participants to express both inappropriate and appropriate beliefs and self-reported practices but instead may have forced them to select a response in the middle of the scale (e.g., 5) if they held beliefs on both ends of the continuum of a developmentally appropriate (i.e., child-centered) to less developmentally appropriate (i.e. teacher-directed) philosophy. In addition, practices are not always either appropriate or inappropriate but must take into consideration the context of the situation (Bredekamp & Copple, 1997). The specificity of the individual statements on the TBPS allowed for this type of contextual consideration.

The correlations between the TBPS and ECSBP scales were much weaker in this study than in an earlier study comparing the two scales (Vartuli, 1999). One possible explanation is the teachers' education level in the two studies. Unlike the participants in the Vartuli study who were college educated teachers, most with master's degrees, few of the participants in this study had any college education. This may have influenced their ability to fully understand the instructions of the ECSBP. (Anecdotally, difficulty with

understanding the instructions of the ECSBP was noted among many of the participants.) The items on the TBPS scales, because they are more specific to particular activities in the classroom, may have been easier to understand for this less educated population of teachers than the broader theoretical constructs used on the ECSBP.

The ability to separate appropriate and inappropriate items on the TBPS allowed for a more detailed analysis of the changes in beliefs and self-reported practices as a result of the training. This study suggests that the inappropriate beliefs and inappropriate self-reported practices were the areas significantly impacted by the CDA training. This is important in light of findings that it is the inappropriate beliefs that impact self-reported inappropriate practices which directly impact classroom quality (Abbott-Shim et al., 2000). These results indicate the need for measures of beliefs and self-reported practices to concentrate more on inappropriate beliefs and self-reported practices and less on appropriate beliefs and self-reported practices as appropriate items may be more susceptible to socially desirable responses (McCarty et al., 2001).

Education may have also played a role in the teachers' abilities to describe the underlying beliefs behind their classroom practices in the open-ended interviews. The differences between the beliefs and self-reported practices expressed in the interviews and those of the self-report surveys of three of the four case study participants (Lucy, Amanda, and Brittany) suggest that teachers with less formal education may consider teaching from a more practical view of what activities they need to accomplish in the classroom rather than having a core set of beliefs which drive their daily decision-making (Abbott-Shim et al., 2000). The activities of these three participants seemed to be

strongly influenced by the curriculum they were implementing rather than implicitly held beliefs about best practices.

Future research on the effectiveness of CDA training and other professional development opportunities to increase the appropriateness of teachers' beliefs and self-reported practices and decrease inappropriate beliefs and practices should include observation of classroom practices to ensure that the practices teachers are reporting are actually taking place in the classroom. It would also be important to know if there are certain training materials and delivery methods that are more effective than others to achieve this goal. Although CDA training is based on eight clearly defined subject areas (Appendix B) and the amount of training is a mandated 120 clock hours, the teaching materials and methods to deliver these 120 hours vary widely from one program to another. A more detailed look at the demographics of the participants enrolling in various training programs and a thorough understanding of the motivations for attending training would also provide valuable information about the training choices made by various populations and how their motivations and current teaching experiences influence the impact of training.

Much of the research that exists on teacher education and training is correlational and has resulted in a "more is better" philosophy without providing causal evidence of the impacts of the various education and training programs. As can be seen with the teachers in this study, preschool teachers with no formal college coursework and little childcare teaching experience are often put into positions in which they direct or assist with the day-to-day planning and decision-making of the preschool classroom. For teachers such as these, alternative pathways to obtaining child development knowledge

are critical, not only to ensure they are adequately trained but also to maintain an equivalence of cultural backgrounds between children and caregivers (Brandon & Martinez-Beck, 2006). Identifying quality comprehensive training experiences such as the training for the CDA credential can help teachers change the way they think about teaching young children and better discriminate between appropriate and inappropriate practices.

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APPENDIXES

APPENDIX A

Guiding Questions for Participant Interviews

1. Tell me about yourself.
2. How did you become interested in becoming a preschool teacher?
3. What has been your experience in childcare?
4. Tell me about the people/events that have had the most impact on the teacher that you are now.
5. Tell me about the classroom in which you are assigned.
6. Tell me about the children in your classroom.
7. What is your role in the classroom?
8. Why are you taking the CDA class?
9. What are you hoping to learn in the class?
10. How long do you plan to work in the childcare field?
11. What are your education/training plans for the future?
12. Tell me about your goals for the children in your classroom. What do you want them to learn and be able to do when they leave your class?
13. Describe how you achieve these goals. What activities do you do?
14. How do you know if you have achieved your goals? How do you evaluate progress?
15. What is the teacher's role in the classroom?

16. How is it decided what to do each day?
17. Describe your curriculum.
18. Describe your daily schedule.
19. Describe an activity you might use for teaching math (letter recognition, writing, reading, etc).
20. If you are not in charge, what would you do differently if you were completely in charge of your classroom programming?
21. How do you acknowledge children who have done something positive?
22. Describe a situation in which you had to discipline a child.
23. Describe ways in which your families are involved with your classroom.

DAP Scenarios for Case Study Interviews

Creating a caring community of learners

- Give me some examples of how you accommodate children in your program who either have special needs or are not working at the same level as other children.
- How have your children responded to your special needs children? Give examples.
- Describe for me how your classroom set up changes during the year. For instance, do you change materials in the centers or the centers themselves? Do the centers/materials change depending on the themes you are using?
- How do you decide what materials to have in the centers and when to replace/change items?

- How does children's use of classroom materials change over the course of the year?
- How does having a daily schedule help the classroom function better?
- How would you handle the following situations:
 - During mealtime a child reaches for a bowl of food across the table and spills his milk.
 - A child comes to you very angry and tells you that another child has taken the toy he was playing with.
 - You notice two children in housekeeping fighting over the broom.
 - One child is chasing another child around the tables in the classroom.

Teaching to enhance development and learning

How might you handle the following situations:

- You have been trying to teach your children to push their chairs in when they get up from the table. Today, for the first time, you see Michael push his chair in when he gets up.
- It is Show and Tell time and Ben, who is shy, is trying to tell about his recent trip to the zoo but is having a hard time with the details.
- Andy is practicing writing his name but makes a "b" instead of a "d".
- You have a bean bag toss set up in the classroom and you notice that the kids are getting the bags in every time and becoming bored with the game.
- You've noticed that the kids are not real interested in the art project that you set up – mixing two colors of paint on a piece of paper by putting a dollop of paint on each side and then folding the paper. They come to the table, quickly fold the

paper and then get up and got play. What might you do to make the activity more interesting?

- Give me some examples of how you model appropriate or desirable behavior for the children (e.g., whispering when you want them to lower their voices.)
- Describe the process of how you teach children new to your classroom how to wash their hands.
- What types of things do you do in your classroom to promote the independence of the children?
- Describe for me the types of things you do in large groups, small groups, learning centers, and routine times (meals, arrivals, departures, etc.). Discuss the advantages/disadvantages of each type of setting.

Planning appropriate curriculum

- What curriculum do you use? Describe a typical day. Using examples from your curriculum, tell me about the learning experiences you might have for your children and the knowledge and skills you are trying to teach?
- Describe some activities that you might do in your classroom to prepare children to learn to read, write, do math, and become interested in science.
- Describe things about your curriculum that you chose because of the cultural backgrounds of your children.
- Describe activities that have taken place as a result of children's interests.
- Describe situations in which activities were extended because of children's interests.

Assessing children's development and learning

- Describe the ways you assess children in your classroom.
- What do you use (checklists, anecdotal records, etc.).
- When /how often do you do the assessments?
- Who does them?
- How is this assessment information used?
- How do assessments impact your curriculum?

Developing reciprocal relationships with families

- What are some things you do to establish positive relationships with your parents?
- Describe a situation in which a parent did not agree with the activities you were doing in the room and how was the situation handled?
- Discuss how you would handle the following situations:
 - A parent comes to you and says that your play-based curriculum is not challenging enough for her little Susie who is very smart. She would like Susie to do math workbook pages (which she provides) as well as practice writing her name and alphabet (she provides the paper and pencils). She wants Susie to do these at least 30 minutes each day.
 - Howie is the only child of an older couple. For a child his age, he does little for himself and is immature in his relations with his peers and you think it is because his parents baby him. How do you address this issue with his parents? How do you deal with Howie in the classroom?

APPENDIX B

CDA Education Subject Areas

Subject Areas	Examples
1. Planning a safe, healthy learning environment	Safety, first aid, health, nutrition, space planning, materials and equipment, play
2. Steps to advance children's physical and intellectual development.	Large and small muscle, language, discovery, art, music
3. Positive ways to support children's social and emotional development	Self-esteem, independence, self-control, socialization
4. Strategies to establish productive relationships with families	Parent involvement, home visits, conferences, referrals
5. Strategies to manage an effective program operation	Planning, record keeping, reporting
6. Maintaining a commitment to professionalism	Advocacy, ethical practices, work force issues, professional associations
7. Observing and recording children's behavior	Tools and strategies for objective information collection
8. Principles of child growth and development	Developmental milestones from birth through age 5, cultural influences on development

Note: CDA candidates must have completed at least 10 hours in each subject area for a minimum of 120 clock hours of education within the last 5 years (Council for Early Childhood Professional Recognition, 1996).